Santa Barbara County Air Pollution Control District
BACKGROUND PAPER – July 30, 2010

REVISIONS TO

RULE 321. SOLVENT CLEANING MACHINES AND SOLVENT CLEANING

BACKGROUND

The Santa Barbara County Air Pollution Control District (District) proposes modifications to Rule 321 to implement requirements for solvent cleaning machines and solvent cleaning. To fulfill commitments in clean air plans, the District needs to revise several rules that govern solvent use (Rules 321, 323, 330, 337, 349, 351, 353, and 354). This is the first of several rulemaking efforts to fulfill the solvent control measure commitments and it is focused on revising Rule 321.[a]

[a] The 2001 and 2004 Clean Air Plans indicate a new Rule 362 would be adopted to implement the new "general" solvent cleaning control measure. The District later decided to integrate these solvent cleaning requirements within existing Rule 321 and each of the appropriate operation-specific rules. Thus, the emission reductions shown in the 2001 and 2004 Plans for Rule 362 will be obtained by revising the existing rules and the existing control measures.

Rule 321, first adopted on February 24, 1975, applied to all organic solvent degreasing operations that involved the cleaning of surfaces before fabrication, surface coating, electroplating, or any other process. Rule revisions adopted on July 10, 1990 implemented Control Measure R-S-1 of the 1989 Air Quality Attainment Plan. The 1990 changes expanded the equipment design and operating requirements.

The District made the last significant modifications to Rule 321 in 1997. Those changes addressed rule deficiencies identified by ARB and U.S.EPA. They also incorporated the model rule provisions recommended in the Air Resources Board Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Organic Solvent Cleaning and Degreasing Operations. [Ref. 1]

The U.S.EPA approved Rule 321 for inclusion into the State Implementation Plan on April 2, 1999. [Ref. 2]

PROPOSED REVISIONS

The proposed revised Rule 321 contains solvent reactive organic compound (ROC) content limits, revised equipment requirements for degreasers, and sanctioned solvent cleaning devices and methods. These proposed provisions apply to two general categories: 1) solvent cleaning machines (degreasers), and 2) solvent cleaning done outside of solvent cleaning machines (e.g., wipe cleaning).

The District modeled the revised Rule 321 requirements on those adopted by the South Coast Air Quality Management District (SC) and the San Joaquin Unified Valley Air Pollution Control District (SJV). Staff also included Rule 321 exemptions and other provisions similar to those listed in the Ventura County Air Pollution Control District (VC) solvent rules.

This rulemaking effort also includes modifications to Rule 102 (Definitions) and Rule 202 (Exemptions to Rule 201) to provide rule clarity and for consistency with the revised Rule 321 provisions.

For existing solvent cleaning machines and existing solvent cleaning operations, the deadline to comply with the ROC content limits (and other equipment requirements) is one year from the date of adoption of the amended Rule 321.

The proposed revised Rule 321 requirements demonstrate that the District's Clean Air Plan to attain the California ambient ozone air quality standard provides for expeditious implementation of "every feasible measure" to reduce ozone precursor emissions (including ROC).

The District expects the proposed revisions to Rule 321 to result in about 0.5 ton per day of ROC emission reduction in Santa Barbara County. The cost-effectiveness of the rule revision is estimated to be between -$3,310 (cost saving) and $12,940 per ton of ROC reduced.

Sources that May be Affected by the Changes to Rule 102, Rule 202, and Rule 321

The Rule 321 provisions apply to sources performing solvent cleaning during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources.

There is a wide range of sources that will be affected by the revised rule. Many of the solvent cleaning machines and sources performing solvent cleaning are exempt from the requirement to have a Permit to Operate. Due to their permit-exempt status, the District is unable to specifically identify all sources using solvent cleaning machines and/or performing solvent cleaning.

Stationary sources that likely have solvent cleaning machines and/or are performing solvent cleaning that will be subject to the proposed revised Rule 321 are shown:

1. generically in Appendix A, and
2. by facility or company/agency name in Appendix B – data gleaned from the District permitting and innovative technology programs.

Staff estimates that there may be over 1,000 solvent cleaning machines in use at repair shops and manufacturing and production facilities in Santa Barbara County. Further, the number of sources performing solvent cleaning that will be subject to Rule 321 is estimated to be in the range of 100 to 200.

Solvent cleaning associated with other District operation-specific rules (e.g., 320, 325, 326, 330, 337, 343, 344, 349, 351, 353, or 354) will be exempt from the Rule 321 solvent cleaning provisions.

Rule 102, Definitions

The District proposes to add and modify several definitions that are used in various parts of the rulebook. Appendix C contains an annotated proposed amended Rule 102 with information on the origin of the new and revised definitions.

Rule 202, Exemptions to Rule 201

The District proposes to make minor revisions to Sections D, I, and U of Rule 202 (and the Rule 210 title throughout the rule). The reasons for such changes are outlined in the annotated proposed amended Rule 202 (Appendix D).

Rule 321, Solvent Cleaning Machines and Solvent Cleaning

Changes to Rule 321 will require more rigorous emission control techniques for solvent cleaning machines and establish solvent ROC content limits for solvent cleaning and cold solvent cleaners. Also, vapor cleaning machines using a solvent with an ROC content greater than 50 grams per liter shall require additional emission reducing devices.

Appendix E summarizes the significant revisions to Rule 321and Appendix F provides an annotated proposed amended Rule 321.

Appendix O provides the proposed amended rules without strikeout and underlined changes.

EMISSION REDUCTION / COST-EFFECTIVENESS

ROC Emission Reductions

Appendix G, Table 1, provides a breakdown of the projected emissions reductions for year 2011. Table 1 indicates that the total emission reduction from modifying Rule 321 is about 192 tons of ROC per year. Table 2 provides a comparison of the data developed for the 2007 Clean Air Plan and the currently projected emission reductions for calendar years 2015 and 2020.

Due to changes in the project, activity factors, and the inventory, the currently projected emission reductions for calendar year 2015 are about 390 pounds of reactive organic compounds per day less than those indicated in the 2007 Clean Air Plan. Despite the ROC emission reduction shortfall, the currently projected emission reduction for calendar year 2015 is about 192 tons per year, which represents a very large and important emission reduction for Santa Barbara County.

At the request of the regulated community, the District included emissions breakdowns for various categories (Appendix G, Tables 3 and 4). Although the contribution of emissions from point sources is relatively small, Rule

321 needs to apply to point sources per the "adopt every feasible measure" requirement.

Cost-Effectiveness

The cost-effectiveness of switching from high-ROC surface cleaning to low-ROC surface cleaning are shown in Appendix G, Tables 5 - 7. The cost- effectiveness data ranges from -$3,310 (savings) to $12,940 per ton of ROC reduced.

According to the SC cost-effectiveness analysis for the 1997 Rule 1122 amendments, the overall cost-effectiveness was $1,379 per ton of ROC reduced for solvent cleaning machine modifications. That analyses included the costs of vapor degreaser freeboard extension kits ($2,000 per unit), automated parts handling systems ($4,000 per unit), and retrofitting extended freeboards and freeboard chillers ($7,100 per unit). [Ref. 3]

The cost-effectiveness for solvent cleaning (changing from high ROC solvents to compliant solvents) ranges between -$990 (cost savings) to $2,167 per ton of ROC reduced. [Ref. 4]

Incremental Cost-Effectiveness

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a regulation that identifies more than one control option to meet the same emission reduction objectives. Incremental cost-effectiveness is defined as the difference in costs divided by the difference in emission reductions between one level of control and the next more stringent level of control.

Rule 321 regulates solvent cleaning machines and solvent cleaning. Compliance by equipment modifications and the substitution of materials is expected. No alternative emission control scenario is available.

ANALYSIS OF EXISTING FEDERAL AND DISTRICT REGULATIONS

Appendix H contains the written analysis required by the California Health & Safety Code Section 40727.2 requirements.

COMMENTS AND PUBLIC MEETINGS

Comments

The District received and responded to an extensive amount of comments on the proposed revised rules during the development stages. Staff consolidated these comments and responses into Appendix I, Clarification of Rule Issues. Comments received during the formal public comment period preceding the Board adoption hearing on the proposed rule changes and staff's response to these comments will be presented to the District Board of Directors as part of the rule adoption process.

Public Meetings

CLEAN SLATE WORKSHOP, MAY 21, 2003

Industry representatives were concerned about requiring low-ROC solvents for surface preparation prior to vehicle painting. They indicated that past attempts to use compliant solvents to remove road tar from vehicles were not successful.

One industry representative requested that the rule provide an exemption for isopropyl alcohol (IPA). Further, if IPA use is subject to the rule, hospitals, schools, technical universities, and prisons (that have auto body shops) should be subject to the rules. A concern about making the provision apply to ozone depleting and global warming compounds was expressed.

An oil industry representative mentioned that there needs to be an exemption for cleaning analytical equipment or a provision to allow the use of hexane. Additional discussions involved rule applicability, exemptions, enforcement, and recordkeeping requirements.

SCOPING WORKSHOP, AUGUST 5, 2008

Attendees voiced concerns about hospital use of isopropyl alcohol for general surface cleaning and how these emissions would not be subject to the proposed amended rule. It was agreed that the rule support document should mention the emission rate from such use. Further, a specific hospital exemption should be added.

Turbine cleaning activities and the applicability of the gas/liquid-path cleaner provisions in the existing rule were discussed. The District requested that a description of the turbine cleaning operation be provided.

Platform operators indicated there are concerns that the use of low-ROC solvents will present a water quality discharge compliance issue. Their current practice is to clean up crude oil spills by using petroleum-based solvents. The run-off of waste solvent is collected and directed into the petroleum product stream. Under the proposed requirements, the wastewater from use of aqueous solvents would need to collected and treated differently. District staff indicated that additional research on this issue will be performed.

There were some discussions on the general approach being taken to regulating solvent use:

1. Some representatives were concerned about the command and control approach taken by other air districts and the move to outlaw and criminalize certain chemicals, especially when the sources using the materials are subject to District permits.

2. Another concern raised by the regulated community was that some solvent cleaning permits have conditions limiting solvent use in pounds of emissions per day; the reduction in the ROC per gallon limit won't affect the permit conditions. Also, the permitted emissions have been offset; the source has paid for the right to emit at a certain level, and should not be required to lower the ROC emissions by the revised rule provisions.

On issue 1, staff explained that we were proposing to meet the Clean Air Plan requirement to implement every feasible control measures. One indicator of a rule meeting the every feasible measure requirement is if the technique has been successfully adopted and implemented in other air districts. The proposed revised requirements have been adopted in the South Coast Air Quality Management District and the San Joaquin Valley Unified Air Pollution Control District for quite some time. The ROC limits we will be proposing will take into account the needs for specific industries. Further, many of the devices to be controlled by the revised rule are permit exempt.

Regarding issue 2, there was discussion on the differences between prohibitory rule provisions and the New Source Review rule provisions.

The regulated community wants the 55 gallons per year wipe cleaning permitting threshold in Rule 202.U.3 to be increased to acknowledge or address the requirement to use lower ROC solvents. A source should not be limited to the 55 gallons per year provision, which was intended for high-ROC solvents. The District indicated that it did not envision issuing more permits based on the Rule 321 changes. Further, staff would look at ways to address the incongruity of requiring permits for currently unpermitted solvent wipe cleaning operations that would exceed 55 gallons per year as a result of using Rule 321-compliant low-ROC solvents, but have decreased emissions as compared to high-ROC content solvents.

The need for Rule 321 exemptions was also discussed. Some participants urged the District to provide an exemption for wipe cleaning with isopropyl alcohol. Others recommended that the San Joaquin Valley Unified Air Pollution Control District 55 gallons per year exemption be included.

Clarification of the proposed ROC solvent limit for aerospace was requested. There is a concern on what the ROC limit will be for solvents used in cleaning clean rooms. Staff indicated that they would look into how other air districts have handled such specific cleaning operations.

RULE DEVELOPMENT WORKSHOP, JUNE 25, 2009

Comments received during this workshop included:

1. Concerns on the emission inventory, calculations for the emission reductions, and emissions from janitorial services and hospital use of IPA.

2. The relative low emissions and emission reductions projected from stationary sources in comparison to those from area sources.

3. Concerns on how the District will enforce the requirements on unpermitted (area) sources.

4. Desires to get clarification on certain aspects of the rule; suggestions on clarifying text and additions to the rules and/or the background paper.

5. How certain exemptions would not be useful without revisions.

6. Requests that the District not make the Rule 321 requirements applicable to solvents that contain toxic air contaminants (i.e., under the proposed amended rules, solvents otherwise exempt due to having a low ROC content would be subject to the rule if they contained TACs above two percent).

Staff indicated that they would continue to work with the regulated community on the issues and respond to their requests for information. Appendix M contains a list of toxic air contaminants.

COMMUNITY ADVISORY COUNCIL MEETING, SEPTEMBER 23, 2009

The District asked the Community Advisory Council (CAC) to provide recommendations on two Rule 321 rulemaking key issues:

1. Should the project include toxic air contaminants (TACs)?

2. Should the "general solvent use" limit be 25 or 50 grams of ROC per liter?

The CAC passed motions recommending that the project not include TACs and that the limit be at 50 grams per liter.

COMMUNITY ADVISORY COUNCIL MEETING, JULY 14, 2010

The CAC passed a motion to recommend that the Board approve the proposed amended rules with two changes: move the definition of "solvent" that includes the "toxic air contaminant" caveat from Rule 102 into Rule 321 and put the old Rule 321 "solvent" definition in Rule 102 . The CAC felt there could be unintended consequences if the "solvent" definition in Rule 102 included a TAC facet because Rule 102 definitions apply throughout the rulebook.

PUBLIC HEARING ON THE ADOPTION OF THE PROPOSED AMENDED RULES, SEPTEMBER 16, 2010

The Board is scheduled to consider the adoption of the revised rules at the September 16, 2010 Public Hearing.

COMPARISON OF ADJOINING AIR POLLUTION CONTROL DISTRICT RULES

Appendix J provides a comparison of the San Joaquin Valley Air Pollution Control District (APCD), Ventura County APCD, and the San Luis Obispo County APCD rules on permit exemptions and requirements for solvent cleaning machines and solvent cleaning. Basically, there are general similarities with some minor differences between the adjoining air district rules and the proposed amended rules.

IMPACTS OF THE REVISED RULES TO INDUSTRY AND THE DISTRICT

Details of the impacts from the rule revisions are summarized in Appendix K. The rule revisions will cause impacts to the regulated community and District staff by:

1. Requiring a permit for a source that uses certain compounds in excess of one gallon per year.
2. Expanding the scope of applicability of Rule 321 to include solvents that contain toxic air contaminants.
3. Requiring the application and verification of control techniques to comply with the Rule 321 requirements.
4. Increasing existing or creating new operating and monitoring costs.
5. Reducing solvent costs for some sources due to the use of lower-ROC content solvents.

To assist sources in determining attributes of various solvents, the District has included a Solvent Information Table in Appendix N.

REFERENCES

1. Air Resources Board, Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Organic Solvent Cleaning and Degreasing Operations, July 18, 1991.

2. Federal Regulation citation: 63 FR 5922, April 2, 1999.

3. South Coast Air Quality Management District, Final Staff Report for Proposed Amendment to Rule 1122 - Solvent Degreasers, June 6, 1997.

4. San Joaquin Valley Unified Air Pollution Control District, Final Staff Report: Organic Solvent Cleaning Project, Appendix A, December 20, 2001.

APPENDICES

Appendix A: Generic Types of Stationary Sources that May Have Solvent Cleaning Machines or May be Performing Solvent Cleaning that Will be Subject to the Amended Rule 321
Appendix B: Facilities that May Have Solvent Cleaning Machines or May be Performing Solvent Cleaning Subject to Proposed Amended Rule 321
Appendix C: Annotated Proposed Amended Rule 102, Definitions
Appendix D: Annotated Proposed Amended Rule 202, Exemptions to Rule 201
Appendix E: Summary of Significant Changes to Rule 321, Solvent Cleaning Machines and Solvent Cleaning
Appendix F: Annotated Proposed Amended Rule 321, Solvent Cleaning Machines and Solvent Cleaning
Appendix G: Summarized Data on Emission Reductions, Emissions, and Cost-Effectiveness
Appendix H: Identification of Existing Federal and the Santa Barbara County Air Pollution Control District Regulations that Apply to the Same Equipment or Source Type Covered in Rule 321
Appendix I: Clarification of Rule Issues
Appendix J: Comparison of the Adjoining Air District Permitting and Prohibitory Rules for Solvent Cleaning Machines and Solvent Cleaning
Appendix K: Impacts from the Revised Rules
Appendix L: Flowchart Overviews of Proposed Amended Rules 202 and Rule 321
Appendix M: List of Toxic Air Contaminants
Appendix N: Solvent Information Table
Appendix O: Proposed Amended Rules Without Strikeout and Underlined Formatting

Appendix A
Santa Barbara County
Generic Types of Stationary Sources that May Have Solvent Cleaning Machines or May be Performing Solvent Cleaning that Will be Subject to the Amended Rule 321

Aircraft and Aerospace Vehicle Parts and Products Manufacturing Facilities
Airports
Agricultural Mills
Asphaltic Concrete Batch Plants
Automobile Repair Shops
Bulk Fuel Plants
Concrete Batch Plants
Correctional Facilities, Prisons, and Jails
Electronic Device Manufacturers
Gas Stations with Maintenance Bays
Landfills
Lawnmower Repair Shops
Machine Shops
Manufacturing Plants
Medical Device Manufacturers
Military Installations
Mineral Processing Plants
Pharmaceutical Manufacturers
Refineries
Repair Shops
Satellite Parts, Products, and Payload Manufacturing/Handling Facilities
Silicone Manufacturing Plants
Spaceports
Tire Shops
Wastewater Treatment Plants
Water Filter Manufacturing Facilities
Water Treatment Plants
Wineries & Breweries

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Appendix B
Santa Barbara County
Facilities that May Have Solvent Cleaning Machines or
May be Performing Solvent Cleaning Subject to Proposed Amended Rule 321[a]

Table 1. FACILITIES LISTED IN THE AIR POLLUTION CONTROL DISTRICT INTEGRATED DATA SYSTEM

FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]	FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]
2463	Advanced Vision Science	X	X	9664	First Nano, Inc.	X	
10084	Allergan Corporation	X	X	8676	Foristar Methane Group, LLC		X
1152	Bardex Corporation		X	10453	GRT, Inc.	X	
3794	BEGA/US	X		4487	Helix Medical, Inc., Medical Device Mfg		X
10291	Calient Networks, Inc	X		9745	Indigo Systems	X	X
12	Celite		X	10789	Inlustra Technologies, LLC	X	
1294	Channel Industries, Inc.	X		10867	Innovative Micro Technology, Inc. (IMT)	X	
4545	Cree, Inc.	X		1634	International Transducer Co.	X	X
3778	Den-Mat Corp.	X		4583	Karl Storz Imaging, Incorporated		X
3858	Digital Instruments		X	1670	Kilovac Corporation	X	X
8709	Dupont Displays		X	9424	Lockheed Martin (Santa Barbara Focalplane - operator)		X
10307	Dupont Displays (600 Ward Dr)		X	4455	Magretech, Incorporated	X	
1074	E & B Natural Resources	X		4635	Medtronic PS Medical		X
1477	Electro Optical Industries	X		1820	Microwave Applications Group		X
1480	Essex Electronics, Inc.	X	X	6100	National Aeronautics & Space Admin.	X	X

[a] Appendix B information is based on 2007 data from several District programs and is not intended to be an all-inclusive listing of facilities to be subject to the revised Rule 321. The mailing list for this rulemaking project includes over 800 potential sources that may be subject to the proposed amended Rule 321.
[b] Sol. Cln = Solvent Cleaning and SCM = Solvent Cleaning Machine.

FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]	FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]
1880	Neal Feay Company	X		4644	Sonatech, Inc.	X	
2361	Nusil Technology	X		10436	Space Exploration Technologies	X	
4617	Pacific Hydraulic Systems	X	X	8698	Spaceport Systems International		X
8934	Pacific Scientific, EKD	X	X	2758	Special Technologies Laboratory		X
3890	Raytheon, Bldg B-8	X	X	10341	Superconductor Technologies, Inc.	X	
4140	Raytheon, Bldgs B1, B2, B3, and B6	X	X	1900	The Okonite Company		X
1971	Raytheon, Hollister	X	X	3640	Trisep Corporation	X	
8742	Raytheon, Lompoc	X		3970	United Launch Alliance, LLC	X	
9684	Raytheon, VOCs		X	206	United Launch Alliance, LLC	X	
4574	Renco Encoders, Incorporated	X	X	00201 (+ Others)	Vandenberg Air Force Base, Solvents (general)		X
4621	Silicone Technology	X		10105	Veeco Instruments	X	
3750	Skate One Corp.		X				

Table 2. AUTOMOBILE REPAIR FACILITIES

A & A Import Service	Airport Motors	Anderson Custom Boats	Auto Pro
A & B Glass	Al Williams Carburetor & Electric Co.	Andy's Mobil Lube & Auto Service	Automotive Concepts
A 1 Smog & Repair	Alamar Automotive	Anvil Motor Sports	Automotive Service Center
AAMCO Transmission	Alisal Guest Ranch and Resort (Alisal Ranch Golf Course)	APW Automotive Services	Automotive Systems Laboratory, Inc.
Advanced Automotive	Alisal Guest Ranch and Resort (Alisal River Golf Course)	A-Smog-It	Automotive Tech Group, Inc.
Advanced Automotive Services	Allan Hancock Community College	ATG Automotive Technicians Group	AutoProfessionals
AGS Rebuilders	Anacapa Mobile Service	Auto Parts Restoration	Ayers Repairs

Bear Automotive	Casey's Garage	Dimauro's Honda Service Center	Granny's Garage
Ben's Transmission Service	Cetti Services- Goleta	Discount Tire Centers	Guadalupe Union School District
Bianchi Motor & Auto Body	Channel City Auto Body	Dos Pueblos High School	H&R Motors
Big Brand Tire Co., Carrillo St.	Channel City Engineering	East-West Motors	Haik's German Autohaus
Big Brand Tire Co., Fairview Ave.	City of Santa Barbara Motor Pool	Eric Krebs Automotive	Hein Motor Repair
Big O Tires	Clark Motors	Fairview Shell Auto Care	Higgins Muffler & Brake
Blanquette Automotive	Coast Muffler & Brake	Fairview Unocal Service & Carwash	Hughes Automobile Company
Bob Joehnck Automotive	Coast Village Shell	Falcon Crest Tire & Service	Ian's
Bob Woolever's Tire Shoppe, Hollister Ave.	Coastline Auto Repair	Fast Lane Oil Change, Milpas St.	Import Auto Parts Machine Shop & Parts Store
Bob's Auto Salon	Cooper Automotive	Fast Lane Oil Change, State St.	Imported Auto Service
Bob's Garage	Cory Motors	Fast Undercar, Inc.	Independent Lexus & Infiniti
Bob's Import Auto Service	Cutter Motors	Firestone Tire & Service Centers	Iversen Motor Co.
Bowman's Auto Repair	Cycle Werks	Fred Import Auto Service	J & S East Valley Garage
Bruce's Auto Repair	D & D Truck Service	Garcia's Auto Repair	J V Enterprises
Buellton Union Elementary School District	D & G Automotive	George Thorpe	JAE
Burley's Bimmer Service	Dal PozzoTire Corp., Chapala St.	GM Auto & Smog	Jenson Chevron Service
Bush's Automotive Repair	Dal PozzoTire Corp., Milpas St.	Goleta Chevron Service	Jiffy Lube, Hollister Ave.
Byrd Harvest	Dal PozzoTire Corp., Pine Ave.	Goleta Radiator Service	Jiffy Lube. De La Vina St.
C & S Automotive	Dave Scholl automotive	Goleta Transmission	Jim Vreeland Ford
Carburetor & Electric Co.	Dave's Auto Repair	Goleta Union School District	John Howe West, Inc.
Carpinteria Automotive	De Nunzio Racing Products	Goodyear Tire Center	John Hurley Automotive
Carpinteria Union School District	Der Volks Werks	Graham Chevrolet-Oldsmobile-Cadillac	John's Mobil

Jose Antonio Huerta	Mireles Automotive	Precision Automotive	Santa Barbara Honda
Ken Symer Automotive	Mission Uniform Service	Quality Automotive Repair	Santa Barbara Mobile Auto
Kennedy's Automotive Center	Mitchell International	Raffetto & Co.	Santa Barbara MTD
Klaus Braun Automotive	Motor Brake & Wheel Svc	Razon Transmission	Santa Barbara Nissan, LLC
Lang Motors	Muller & Goss	Reliable Repair	Santa Barbara Radiator
Lara Auto Repair	Muñoz's Auto Repair	Richard's Accurate Import Serv.	Santa Barbara School District
Larry's Auto Parts	National Motors Mobile Repair	Rick's Auto Repair	Santa Barbara Smog Shop
Las Positas Mobil Service	Nespor's University Auto House	Rio Vista Chevrolet	Santa Barbara Transmission Service
Loesche's Custom VW Service	O'Brien Maintenance & Repair	Risdon's 76 Service	Santa Barbara Transportation
Lompoc Union School District	Olive Mill 76 Service Center	Rizzoli's Automotive	Santa Barbara Transportation, Hollister Ave.
Love's Towing	Olivera's Repair	Rob's 4 Wheel Drive & Fab	Santa Barbara Transportation, Jason Way
Mac Tools	Orcutt Union School District	Rob's Union 76	Santa Barbara Volkswagen
Mahneke Motors	Oswald's Auto Repair	Rosebro Garage	Santa Maria Area Transit
Mariah Motorsports-Design Energy, Inc.	P. C. Automotive	S D Autoparts	Santa Maria Joint School District
Martyn Motors	Pep Boys	San Marcos High School	Santa Maria School District
McCormix Corporation	Performance Rebuilders	Santa Barbara Auto Refinishing	Santa Ynez Valley School District
MD Auto Repair	Perry Lincoln Mercury Mazda	Santa Barbara Automotive	SB American Fuel & Service
Mel Clayton Ford	Perry's Auto Parts & Service	Santa Barbara Chrysler Plymouth Jeep Eagle	Schneider Autohaus, Santa Barbara
Mesa Union 76	Pichard's Auto Repair	Santa Barbara City College	Schneider Autohaus, Lompoc
Michael Fitzpatrick Auto Body	Pickle Auto Repair	Santa Barbara County, Vehicle Operations Division	Scott's Mobile Automotive Repair
Mike Loredo Chevron	Powell Garage	Santa Barbara County, Vehicle Operations Division - North County	Smitty's Towing
Milano Motors	Precision Auto Body and Paint	Santa Barbara Electronic Service	Smog-It

Snap On Tools, Cadiz Ct.	Technomotive	Tor's Saab	United States Dept. of Agriculture, Forest Service, Los Padres National Forest
Specialty Tool & Bolt	The Auto Works of Santa Barbara	Toyota of Lompoc	Valley Automotive Services
Star-Tech Auto Repair	The Engine Company	Toyota of Santa Barbara	Village Automotive Repair
Stirling Mobile Repair	The International Autohaus	Toyota of Santa Maria	Voigt's Truck & Auto Service
Stuttgart Motors	The Jag Shop	Trans-King Transmisisons	Westside Auto Repair
Superior Brake & Alignment, Fairview Ave.	The Shop	T's Air Conditionaing & Repair	Winning Makes
Superior Brake & Alignment, Figueroa St.	The Smog Center	Turnpike Unocal	
Swedemaster	TM Auto Repairs	Under The Hood Automotive	
Tam's Imported Car Repair	Toby's Engine Parts	Union 76	

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Appendix C
Santa Barbara County
Annotated Proposed Amended Rule 102, Definitions

RULE 102. DEFINITIONS. (Adopted 10/18/1971, revised 1/12/1976, readopted 10/23/1978, revised 7/11/1989, 7/10/1990, 7/30/1991, 7/18/1996, 4/17/1997, 1/21/1999, 5/20/1999, 6/19/2003, 1/20/2005, 6/19/2008, ~~and~~ 1/15/2009), and [*date of revised rule adoption*])

These definitions apply to the entire rulebook. Definitions specific to a given rule are defined in that rule or in the first rule of the relevant regulation. Except as otherwise specifically provided in these Rules where the context otherwise indicates, words used in these Rules are used in exactly the same sense as the same words are used in Division 26 of the Health and Safety Code. [*Link to Note No. 1*][a]

[. . .]

"Application Equipment" means a device or equipment used to apply solvent, sealant, adhesive, coating, ink, or polyester resin materials. [*Link to Note No. 2*]

[. . .]

"Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.

[. . .]

"Cured Adhesive, Cured Coating, or Cured Ink" means an adhesive, coating, or ink that is dry to the touch.

[. . .]

"Degreaser" has the same meaning as **"Solvent Cleaning Machine."** [*Link to Note No. 3*]

[. . .]

"Flexographic Printing" means any printing method in which the image area is raised relative to the non-image area and utilizes flexible rubber or other elastomeric plate and rapid drying liquid inks. [*Link to Note No. 4*]

[. . .]

"Janitorial Cleaning" means the cleaning of building or facility components including, but not limited to, floors, ceilings, walls, windows, doors, stairs, bathrooms, furnishings, and exterior surfaces of office equipment; excluding the cleaning of work areas associated with:

1. research and development, manufacturing, and repair activities; and

2. laboratory tests and analyses (including quality assurance and quality control activities) and bench scale projects.

[. . .]

[a] Notes concerning the proposed new Rule 102 definitions are within a table starting on Page C-6. When using a computer to view this material, use a link to get to a note by clicking the left mouse button over the "*Link to Note No.*" text.

"Organic Solvents" means organic materials, including diluents and thinners which are liquid at standard conditions and which are used as, dissolvers, viscosity reducers or cleaning agents, except that such materials which exhibit a boiling point, as measured using ASTM D 1078-05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International, higher than 220°F at 0.5 millimeter mercury absolute pressure or having an equivalent vapor pressure shall not be considered to be organic solvents unless exposed to temperatures exceeding 220°F.

[. . .]

"Photochemically Reactive Solvent" means any organic solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of organic solvent;

1. combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones, having an olefinic or cyclolefinic type of unsaturation: 5 percent, or
2. combination of aromatic compounds with 8 or more carbon atoms to the molecule, except ethylbenzene: 8 percent, or
3. combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the above groups of organic compounds, it shall be considered as a member of the most reactive chemical group, i.e., that group having the least allowable percent of the total volume of organic solvents. [*Link to Note No. 5*]

[. . .]

"Reactive Organic Compound" means any ~~volatile~~ compound containing at least one (1) atom of carbon, except for the following exempt compounds: [*Note: Compounds and text shown below in* ***bold*** *are additions to the "reactive organic compound" definition.*]

1. acetone
2. ammonium carbonate
3. carbon dioxide
4. carbon monoxide
5. carbonic acid
6. **dimethyl carbonate**
7. ethane
8. metallic carbides or carbonates
9. methane
10. methyl acetate
11. methyl chloroform (1,1,1-trichloroethane)
12. **methyl formate; $HCOOCH_3$**
13. cyclic, branched, or linear completely methylated siloxane compounds
14. methylene chloride
15. parachlorobenzotrifluoride
16. perchloroethylene (tetrachloroethylene)
17. the following four classes of perfluorocarbon (PFC) compounds:
    a. cyclic, branched, or linear, completely fluorinated alkanes,
    b. cyclic, branched, or linear, completely fluorinated ethers with no unsaturations,
    c. cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations, and
    d. sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

18. **propylene carbonate**
19. **tertiary-butyl acetate; $C_6H_{12}O_2$ (1,1-dimethylethyl ester)**

    Tertiary-butyl acetate (also known as t-butyl acetate or tBAc) shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds.

20. CFC-11 (trichlorofluoromethane)
21. CFC-12 (dichlorodifluoromethane)
22. CFC-113 (1,1,2-trichloro-1,2,2-trifluoroethane)
23. CFC-114 (1,2-dichloro 1,1,2,2-tetrafluoroethane)
24. CFC-115 (chloropentafluoroethane)
25. HCFC-22 (chlorodifluoromethane)
26. **HCFC-31 (chlorofluoromethane)**
27. HCFC-123 (1,1,1-trifluoro 2,2-dichloroethane)
28. HCFC-123a (1,2-dichloro-1,1,2-trifluoroethane)
29. HCFC-124 (2-chloro-1,1,1,2-tetrafluoroethane)
30. HCFC-141b (1,1-dichloro 1-fluoroethane)
31. HCFC-142b (1-chloro-1,1 difluoroethane)
32. **HCFC-151a (1-chloro-1-fluoroethane)**
33. **HCFC-225ca (3,3-dichloro-1,1,1,2,2-pentafluoropropane)**
34. **HCFC-225cb (1,3-dichloro-1,1,2,2,3-pentafluoropropane)**
35. **HFC-23 (trifluoromethane)**
36. **HFC-32 (difluoromethane)**
37. **HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane)**
38. HFC-125 (pentafluoroethane)
39. HFC-134 (1,1,2,2-tetrafluoroethane)
40. HFC-134a (1,1,1,2-tetrafluoroethane)
41. HFC-143a (1,1,1-trifluoroethane)
42. HFC-152a (1,1-difluoroethane)
43. **HFC-161 (ethylfluoride)**
44. **HFC-236ea (1,1,1,2,3,3-hexafluoropropane)**
45. **HFC-236fa (1,1,1,3,3,3-hexafluoropropane)**
46. **HFC-245ca (1,1,2,2,3-pentafluoropropane)**
47. **HFC-245ea (1,1,2,3,3-pentafluoropropane)**
48. **HFC-245eb (1,1,1,2,3-pentafluoropropane)**
49. **HFC-245fa (1,1,1,3,3-pentafluoropropane)**
50. **HFC-365mfc (1,1,1,3,3-pentafluorobutane)**
51. **HFE-7100; $(CF_3)_2CFCF_2OCH_3$; (2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane) or $C_4F_9OCH_3$; (1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane)**
52. **HFE-7200; $(CF_3)_2CFCF_2OC_2H_5$; (2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane) or $C_4F_9OC_2H_5$; (1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane)**

Rule 202.D.10.l.1 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of any one of the following exempt compounds: dimethyl carbonate, methyl formate, HCFC-225ca, HCFC-225cb, HFC-43-10mee, HFC-245fa, HFC-365mfc, or HFE-7100 [$(CF_3)_2CFCF_2OCH_3$ or $C_4F_9OC_2H_5$]. Rule 202.D.10.l.2 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of tertiary-

butyl acetate. The one gallon per year per stationary source limit is a per compound limit for each compound in aggregate for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

[*Link to Note No. 6*]

~~1. Acetone, ethane, methane, methyl acetate, and inorganic carbon compounds: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate~~

~~2. Chlorinated compounds~~

~~1,1,1 trichloroethane (methyl chloroform)~~
~~methylene chloride (dichloromethane)~~
~~perchloroethylene (tetrachloroethylene)~~

~~3. Chlorofluorocarbons~~

~~trichlorofluoromethane (CFC-11)~~
~~dichlorodifluoromethane (CFC-12)~~
~~chlorodifluoromethane (HCFC-22)~~
~~trifluoromethane (HFC-23)~~
~~1,1,2 trichloro-1,2,2-trifluoroethane (CFC-113)~~
~~1,2 dichloro-1,1,2,2-tetrafluoroethane (CFC-114)~~
~~chloropentafluoroethane (CFC-115)~~

~~4. Hydrofluorocarbons~~

~~pentafluoroethane (HFC-125)~~
~~1,1,2,2-tetrafluoroethane (HFC-134)~~
~~1,1,1,2-tetrafluoroethane (HFC-134a)~~
~~1,1,1-trifluoroethane (HFC-143a)~~
~~1,1-difluoroethane (HFC-152a)~~

~~5. Hydrochlorofluorocarbons~~

~~2,2-dichloro-1,1,1-trifluoroethane (HCFC-123)~~
~~2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124)~~
~~1,1-dichloro-1-fluoroethane (HCFC-141b)~~
~~1-chloro-1,1-difluoroethane (HCFC-142b)~~

~~6. Parachlorobenzotrifluoride (PCBTF)~~

~~7. Cyclic, branched or linear completely methylated siloxanes (VMS)~~

~~8. Perfluorocarbon compounds which fall into these classes:~~

~~a. Cyclic, branched, or linear, completely fluorinated alkanes;~~
~~b. Cyclic, branched, or linear, completely fluorinated ethers with no unsaturation;~~
~~c. Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and~~
~~d. Sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.~~

[. . .]

"Rotogravure Printing" means any printing process where the image area is etched or engraved relative to the surface of the image cylinder. Ink is transferred from minute etched wells on a plate cylinder to a substrate, which is supported by an impression roller, with excess ink removed by a doctor blade. The substrate is fed through the printing press in continuous rolls. [*Link to Note No. 7*]

[. . .]

"Solvent" means "Organic Solvent." [*Link to Note No 8*]

"Solvent Cleaning" means any activity, operation, or process (including, but not limited to, surface preparation, cleanup, or wipe cleaning) performed outside of a solvent cleaning machine, that uses solvent to remove uncured adhesives, uncured coatings, uncured inks, uncured polyester resin material, uncured sealant, or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment, and general work areas. Cleaning spray equipment used for the application of coating, adhesive, ink, polyester resin material, or sealant is also considered to be solvent cleaning irrespective of the spray material being cured. [*Link to Note No. 9*]

"Solvent Cleaning Machine" means any device or piece of equipment that uses solvent liquid or vapor to remove soils, moisture, or other contaminants from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch cold, batch vapor, in-line cold, in-line vapor, remote reservoir, and gas-path solvent cleaners, as defined in Rule 321. Buckets, pails, and beakers with capacities of 3.785 liters (1.00 gallon) or less are not considered solvent cleaning machines. However, the use of such a container or similar containers (e.g., hand-held spray bottles) with a liquid solvent for cleaning is considered to be solvent cleaning. Any device or piece of equipment used exclusively for stripping shall not be considered to be a solvent cleaning machine. [*Link to Note No. 10*]

[. . .]

"Stripping" means the use of solvent to remove materials such as cured adhesives, cured inks, cured sealants, cured or dried paints, cured or dried paint residues, or temporary protective coatings.

"Surface Preparation" means the removal of contaminants such as dust, soil, oil, grease, moisture, etc., prior to application of an adhesive, coating, ink, polyester resin material, or sealant. [*Link to Note No. 11*]

[. . .]

"Toxic Air Contaminant" means "Toxic air contaminant" as defined in Health and Safety Code Section 39655. [*Link to Note No. 12*]

[. . .]

"Wipe Cleaning" means a solvent cleaning activity performed by hand rubbing an absorbent material such as a rag, paper, sponge, brush, or cotton swab containing solvent. [*Link to Note No. 13*]

[. . .]

NOTE No.	DEFINITION	NOTE	LINK TO RETURN TO PAR 102[a]
1		The proposed new terms in Rule 102 appear in Rule 202 (Exemptions) and/or the proposed amended Rule (PAR) 321. In general, the District modeled the new definitions on those found in other California air districts or in federal law (40CFR, Part 63, Subpart T).	Click here.
2	Application Equipment	This term is in the proposed amended Rule 321 and it is found in several current rules. The definition is the same one used in the South Coast AQMD (SC) Rule 1171, except staff added "sealant" and "solvent" to be more general.	Click here.
3	Degreaser	Although the term "degreaser" is being eliminated in the PAR 321 (with one exception), inclusion of a "degreaser" definition in Rule 102 is intended to inform and clarify that a "degreaser" is a "solvent cleaning machine." (The PAR 321 definition of batch cleaning machine is the only place in the rule that the term "degreaser" appears.)	Click here.
4	Flexographic Printing	This definition should be in Rule 102 for rule clarity because the Rule 202.S.1 exemption uses this term.	Click here.
5	Organic Solvents and Photochemically Reactive Solvent	The District added the word "organic" for rule clarity.	Click here.
6	Reactive Organic Compound	The District is revising the *reactive organic compound* (ROC) definition by incorporating all of the 40 CFR, Part 51, Section 51.100(s) exempt compounds. The PAR 102 ROC definition includes a note on there being a permitting threshold in Rule 202.D.10.1.1 and 2 on some of the compounds.	Click here.
7	Rotogravure Printing	This definition is the same one found in Rule 354. The Rule 202.S.1 exemption refers to this type of process. Thus, for rule clarity, the District is adding the definition to Rule 102.	Click here.
8	Solvent	The *solvent* definition is needed in Rule 102 because the term is used in several newly proposed Rule 102 definitions, the Rule 202.U exemption, and many of the coating rules.	Click here.

[a] When using a computer to view this material, you may return to the PAR 102 text by clicking the "here" link in the table using the left mouse button.

NOTE No.	DEFINITION	NOTE	LINK TO RETURN TO PAR 102[a]
9	Solvent Cleaning	A *solvent cleaning* definition is needed because the term is used in permit exemptions in the proposed amended Rule 202. The District modeled the *solvent cleaning* definition on the organic solvent cleaning definition used by the San Joaquin Valley Unified Air Pollution Control District (SJV) in their Rule 4663, Organic Solvent Cleaning, Storage, and Disposal.	Click here.
10	Solvent Cleaning Machine	This definition is modeled on the definition in 40 CFR §46.461. The District is making the cutoff to be 1 gallon capacity instead of the two gallons capacity in 40 CFR §46.461 because existing Rule 321.B.2.a has a one gallon cutoff. Also, the Ventura County APCD (VC) Rule 74.6.B.2.b has a one gallon cutoff whereas a solvent cleaning machine must be used if the solvent container is greater than one gallon. The *solvent cleaning machine* definition is needed in Rule 102 because the term is used in the proposed amended Rule 102 "degreaser" and "solvent cleaning" definitions and in proposed amended Rule 202 exemptions.	Click here.
11	Surface Preparation	This term and definition are modeled on provisions from SC Rule 1171. The term will be used in the ROC limit tables in the rules being modified to add new solvent cleaning provisions. Staff added the term "moisture" in the list of contaminants because the 40 CFR §64.460 et seq. requirements for halogenated solvent cleaning also include drying provisions.	Click here.
12	Toxic Air Contaminant	The District adding this definition at the request of the regulated community. Appendix M provides a list of the compounds that are currently classified as a TAC. Click here to go to Appendix M.	Click here.
13	Wipe Cleaning	This definition is the same one found in the SJV Rule 4663.	Click here.

Click here to return to the list of Appendices in the Background Paper.

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Appendix D
Santa Barbara County
Annotated Proposed Amended Rule 202, Exemptions to Rule 201

RULE 202. EXEMPTIONS TO RULE 201. (Adopted 10/18/1971, revised 5/1/1972 and 6/27/1977, readopted 10/23/1978, revised 12/7/1987, 1/11/1988, 1/17/1989, 7/10/1990, 7/30/1991, 11/05/1991, 3/10/1992, 5/10/1994, 6/28/1994, 4/17/1997, 3/17/2005, 1/17/2008, ~~and~~ 6/19/2008, and [*date of revised rule adoption*])

[. . .]

D. General Provisions [. . .]

5. Temporary Equipment

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [*Link to Note No. 1*] [a]

[. . .]

7. Stationary Source Permit Exemption

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

10. Notwithstanding any exemption defined in this ~~Rule~~rule, no new or modified stationary source that has the potential to emit air contaminants in excess of the amounts specified shall be exempt from permit requirements:

[. . .]

k. 40 tons per year municipal waste combustor acid gases.

l. In addition, notwithstanding any exemption defined in this rule, no stationary source that has the potential to emit any air contaminants in excess of the amounts specified shall be exempt from permit requirements:

l. more than one gallon per year of any one of the exempt compounds listed below. The one gallon per year per stationary source limit is a per compound limit for each compound in aggregate for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

a) dimethyl carbonate; or
b) methyl formate; $HCOOCH_3$; or
c) HCFC-225ca (3,3-dichloro-1,1,1,2,2-pentafluoropropane); or
d) HCFC-225cb (1,3-dichloro-1,1,2,2,3-pentafluoropropane); or
e) HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane); or
f) HFC-245fa (1,1,1,3,3-pentafluoropropane); or
g) HFC-365mfc (1,1,1,3,3-pentafluorobutane); or
h) HFE-7100; $(CF_3)_2CFCF_2OCH_3$; (2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane); or

[a] Notes concerning the proposed amended Rule 202 are within a table starting on Page D-5. When using a computer to view this material, use a link to get to a note by clicking the left-mouse button.

i) HFE-7100; $C_4F_9OCH_3$; (1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane); or

2. more than one gallon per year of tertiary-butyl acetate; $C_6H_{12}O_2$ (1,1-dimethylethyl ester). Tertiary-butyl acetate (also known as t-butyl acetate or tBAc) shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds. The one gallon per year per stationary source limit for tertiary-butyl acetate is an aggregate limit for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

[*Link to Note No. 2*]

[. . .]

E. Compliance with Rule Changes

[. . .]

If no application is filed within the ninety (90) day period, the application filing fee prescribed in Rule 210, Fees, shall be doubled and the equipment owner shall be subject to a Notice of Violation and to the penalty provisions set forth in California Health and Safety Code Sections 42400 et seq.

[. . .]

F. Internal Combustion Engines

[. . .]

5. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

8. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

I. Coatings Applications Equipment and Operations

The following listed coating applications equipment and operations ~~is~~ are exempt from permit requirements. [. . .]

3. Equipment used in surface coating operations provided that the total amount of coatings and solvents used does not exceed 55 gallons per year. [. . .] Solvents meeting the criteria of Section U.2.b or Section U.2.c or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation. [. . .] [*Link to Note No. 3*]

6. Unheated non-conveyorized coating dip tanks of 100 gallons or less capacity. [*Link to Note No. 4*]

[. . .]

K. Food Processing and Preparation Equipment

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

P. Miscellaneous Equipment and Operations

[. . .]

14. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

U. Solvent Application Equipment and Operations

The following solvent cleaning, ~~application equipment~~ solvent cleaning machines and their operations ~~is~~ are exempt from permit requirements. Notwithstanding the listed exemptions, any collection of articles, machines, equipment or other contrivances within each listed equipment category at a stationary source that has aggregate emissions in excess of 10 tons per calendar year of any affected pollutant is not exempt.

1. ~~Unheated solvent dispensing containers, unheated non-conveyorized~~ Unheated nonconveyorized solvent rinsing containers ~~or unheated non-conveyorized coating dip tanks~~ of 1.00 gallon~~s~~ or less capacity provided that solvent cleaning performed in association with such containers complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning.~~; this exemption shall not apply to degreasing equipment regulated under the provisions of Rule 321.~~ [*Link to Note No. 5*]

2. Single ~~pieces of degreasing equipment~~solvent cleaning machines, which use unheated solvent, and which:

   a. have a liquid surface area (i.e., the area of the drain for remote reservoir cleaning machines or the solvent/air interface area for other solvent cleaning machines) of less than 929 square centimeters (1.0 square foot), unless the aggregate liquid surface area of all ~~degreasers~~ solvent cleaning machines at a stationary source, covered by this exemption is greater than 0.929 square meter (10 square feet), or [*Link to Note No. 6*]

   b. use only ~~organic~~ solvents with an initial boiling point of 150 degrees Celsius (302 degrees Fahrenheit) or greater as determined by ASTM D-1078-~~86~~05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International, or

   c. use ~~materials~~ solvents with a ~~volatile~~ reactive organic compound content of two percent or less by weight as determined by ~~EPA~~ Environmental Protection Agency Method 24.

   d. ~~materials exempt pursuant to subsections b. and c. above do not contribute to the 0.929 square meter (10 square feet) limitation in subsection a.~~The liquid surface area of any solvent cleaning machine using the following solvent shall not be counted towards the 0.929 square meter (10 square feet) aggregate limit in subsection a. above:

      i. any solvent that has a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Method 24, or

ii. any solvent exempt pursuant to subsection b. or subsection c. above.

[*Link to Note No. 7*]

3. ~~Equipment used in wipe~~ Wipe cleaning operations, provided that the solvents used do not exceed 55 gallons per year per stationary source and that the solvent cleaning complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning. [*Link to Note No. 8*]

To qualify for this exemption, the owner or operator shall maintain records of the amount (gallons per year) of solvents used for wipe cleaning at the stationary source for each calendar year.

These records shall be maintained on site for at least 3 years and be made available to the District on request. Thereafter, the records shall be maintained either on site or readily available for expeditious inspection and review for an additional 2 years. Solvents meeting the criteria of 2.b. or c. above or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation. [*Link to Note No. 9*]

4. Notwithstanding the Section U.3 exemption above, solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dentistry facilities, and other health care facilities, including but not limited to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and bloodmobiles. [*Link to Note No. 10*]

5. Notwithstanding the Section U.3 exemption above, solvent cleaning associated with janitorial cleaning, including graffiti removal. [*Link to Note No. 11*]

[. . .]

NOTE No.	SECTION IN RULE 202	PROPOSED AMENDED RULE (PAR) 202 NOTES	LINK TO RETURN TO PAR 202[a]
1	D.5	Based on a comment from U.S.EPA, the District is adding the Rule 210 title "Fees" in this section and all other sections where Rule 210 is referenced in Rule 202.	Click here.
2	D.10.l	The District is added provisions to allow some of the ROC definition's *exempt compound* usage rates to be up to one gallon per year per stationary source. Any usage rate above this threshold will negate any otherwise applicable permit exemptions. The ARB has not recommended that air districts designate these compounds as *exempt compounds* (i.e., non-ROC) due to health risk and/or CEQA implications. The genesis for the usage rate threshold stems from provisions in the SJV Rule 1020 definition of "Volatile Organic Compound." The last paragraph in the revised definition of *reactive organic compound* in PAR 102 mentions that Rule 202.D.10.l.1 and 2 provisions apply when using certain compounds in excess of the threshold. Use of HCFC and HFC in refrigeration, air conditioning, and fire protection, is excluded from the one gallon per year per stationary source limit.	Click here.
3	I.3	The new text is proposed to make the solvent exemption component of Section I.3 consistent with the proposed revised Section U.3 provisions.	Click here.
4	I.6	This exemption is currently located in Rule 202, Section U.1. The District is moving the coating dip tank exemption to Section I because Section I is for coating applications.	Click here.
5	U.1	The District is deleting the *unheated solvent dispensing containers* exemption text from this section. Rule 202 Section V, Storage and Transfer Equipment and Operations, Sections V.1 and/or V.4 provide exemptions for such solvent storage containers and transfer equipment. On the exemption for unheated nonconveyorized solvent rinsing containers, the District is changing the exemption applicability threshold from 100 gallons capacity to one gallon capacity. This provides consistency with the definitions of *solvent cleaning* and *solvent cleaning machines* and the proposed revised Rule 321 provisions. The "unheated non-conveyorized coating dip tank" exemption text is being relocated to 202.I.6 because the provision relates to coating applications.	Click here.
6	U.2.a	Per a request from the regulated community, the District added text to clarify the meaning of "liquid surface area" in PAR 202.U.2.a. The added text is consistent with the Rule 321 definition of the "solvent/air interface area."	Click here.

[a] When using a computer to view this material, you may return to the PAR 102 text by clicking the "here" link in the table using the left mouse button.

NOTE No.	SECTION IN RULE 202	PROPOSED AMENDED RULE (PAR) 202 NOTES	LINK TO RETURN TO PAR 202[a]
7	U.2.d	The District revised Rule 202.U.2.d for improved rule clarity and to include the 50 grams per liter or less surface area exclusion. The regulated community requested that SCMs employing solvents with an ROC of 50 g/l or less not be counted when determining the Rule 202, Section U.2.a aggregate liquid surface area figure. Consistent with this request, the District is including such a provision in PAR 202.U.2.d.i. PAR 202.U.d.ii carries forward an existing rule provision on what to exclude when performing the aggregate liquid surface area assessment for Rule 202.U.2.a.	Click here.
8	U.3	Rule 321 provisions apply regardless of the operation being permit exempt. One of the major changes to Rule 321 is that the wipe cleaning exemption is being removed from Rule 321. Thus, facilities performing wipe cleaning not otherwise exempt from Rule 321 will need to comply with the requirements (e.g., the Section D, good housekeeping practices). For rule clarity, the District is adding text, which makes Rule 202.U.3 applicable only for sources using 55 gallons per year of solvent for wipe cleaning and that comply with Rule 321. Sources subject to the Rule 202.U.3 exemption will also be eligible for the Rule 321.B.15 exemption. This is a partial Rule 321 exemption and will allow the use of solvents that do not comply with the Section M.1 solvent requirements (Table 1 ROC limits). Any person claiming the Rule 321.B.15 exemption will need to keep monthly and calendar year total records per the provisions in Rule 321 Section R.2.	Click here.
9	U.3	The District added the exclusionary text for solvent cleaning with low-ROC solvents to clarify that such operations do not require a permit regardless of the usage rate. The regulated community requested that the District provide provisions to recognize the use of such solvents and to avoid triggering permit requirements when there is an increased aqueous solvent usage rate. In general, the ratio of replacement aqueous solvent usage to petroleum solvent usage is 1.5 to 1.	Click here.
10	U.4	The District is adding this exemption for rule clarity based on requests from industry.	Click here.
11	U.5	Same as above.	Click here.

Click here to return to the list of Appendices in the Background Paper.

Appendix E
Santa Barbara County
Summary of Significant Changes to Rule 321,
Solvent Cleaning Machines and Solvent Cleaning

Solvent ROC Content Limits

The proposed amended Rule (PAR) 321, Sections H.7, I.7, K.6, and M.1 will limit the solvent ROC content. Solvents used in the following devices and processes shall be limited to 50 grams per liter of material:

1. Remote reservoir cold cleaning machines.
2. Batch and in-line cold cleaning machines.
3. General product cleaning and surface preparation for coating application.
4. General repair cleaning and maintenance cleaning.

PAR 321.M.1 includes solvent ROC content limits higher than the 50 grams per liter limit for specific solvent cleaning categories:

Grams/Liter	Solvent Cleaning Category
	(a) Product Cleaning During Manufacturing Processes and Surface Preparation for Coating Application:
900	1) Electrical Apparatus Components & Electronic Components 2) Medical Devices & Pharmaceuticals 3) Silicone Manufacturing
	(b) Repair Cleaning and Maintenance Cleaning:
900	1) Electrical Apparatus Components & Electronic Components 2) Medical Devices & Pharmaceuticals (tools, equipment, machinery, and general work surfaces) 3) Silicone Manufacturing
950	**(c)** Cleaning of Coatings Application Equipment
900	**(d)** Cleaning of the Following Items and Equipment and their Components: 1) Aerospace Vehicles; 2) Aerospace Vehicle Payloads and Satellites; 3) Aerospace Vehicle, Aerospace Vehicle Payload, and Satellite: a) Transport Equipment (e.g., railcars, trucks, trailers, forklifts, and containers), and b) Support Processing Equipment (e.g., clean rooms, tools, payload fairing fixtures, alignment jigs, fuel and oxidizer loading carts and associated transfer lines).

Other Rule 321 Revisions

321.A – APPLICABILITY. The revised rule is being expanded to include solvent cleaning (e.g., wipe cleaning, spray gun cleaning).

321.B – EXEMPTIONS. The significant exemption changes in PAR 321 are itemized in the following.

1. Revision of the 321.B.1 text to indicate that the two percent or less threshold is for a solvent's reactive organic compound and toxic air contaminant content. If either one is exceeded, then the exemption does not apply. Also, recordkeeping provisions are added to facilitate verification of exemption claims.

2. Deletion of the Section B.2 exemption (solvent cleaners having one gallon capacity or one square foot) because the revised Rule 321 provisions will apply to these small containers. The use of containers that are one gallon or less in a degreasing operation is categorized as *solvent cleaning* (see PAR 321 definition of *solvent cleaning machine*). And remote reservoirs previously exempt by the one square foot provision need to comply with the revised rule requirements (e.g., use of a solvent with an ROC content of 50 g/l or less).

3. Deletion of the exemptions for wipe cleaning, spray gun cleaning, and enclosed small cold cleaners (current Rule 321.B.4.a, 321.B.4.d, and 321.B.4.f). The PAR 321 includes provisions that are applicable to these processes and devices.

4. Addition of several exemptions that are similar to those found in the San Joaquin Valley Unified APCD, the South Coast AQMD, and the Ventura County APCD solvent rules.

321.C – DEFINITIONS. The District proposes new and revised definitions to provide clarity to the rule provisions and to expand the rule's applicability to include solvents containing toxic air contaminants. Appendix F (annotated PAR 321) provides information on many of the new and modified definitions in Rule 321.

321.D – GENERAL OPERATING REQUIREMENTS. Most of the changes to these provisions clarify good housekeeping and maintenance requirements.

321.E, J, AND L – VAPOR CLEANING MACHINE REQUIREMENTS. For vapor cleaning machines, the PAR 321 provisions require several new and revised requirements related to solvent pumps, heating controls, air blankets, safety devices, and other emission reduction techniques:

- The proper use of superheated vapor zones (E.9),
- Idling and downtime mode covers (J.2 & L.3),
- The condenser flow switch is to automatically shut off the sump heat if the condenser coolant stops circulating or becomes warmer that its designed operating temperature (J.4 & L.5),
- Clarification that the vapor level control device is to automatically shut off the sump heat if the vapor level rises above the height of the primary condenser (J.5 & L.6),
- For units with solvent flow, clarification that a device (e.g., a spray pump control switch) is required to prevent the solvent flow pump operation unless the solvent vapor level is at the designed operating level (J.6 & L.7),
- A device that automatically turns off the sump heat if the sump heater coils are not submerged in the liquid solvent (J.7 & L.8), and
- The following provisions (effective one year after the rule revision):
  - A freeboard ratio of 1.0 (J.8 & L.9),
  - For a batch vapor cleaning machine, an automatic parts handling system (J.11.a),[a]
  - Circumferential trough and water separator (J.11.b, J.11.c, L.11.a, & L.11.b),[a] and
  - A freeboard refrigeration device and a superheated vapor zone that meet the rule requirements (J.11.d, J.11.e, L.11.c, & L.11.d).[a]

321.M – SOLVENT CLEANING. This is an entirely new section. In addition to limiting the solvent ROC content (as discussed on page E-1):

- Section M.2 specifies appropriate cleaning devices and methods.
- Section M.3 requires the use of an enclosed system (or equivalent) when cleaning spray application equipment.[a]

[a]Applicable when using a solvent with an ROC content in excess of 50 grams per liter.

321.N – EMISSION CONTROL SYSTEM REQUIREMENTS. The two significant changes in this section are the addition of Sections N.5 & N.6. Section N.5 establishes a deadline for performing an initial source test on the emission control system. And, Section N.6 requires that emissions from an emission control system not be in excess of the emissions otherwise expected when complying with the solvent ROC-limits.

321.O – ALTERNATIVE OPERATING AND EQUIPMENT REQUIREMENTS FOR AN AIRLESS OR AIR-TIGHT SOLVENT CLEANING MACHINE. Air-tight and airless cleaning systems are state-of-the-art machines that have extremely low emissions. Allowing use of such systems in lieu of meeting other rule provisions is consistent with how the SJV and SC rules are written.

321.R – RECORDKEEPING REQUIREMENTS. The revised recordkeeping provisions:

- Are being expanded to apply to all solvent cleaning machines and solvent cleaning (irrespective of such operations or equipment being subject to permits).
- Require monthly records on the assessment of the amount of solvents used and their respective ROC content.
- For solvent cleaning, require records on the type of cleaning activity, by cleaning categories listed in Table 1.
- For solvent cleaning machines, require records on the type of solvent cleaning machine, type solvent, ROC content, and solvent's initial boiling point.
- For an emission control system, require daily records on the key operating parameters.
- For Sections B.9 or B.15 exemption claims, require that appropriate records on the solvent usage be maintained.
- Eliminate the existing Section P.2 recordkeeping provision for the "small surface area" exemption (current Section B.2.b), which is proposed for deletion.

321.S – REPORTING. The reporting requirements are being expanded to include solvent cleaning subject to a Permit, monthly/annual solvent usage data, PTO #, and name and address of Permit holder.

321.T – COMPLIANCE SCHEDULE. New solvent cleaning operations and new solvent cleaning machines are to comply with the Rule 321 requirements the first time they are performed/operated in the District.

Rule 102, Rule 202, and/or Rule 321 revisions will result in:

- Existing qualifying solvent cleaning operations becoming subject to Rule 321 for the first time, and

- Some existing solvent cleaning machines becoming subject to Rule 321 for the first time.

In such cases, Section T provides the owners/operators one month to comply with the applicable operating requirements, six months to comply with the applicable recordkeeping and reporting requirements, and one year to comply with the equipment requirements and the solvent ROC limits.

Table 1 summarizes provisions in the various proposed amended Rule 321 sections that have a one-year compliance deadline after the adoption of the revised rules. Table 2 provides a quick-reference list of significant new and revised requirements in proposed amended Rule 321. Table 3 shows the effective dates for the new and revised Rule 321 requirements.

Table 1. REQUIREMENTS THAT HAVE A ONE-YEAR COMPLIANCE DEADLINE FROM THE DATE OF ADOPTION OF THE REVISED RULE 321, SOLVENT CLEANING MACHINES AND SOLVENT CLEANING

SECTION	PROVISION
G, H, I, J, K, L, and N	General equipment requirements for solvent cleaning machines, applicable provisions of additional equipment requirements, and emission control system requirements. This one-year deadline for compliance applies to Rule 321-exempt solvent cleaning machines that lose their exemption by the adoption of the amended Rule 102, 202, and/or 321.
H.7	Solvents used in remote reservoir cold cleaning machines shall have an ROC content of 50 grams per liter or less (unless exempt by Section B.8).
I.7	Solvents used in batch cold cleaning machines shall have an ROC content of 50 grams per liter or less (unless exempt by Section B.8).
J.8	The freeboard ratio for batch vapor cleaning machines shall be 1.0 or greater.
J.11	Batch vapor cleaning machines using solvents with an ROC content in excess of 50 g/l shall be equipped with all of the following (unless exempt by Sections B.18 or B.20): a. An automated parts handling system; b. A circumferential trough; c. A water separator (not required for solvents that form azeotropes with water); d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.
K.6	Solvents used in in-line cold cleaning machines shall have an ROC content of 50 grams per liter or less (unless exempt by Section B.8).
L.9	The freeboard ratio for in-line vapor cleaning machines shall be 1.0 or greater. (An alternative that complies with L.10 may be used.)
L.11	In-line vapor cleaning machines using solvents with an ROC content of 50 g/l or greater shall be equipped with all of the following: a. An automated parts handling system; b. A circumferential trough; c. A water separator (not required for solvents that form azeotropes with water); d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

SECTION	PROVISION
M.1	Except as provided in Section N, no person shall use a solvent to perform solvent cleaning which exceeds the ROC content limit specified in Table 1 (unless exempt by Sections B.8, B.9, B.10, B.15, or B.16).
M.2	Any person performing solvent cleaning shall use one or more of the devices or methods specified in M.2.
M.3	Any person performing solvent cleaning of spray application equipment shall use a cleaning material that has an ROC content of 50 grams/liter or less or shall use an enclosed cleaning system.

Note: The Section N.5 requirement to perform an initial source test on an emission control system has a one-year deadline (or later deadline as established by an Authority to Construct).

Table 2. QUICK-REFERENCE LIST OF SIGNIFICANT NEW AND REVISED REQUIREMENTS IN PROPOSED AMENDED RULE 321

SECTION(S)	AFFECTED EQUIPMENT OR SOLVENT CLEANING CATEGORIES	REQUIREMENT
H.7, I.7, K.6, & M.1	1) Cold Solvent Cleaning Machines: Remote Reservoir, Batch, and In-Line 2) Some Solvent Cleaning Categories as Specified in the Section M.1, Table 1	Solvent limit of 50 grams of ROC per liter
M.1	Some Solvent Cleaning Categories as Specified in the Section M.1, Table 1	Solvent limit of 900 or 950 grams of ROC per liter
J.8 & L.9	Vapor Cleaning Machines (Batch & In-Line)	Freeboard Ratio of 1.0 or Greater
J.4 – J.7 & L.5 – L.8	Vapor Cleaning Machines (Batch & In-Line)	1) Spray Pump Control Switch and 2) Automatic Sump Heat Shut Off for: a) Condenser Flow Too Hot or Not Circulating, b) Vapor Level Too High, and c) Sump Heater Coils Not Being Submerged in the Liquid Solvent
J.11 & L.11	Vapor Cleaning Machines (Batch & In-Line) that use Solvents with an ROC Content in Excess of 50 Grams per Liter	1) Automatic Parts Handling System,[a] 2) Circumferential Troughs, 3) Water Separators, 4) Freeboard Refrigeration Device, and 5) Superheated Vapor Zone
M.2	Cleaning Devices and Methods	Sanctioned cleaning methods and devices (e.g., wipe cleaning; hand-held spray bottles; solvent flow, dip, or flush methods) used in acceptable ways
M.3	Solvent Cleaning of Spray Application Equipment	The cleaning material is to contain ≤ 50 grams of ROC/liter. Alternatively, if a solvent with a higher ROC content is employed, the process shall use an enclosed system (or an APCO-approved alternative)

[a] The requirement to install an automatic parts handling system probably does not apply to an in-line vapor cleaning machine as such a unit is already so equipped.

Table 3. EFFECTIVE DATES FOR THE NEW AND REVISED RULE 321 REQUIREMENTS[a]

	Solvent limit of 50 Grams of ROC per Liter (H.7, I.7, K.6 & M.1)	Solvent limit of 900 or 950 Grams of ROC per Liter (B.2, B.8, & M.1)	Solvent with > 2% (by Wt.) ROC or TAC Content are not exempt (B.1)	Exemption Claims to be Supported with Records (B.1, B.9, B.15, & B.18)	General Operating Requirements (D)	Use of Idling & Downtime Mode Covers for Vapor Cleaning Machines (E.1, J.2, & L.3)	Allow the Solvent Vapor Layer to Collapse Before Turning Off the Primary Condenser (E.3)	Proper Use of Superheated Vapor Zones (E.9)	Gas-Path Cleaners with a Solvent > 50 g/l, Spent Solvent is to be Collected (G.3)	Rolling Motion Only (No Splashing) When Using a Pump-Agitated Bath (G.5)	Use of a Downtime Mode Covers for Cold Cleaning Machines (I.1 & K.3)	Vapor Cleaning Machine Control Switches & Safety Devices (J.4 – J.7 & L.5 – L.8)[b]	Freeboard Ratio of 1.0 or Greater on Vapor Cleaning Mach's (J.8 & L.9)	Minimize Passages on In-Line Cleaning Machines (K.2 & L.2)	Enhanced Vapor Cleaning Machine Controls (J.11 & L.11)[c]	Cleaning Devices & Methods (M.2)	Solvent Cleaning of Application Equipment (M.3)	Emission Control Device Initial Test & Potential Emission Cap (N.5 & 6)	Airless & Air-Tight Solvent Cleaning Machines (O)	Monthly Recordkeeping & Annual Reporting (R & S)
EFFECTIVE																				
Upon Adoption[d]			X	X	X	X	X	X	X	X	X	X		X				X	X	X
One Year After Adoption	X	X											X		X	X	X			
EQUIPMENT IMPACTED																				
Aerosol Products Subject to PAR 321.B.9				X																
Wipe Cleaning Subject to PAR 321.B.15				X																
Batch Vapor Solvent Cleaning Machines Subject to PAR 321.B.18				X																
Batch Cold Cleaning Machines	X	X	X		X					X	X[e]							X		X

[a] This table is intended to summarize many of the proposed new and revised Rule 321 requirements with effective dates or compliance schedule data. If there is a conflict between data shown in Table 3 and the proposed amended Rule 321 or an omission, the proposed amended Rule 321 text takes precedence.
[b] Includes spray pump control switch and automatic sump heat shut off for 1) condenser flow too hot or not circulating, 2) vapor level too high, and 3) sump heater coils not being submerged in the liquid solvent.
[c] Enhanced vapor solvent cleaning controls require use of an automated parts handling system, circumferential trough, water separator, freeboard refrigeration device, and superheated vapor zone. These enhanced controls are required when the solvent contains in excess of 50 grams per liter. An exemption in Section B may apply to these requirements.
[d] Rule 321.T, Compliance Schedule, provides compliance periods for existing solvent cleaning operations and existing solvent cleaning machines that become subject to Rule 321 due to a Rule 102, Rule 202, and/or Rule 321 revision. In general, the owners/operators of such equipment will have one month to comply with the applicable operating requirements, six months to comply with the applicable recordkeeping and reporting requirements, and one year to comply with the equipment requirements and the solvent limits in Table 1. New solvent cleaning operations and new solvent cleaning machines are to comply with the Rule 321 requirements the first time they are performed/operated in the District.
[e] Required when using a high volatility solvent.

	Solvent limit of 50 Grams of ROC per Liter (H.7, I.7, K.6 & M.1)	Solvent limit of 900 or 950 Grams of ROC per Liter (B.2, B.8, & M.1)	Solvent with > 2% (by Wt.) ROC or TAC Content are not exempt (B.1)	Exemption Claims to be Supported with Records (B.1, B.9, B.15, & B.18)	General Operating Requirements (D)	Use of Idling & Downtime Mode Covers for Vapor Cleaning Machines (E.1, J.2, & L.3)	Allow the Solvent Vapor Layer to Collapse Before Turning Off the Primary Condenser (E.3)	Proper Use of Superheated Vapor Zones (E.9)	Gas-Path Cleaners with a Solvent > 50 g/l, Spent Solvent is to be Collected (G.3)	Rolling Motion Only (No Splashing) When Using a Pump-Agitated Bath (G.5)	Use of a Downtime Mode Covers for Cold Cleaning Machines (I.1 & K.3)	Vapor Cleaning Machine Control Switches & Safety Devices (J.4 – J.7 & L.5 – L.8)[b]	Freeboard Ratio of 1.0 or Greater on Vapor Cleaning Mach's (J.8 & L.9)	Minimize Passages on In-Line Cleaning Machines (K.2 & L.2)	Enhanced Vapor Cleaning Machine Controls (J.11 & L.11)[c]	Cleaning Devices & Methods (M.2)	Solvent Cleaning of Application Equipment (M.3)	Emission Control Device Initial Test & Potential Emission Cap (N.5 & 6)	Airless & Air-Tight Solvent Cleaning Machines (O)	Monthly Recordkeeping & Annual Reporting (R & S)
EFFECTIVE																				
Upon Adoption[d]			X	X	X	X	X	X	X	X	X	X		X				X	X	X
One Year After Adoption	X	X											X		X	X	X			
EQUIPMENT IMPACTED																				
In-Line Cold Cleaning Machines	X	X	X		X					X	X			X				X		X
Batch Vapor and In-Line Vapor Cleaning Machines			X		X	X	X	X		X		X	X	X[f]	X			X		X
Remote Reservoir Cleaning Machines	X	X	X		X													X		X
Gas-Path Solvent Cleaners			X		X				X											X
Solvent Cleaning (Performed Outside of a Solvent Cleaning Machine)	X	X	X		X											X	X	X		X
Airless Solvent Cleaners and Air-Tight Solvent Cleaners			X		X														X	X

Footnotes a – e appear on the previous page.

Click here to return to the list of Appendices in the Background Paper.

[f] Applicable to in-line vapor cleaning machines (not batch vapor cleaning machines).

Appendix F
Santa Barbara County
Annotated Proposed Amended Rule 321, Solvent Cleaning Machines and Solvent Cleaning

Table of Contents

RULE 321. SOLVENT CLEANING MACHINES ~~OPERATIONS~~ AND SOLVENT CLEANING. (Adopted 2/24/1975, readopted 10/23/1978, revised 6/11/1979, 7/10/1990, 4/17/1997, 7/17/1997, ~~and~~ 9/18/1997, and [*date of revised rule adoption*]) [*Link to Note No. 1*] [a]

A. Applicability

This ~~Rule~~ rule shall apply to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning operation outside of a solvent cleaning machine ~~operations~~during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at any stationary source. [*Link to Note No. 2*]

B. Exemptions

Except as otherwise specifically provided herein, the provisions of this rule shall not apply to the following:

1. Any ~~S~~solvent cleaning machine equipped with and any solvent cleaning performed with ~~operations using~~ a solvent (including emulsions) that contains two percent by weight or less of each of the following:

   a. ~~r~~Reactive organic compounds ~~by weight~~ (as determined by ~~EPA~~ Environmental Protection Agency method 24), and

   b. Toxic air contaminants (as determined by generic solvent data, solvent manufacturer's composition data or by a gas chromatography test and a mass spectrometry test). ~~shall not be subject to the requirements of this Rule.~~ [*Link to Note No. 3*]

   c. Any person claiming this exemption shall maintain the records specified in Sections R.1.a.1) and R.1.a.2) in a manner consistent with Section R.3 and make them available for review.

~~2. Except for the Rule 321 Section G.2 requirement that the cleaner be covered when work is not being processed (use of covers are not required for remote reservoir cold cleaners using low volatility solvents), the provisions of this Rule shall not apply to an unheated solvent cleaner that:~~

   ~~a. has a capacity of 3.785 liters (1 gallon) or less, or~~

   ~~b. has an evaporative surface area of less than 929 square centimeters (1 square foot). However, if the aggregate evaporative surface area of all such solvent cleaners at a stationary source is greater than 0.929 square meters (10 square feet), none of the cleaners are exempt.~~ [*Link to Note No. 4*]

~~3~~2. ~~The provisions of Rule 321 Section J.7 shall not apply to open-top vapor solvent cleaners with less than 1 square meter (10.8 square feet) of evaporative surface area.~~ The cleaning of architectural coating application equipment provided that the solvent used does not exceed 950 grams of reactive organic compound per liter of material. [*Link to Note No. 5*]

~~4. The provisions of this Rule shall not apply to:~~

   ~~a. wipe cleaning,~~ [*Link to Note No. 6*]

3.~~b.~~ ~~d~~Dry cleaning operations of clothing or other fabrics covered under Rule 320, Petroleum Solvent Dry Cleaners, or ~~17~~ California Code of Regulations Title 17, Section 93109, ~~Perchloroethylene~~

[a] Notes concerning the proposed new and revised Rule 321 provisions are within a table starting on Page F-29. When using a computer to view this material, use a link to get to a note by clicking the left-mouse button over the "*Link to Note No.*" text.

Airborne Toxic Control Measure~~—~~ for Emissions of Perchloroethylene from Dry Cleaning and Water-Repelling Operations~~.~~. [*Link to Note No. 7*]

4. ~~c. s~~Stripping of cured coatings ~~(e.g., stripping)~~, cured adhesives, ~~(e.g., debonding, unglueing)~~ cured sealants, and cured inks, except the stripping of such materials from spray application equipment. [*Link to Note No. 8*]

~~d. spray gun cleaning operations,~~ [*Link to Note No. 9*]

5. ~~e. —~~Notwithstanding Section B.1, any ~~batch vapor, in-line vapor, in-line cold, and batch cold~~ solvent cleaning machine~~s~~ that uses any halogenated hazardous air pollutant solvent ~~containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform, or any combination of these halogenated hazardous air pollutants solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent,~~ provided such a solvent cleaning machine~~s are~~ is subject to 40 CFR, Part 63, Subpart T, National Emission Standards for ~~Hazardous Air Pollutants: —~~Halogenated Solvent Cleaning~~,~~ (Sections 63.460 et. seq.) ~~or~~. [*Link to Note No. 10*] [*Link to Note No.11*]

~~f. cold solvent degreasers of 37.854 liters (10 gallons) or less in capacity, provided the degreasers are designed to operate in a closed system fashion (i.e., sealed when operated) and agitated through pump recirculation, mechanical mixing (a mixer), or with ultrasonics. Gas or air agitation shall not be used.~~ [*Link to Note No. 12*]

6. Any equipment or operation that is subject to or specifically exempted by any of the following District rules.

a. Rule 325, Crude Oil Production and Separation.

b. Rule 326, Storage of Reactive Organic Compound Liquids.

c. Rule 330, Surface Coating of Metal Parts and Products.

d. Rule 337, Surface Coating of Aircraft or Aerospace Vehicle Parts and Products.

e. Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.

f. Rule 343, Petroleum Storage Tank Degassing.

g. Rule 344, Petroleum Sumps, Pits and Well Cellars.

h. Rule 349, Polyester Resin Operations.

i. Rule 351, Surface Coating of Wood Products.

j. Rule 353, Adhesives and Sealants.

k. Rule 354, Graphic Arts. [*Link to Note No. 13*]

7. Janitorial cleaning, including graffiti removal. [*Link to Note No. 14*]

8. Provisions of Sections H.7, I.7, K.6, and, M.1 shall not apply to the following:

   a. Cleaning of solar cells, laser hardware, scientific instruments, high-precision optics, telescopes, microscopes, avionic equipment, and aerospace and military fluid systems; and

   b. Cleaning in laboratory tests and analyses, including quality assurance and quality control applications, bench scale projects, or short-term (less than 2 years) research and development projects; and

   c. Cleaning of cotton swabs to remove cottonseed oil before cleaning of high-precision optics.

   [*Link to Note No. 15*]

   d. In addition, the provisions of Sections H.7, I.7, and K.6 shall not apply to solvent cleaning machines employed with solvents having 900 grams of reactive organic compound per liter of material or less during the production, repair, maintenance, or servicing of electrical apparatus components, electronic components, satellites, satellite components, aerospace vehicles, aerospace vehicle components, aerospace vehicle payloads, aerospace vehicle payload components, medical devices, or silicone manufacturing. [*Link to Note No. 16*]

9. Solvent cleaning with aerosol products shall not be subject to Section D.9 and Section M.1 provisions and the Section M.2.c prohibition on solvent atomization provided:

   a. 160 fluid ounces or less of aerosol products are used per day, per facility, and

   b. Records are maintained as specified in Sections R.2 and R.3, and

   c. The aerosol products comply with volatile organic compound limits for consumer products specified in the California Code of Regulations, Title 17, Section 94507 et seq. [*Link to Note No. 17*]

10. Provisions of Section M.1, Table 1, Solvent Cleaning Activity (c) shall not apply to the cleaning of application equipment when such equipment is used to apply a coating on a satellite or when applying a radiation-effect coating. [*Link to Note No. 18*]

11. Section D.9 and M.2.c prohibitions on solvent atomization shall not apply to the following applications:

   a. Cleaning of the nozzle tips of automated spray equipment systems, except for robotic systems.

   b. Cleaning with hand-held spray bottles, squirt bottles, and other closed containers having a capacity of one liter or less.

   c. Cleaning of gas turbines or jet engines using a gas-path solvent cleaner. [*Link to Note No. 19*]

12. De-icing of aircraft and aerospace vehicles. [*Link to Note No. 20*]

13. Solvent cleaning with a solvent containing 50 grams of reactive organic compounds per liter of material or less shall not be subject to the Section D.9 provision. [*Link to Note No. 21*]

14. Solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dental care facilities, and other health care facilities, including but not limited

to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and bloodmobiles. [*Link to Note No. 22*]

15. Provisions of Section M.1 shall not apply if the net aggregate amount of solvent used for all solvent cleaning subject to Rule 321 (i.e., subject to Sections D, M.2, and/or M.3 provisions) at a stationary source does not exceed 55 gallons per year. Solvents with a reactive organic compound content of 50 grams per liter of material or less do not count towards the 55 gallons per year aggregate limit. Any person claiming this exemption shall maintain records as specified in Sections R.2 and R.3. [*Link to Note No. 23*]

16. Provisions of Section M.1 shall not apply to the following applications:

    a. Cleaning of ultraviolet lamps used to cure ultraviolet inks coatings, adhesives, or resins.

    b. Cleaning of mold release compounds from molds.

    c. Cleaning of aerospace assembly and subassembly surfaces that are exposed to strong oxidizers or reducers such as nitrogen tetroxide, liquid oxygen, or hydrazine.

    d. Cleaning of paper gaskets.

    e. Cleaning of clutch assemblies where rubber is bonded to metal by means of an adhesive.

    f. Cleaning of hydraulic actuating fluid from filters and filter housings. [*Link to Note No. 24*]

    g. Wipe cleaning to remove crude oil and crude oil residue from well workover, drilling operations, and other activities related to petroleum production and processing on offshore platforms, provided the solvent reactive organic compound content does not exceed 800 grams per liter of material and the reactive organic compound composite partial pressure is no more than 8 millimeters of mercury at 20 degrees Celsius. [*Link to Note No. 25*]

17. Provisions of Sections H.7, I.7, and K.6 shall not apply to the following applications, provided the solvent reactive organic compound content does not exceed 900 grams per liter of material and the reactive organic compound composite partial pressure is no more than 5 millimeters of mercury at 20 degrees Celsius:

    a. Cleaning associated with the manufacturing of nuts and bolts designed for automotive racing applications.

    b. Cleaning of precision–lapped mechanical seals in pumps that handle liquefied gasses. [*Link to Note No. 26*]

18. Provisions of Sections J.11.a, d, and e shall not apply to batch vapor cleaning machines with a solvent/air interface area less than 929 square centimeters (1 square foot) or a solvent capacity less than 2 gallons, provided all such solvent cleaning machines emit, in aggregate, less than 55 pounds of reactive organic compounds per month per stationary source. Any person claiming this exemption shall maintain records as specified in Sections R.1 and R.3. [*Link to Note No. 27*]

19. The use of solvent for purposes other than cleaning. [*Link to Note No. 28*]

20. The Section E.7 and Section J.11.a, d, and e provisions shall not apply to batch vapor cleaning machines provided:

    a. The equipment was installed before January 1, 2007; and

b. The solvent/air interface area is less than 4.40 square feet or the solvent capacity is less than 2 gallons; and

c. The equipment is used only for cleaning electronic components; and

d. The total aggregate reactive organic compound emissions from all batch vapor cleaning machines subject to this exemption do not exceed 188 pounds per month per stationary source; and

e. The equipment is subject to a Permit to Operate to help facilitate verifications that the requirements of subparagraphs B.20.a, b, c, and d are met.

f. In addition, the Section J.8 requirement to have a freeboard ratio of 1.0 or greater shall not apply to solvent cleaning machines meeting the requirements in subsections a – e above, provided the solvent cleaning machines have a freeboard ratio of 0.75 or greater. [*Link to Note No. 29*]

21. The Section I.3, I.4, and I.7 requirements for unheated batch cleaning machines shall not apply, provided the equipment is used in medical device manufacturing when performing incidental product cleaning in conjunction with quality assurance or quality control tests (e.g., when conducting leak testing of silicone shells) and the solvent reactive organic compound content does not exceed 900 grams per liter of material. [*Link to Note No. 30*]

22. Metal lift-off and other semiconductor and microelectromechanical device manufacturing processes involving thin film deposition, vacuum deposition, and dry etching operations; including any maintenance activities associated with such operations. [*Link to Note No. 31*]

23. The solvent container draining and filling provisions in Section D.12 shall not apply to solvent transfers out of a sump, provided the sump has a maximum capacity of 8 gallons or less, such sump is easily removed from the solvent cleaning machine, and the solvent is poured from the sump directly into a bulk storage container. [*Link to Note No. 32*]

24. Any batch vapor cleaning machine meeting all of the following requirements shall be exempt from the Section J.8 requirement to have a freeboard ratio of 1.0:

a. The equipment is used only for cleaning electronic components; and

b. The dimensions are such that the freeboard ratio is 0.75 or greater; and

c. The solvent cleaning machine is equipped with the freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than minus 4 degrees Fahrenheit; and

d. The batch vapor cleaning machine is equipped with a superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used. [*Link to Note No. 33*]

C. Definitions [*Link to Note No. 34*]

See Rule 102 for definitions not limited to this rule. For purposes of this rule the following definitions shall apply:

"Aerosol Product" means a hand-held, non-refillable container that expels pressurized product by means of a propellant-induced force.

"Aerospace Vehicle" means the completed unit of any aircraft, helicopter, missile, or space vehicle.

"Aerospace Vehicle Component" means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any aircraft, helicopter, missile, or space vehicle, including mockups and prototypes.

"Air Blanket" means the layer of air inside the solvent cleaning machine freeboard located above the solvent/air interface.

"Airless Solvent Cleaning Machine" means any solvent cleaning machine that is automatically operated and seals at an absolute internal pressure of 0.02 pounds per square inch absolute or less, prior to the introduction of solvent vapor into the cleaning chamber and maintains differential pressure under vacuum during all cleaning and drying cycles.

[*Link to Note No.35*]

"Air-Tight Solvent Cleaning Machine" means any solvent cleaning machine that is automatically operated and seals at a differential pressure no greater than 0.5 pounds per square inch absolute during all cleaning and drying operations.

~~**"Air-Vapor Interface"** means, for vapor solvent cleaners, the top of the solvent vapor layer, and the air touching this layer. The effective top of the vapor layer may be determined as the maximum height where condensation occurs on a cold metal object lowered into the vapor zone.~~

~~**"Air-Solvent Interface"** means the point of contact between the exposed solvent and the air.~~

~~**"ASTM"** means American Society for Testing and Materials Standards.~~

"Automated Parts Handling System" means a mechanical device that carries all parts and parts baskets at a controlled speed from the initial loading of soiled or wet parts through the removal of the cleaned or dried parts. Automated parts handling systems include, but are not limited to, hoists and conveyors.

~~**"Batch-loaded"** means material placed in a nonconveyorized container for cleaning.~~

"Batch Cleaning Machine" means a solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning cycle before new parts are introduced into the solvent cleaning machine. An open-top vapor cleaning machine is a type of batch cleaning machine. A solvent cleaning machine, such as a Ferris wheel or a cross-rod degreaser, that clean multiple batch loads simultaneously and are manually or semi-continuously loaded are batch cleaning machines.

"Bench Scale Project" means a project (other than at a research and development facility) that is operated on a small scale, such as one capable of being located on a laboratory bench top.

"Carbon adsorber" means a bed of activated carbon into which an air-solvent gas-vapor stream is routed and which adsorbs the solvent on the carbon.

"Carry-out" see **"Drag-out."**

"Circumferential Trough" means a receptacle located below the primary condenser that conveys condensed solvent and atmospheric moisture to a water separator.

~~**"Cold Cleaner"** means any cleaner using solvent that, if heated, is maintained below the initial boiling point temperature. Cold cleaners include, but are not limited to, remote reservoirs, spray sinks, batch-loaded dip tanks, and cold conveyorized degreasers. Cold cleaners do not include gas/liquid path cleaners.~~

"Cold Cleaning Machine" means any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surfaces of the parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling solvent to clean the parts are classified as cold cleaning machines. Cold solvent wash stations are classified as cold cleaning machines.

"Condenser" or **"Primary Condenser"** means a ~~device, such as cooling coils, used to condense (liquify) solvent vapor~~ series of circumferential cooling coils on a vapor cleaning machine through which a chilled substance is circulated or recirculated to provide continuous condensation of rising solvent vapors and, thereby, create a concentrated solvent vapor zone.

"Condenser Flow Switch" means a safety switch connected to a thermostat that shuts off the sump heater if the condenser coolant is either not circulating or exceeds its designed operating temperature.

"Continuous Cleaning Machine" see **"In-Line Cleaning Machine."**

"Continuous Web Cleaning Machine" means a solvent cleaning machine in which parts such as film, coils, wire, and metal strips are cleaned at speeds typically in excess of 11 feet per minute. Parts are generally uncoiled, cleaned such that the same part is simultaneously entering and exiting the solvent application area of the solvent cleaning machine, and then recoiled or cut. For the purposes of this rule, all continuous web cleaning machines are considered to be a subset of in-line solvent cleaning machines.

~~**"Control Device"** means a device for reducing emissions of reactive organic compounds to the atmosphere.~~ [*Link to Note No. 36*]

"Conveyorized (In-Line or Continuous) Cold ~~Solvent Cleaner~~Cleaning Machine" means any continuously loaded ~~solvent cleaner~~ solvent cleaning machine that is not a conveyorized vapor ~~solvent cleaner~~cleaning machine.

"Conveyorized (In-Line or Continuous) ~~Solvent Cleaner~~Cleaning Machine" means any ~~conveyorized~~ cold or vapor solvent ~~cleaner~~ cleaning machine, that uses an automated parts handling system to automatically provide a continuous supply of parts to be cleaned. ~~including~~ Conveyorized (in-line or continuous) cleaning machines include but are not limited to ~~gyro,~~ vibra, monorail, ~~cross-rod,~~ mesh, belt, web, and strip ~~cleaners~~cleaning machines. Strip ~~cleaners~~ cleaning machines clean material by drawing the strip itself through the unit for cleaning prior to coating or other fabrication processes. For the purposes of this rule "Conveyorized (In-Line or Continuous) Cleaning Machine" has the same meaning as "In-Line Cleaning Machine." [*Link to Note No. 37*]

"Conveyorized (In-Line or Continuous) Vapor ~~Solvent Cleaner~~ Cleaning Machine" means any continuously loaded solvent ~~cleaner~~ cleaning machine that immerses parts in boiling solvent or in solvent vapors generated by boiling solvent. Conveyorized ~~vapor solvent cleaners~~ (in-line or continuous) cleaning machines that contain any vapor cleaning sections shall be considered to be conveyorized vapor ~~solvent cleaners~~cleaning machines for the purposes of this rule.

"Cross-Rod Solvent Cleaning Machine" means a batch solvent cleaning machine in which parts baskets are suspended from "cross-rods" as they are moved through the machine. In a cross-rod cleaning machine, parts are loaded semi-continuously, and enter and exit the machine from a single portal.

~~**"Degreaser"** means any equipment designed and used for holding a solvent to carry out solvent cleaning operations. Degreasers include, but are not limited to, remote reservoir cold cleaners, batch-loaded cold cleaners, open-top vapor solvent cleaners, and conveyorized solvent cleaners. All degreasers can be classified as one of the following: 1) cold cleaner (including remote reservoir cold cleaners), 2) batch-loaded vapor solvent cleaner, or 3) conveyorized solvent cleaner.~~ [*Link to Note No. 38*]

"Downtime Mode" means the time period when a solvent cleaning machine is not cleaning parts and the sump heating coils, if present, are turned off.

"Drag-out" ~~or **"Carry-out"**~~ means solvent carried out of a ~~cleaner~~ solvent cleaning machine that adheres to or is entrapped in the part being removed.

"Drying Tunnel" means an add-on enclosure extending from the exit area of a ~~conveyorized degreaser~~ solvent cleaning machine that reduces drag-out losses by containing evaporating solvent.

"Dwell" means the technique of holding parts within the freeboard area but above the vapor zone of the solvent cleaning machine. Dwell occurs after cleaning to allow solvent to drain from the parts or parts baskets back into the solvent cleaning machine.

"Dwell Time" means the period of time when parts are held within the freeboard area of the solvent cleaning machine, after cleaning, to allow solvent to drain from the parts back into the solvent cleaning machine.

"Electrical Apparatus Components" means the internal components such as wires, windings, stators, rotors, magnets, contacts, relays, energizers, and connections in an apparatus that generates or transmits electrical energy including, but not limited to: alternators, generators, transformers, electric motors, cables, and circuit breakers, except for the actual cabinet in which the components are housed. Electrical components of graphic arts application equipment and hot-line tools are also included in this category.

"Electronic Components" means the portions of an assembly, including, but not limited to: circuit card assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, magnetic tapes and tape drive mechanisms, discs and disc drive mechanisms, electro-optical devices (e.g., optical filters, sensor assemblies, infrared sensors, charged coupled devices, thermal electric coolers, and vacuum assemblies), solid state components, semiconductors (e.g., diodes, zeners, stacks, rectifiers, integrated microcircuits, transistors, solar cells, light sensing devices, and light-emitting devices), and other electrical fixtures, except for the actual cabinet in which the components are housed. [*Link to Note No. 39*]

"Emulsion" means a suspension of small droplets of one liquid in a second liquid.

"Emission Control Device" means a device for reducing emissions of reactive organic compounds or toxic air contaminants to the atmosphere.

"Evaporation" means to change into a vapor, normally from a liquid state.

~~**"Evaporative Surface Area"** means:~~

~~(1) Cold Solvent Cleaner:~~
~~(a) The surface area of the top of the solvent.(b) Remote Reservoir Cold Cleaner: The solvent drain opening area.~~
~~(2) Vapor Solvent Cleaner: The surface area of the top of the solvent vapor-air interface.~~
~~(3) Conveyorized Solvent Cleaner:~~
~~(a) Cold Cleaner: The surface area of the top of the solvent.~~
~~(b) Remote Reservoir Cold Cleaner: The solvent drain opening area.~~
~~(c) Vapor Solvent Cleaner: The surface area of the top of the solvent vapor-air interface.~~ [*Link to Note No. 40*]

"Existing Solvent Cleaning Operation" means solvent cleaning that is being performed as of [*date of revised rule adoption*].

"Existing Solvent Cleaning Machine" means any solvent cleaning machine that is installed as of [*date of revised rule adoption*]

"Fluid System" means a power transmission system that uses the force of flowing liquids and gases to transmit power. Fluid systems include hydraulic systems and pneumatic systems.

"Freeboard Area" means; for a batch cleaning machine, the area within the solvent cleaning machine that extends from the solvent/air interface to the top of the solvent cleaning machine; for an in-line cleaning machine, it is the area within the solvent cleaning machine that extends from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower.

~~**"Freeboard Height"** means:~~

~~(1) Cold Solvent Cleaner: The vertical distance from the top of the solvent, or the solvent drain of a remote reservoir cold cleaner, to the top of the cold cleaner.~~

~~(2) Batch-loaded Vapor Solvent Cleaner: The vertical distance from the top of the solvent vapor-air interface to the top of the solvent cleaner.~~

~~(3) Conveyorized Solvent Cleaner:~~
~~(a) For non-boiling solvent, the vertical distance from the top of the solvent to the bottom of the lowest opening in the solvent cleaner where vapors can escape.~~
~~(b) For boiling solvent, the vertical distance from the top of the solvent vapor-air interface to the bottom of the lowest opening in the degreaser where vapors can escape.~~

"Freeboard Height" means; for a batch cleaning machine, the distance from the solvent/air interface as measured during the idling mode or the top of the solvent drain of a remote reservoir cold cleaning machine to the top of the cleaning machine; for an in-line cleaning machine, it is the distance from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower as measured during the idling mode.

"Freeboard Ratio" means the ratio of the solvent cleaning machine freeboard height ~~divided by the smaller of the inside length or the inside width (or diameter if applicable) of the solvent cleaner evaporative area~~ to the smaller interior dimension (length, width, or diameter) of the solvent cleaning machine.

"Freeboard Refrigeration Device (Also Called a 'Chiller')" means a secondary cooling coil mounted above the primary condenser that provides a chilled air blanket above the solvent vapor air-interface to cause the condensation of additional solvent vapor. A primary condenser capable of meeting the requirements of Section J.9.a or L.10.a is defined as both a freeboard refrigeration device and a primary condenser for the purposes of this rule.

"Gas~~/Liquid~~-Path Solvent Cleaner" means a solvent cleaning machine (including ancillary equipment) that applies solvent to the interior of ~~parts,~~ a gas turbine or jet engine~~s, or equipment to clean gas and/or liquid paths. Gas/liquid path cleaning operations include, but are not limited to,~~ for the removal of corrosion~~,~~ or combustion deposits~~, propellants, moisture, residuals, or other undesirable matter. Examples of gas/liquid path cleaners include, but are not limited to, corrosion control carts (e.g., used on the interiors of gas turbine or jet engines), valve flushing systems, rocket engine flushing equipment, rocket propellant transfer line flushing and purging systems~~. [*Link to Note No. 41*]

"General Work Surface" means an area of a medical device or pharmaceutical facility where solvent cleaning is performed on work surfaces including, but not limited to, tables, countertops, and laboratory benches. General work surface shall not include items defined under janitorial cleaning.

"Guillotine Cover" means a cover that is biparting and moves in the same plane.

"Halogenated Hazardous Air Pollutant Solvent" means methylene chloride (Chemical Abstracts Service No. 75-09-2), perchloroethylene (Chemical Abstracts Service No. 127-18-4), trichloroethylene (Chemical Abstracts Service No. 79-01-6), 1,1,1-trichloroethane (Chemical Abstracts Service No. 71-55-6), carbon tetrachloride (Chemical Abstracts Service No. 56-23-5), and chloroform (Chemical Abstracts Service No. 67-66-3).

"High-Precision Optics" means any optical element used in an electro-optical device that is designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes in light energy levels.

~~**"High Vapor Cutoff Thermostat"** means a device, with a manual reset, that shuts off the sump heater if the temperature at the air-vapor interface rises above the designed operating level.~~

"High Volatility Solvent" means any solvent that is not classified as a low volatility solvent. [*Link to Note No. 42*]

"Hoist" means a mechanical device that carries the parts basket and the parts to be cleaned from the loading area into the solvent cleaning machine and to the unloading area at a controlled speed. A hoist may be operated by controls or may be programmed to cycle parts through the cleaning cycle automatically.

"Idling Mode" means the time period when a solvent cleaning machine is not actively cleaning parts and the sump heating coils, if present, are turned on.

"Initial Boiling Point" means the boiling point of a ~~solvent~~ liquid as defined by ASTM D-1078-~~95~~05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International.

"In-Line ~~Cleaner~~Cleaning Machine" or **"Continuous Cleaning Machine"** means ~~conveyorized solvent cleaner~~ any solvent cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a continuous supply of parts to be cleaned. These units are fully enclosed except for the conveyor inlet and exit portals. In-line cleaning machines can be either cold or vapor cleaning machines. [*Link to Note No. 43*]

"Lip Exhaust" means a ~~system that collects solvent vapors escaping from the top of a solvent cleaner~~ device installed at the top of the opening of a solvent cleaning machine that draws in air and solvent vapor from the freeboard area and ducts the air and vapor away from the solvent cleaning machine.

"Liquid Leak" means any ~~ROC containing liquid~~ solvent leak at a rate of more than three drops per minute or any visible liquid mist.

"Low Volatility Solvent" means a solvent with an initial boiling point that is greater than 120 degrees Celsius (248 degrees Fahrenheit) and with a temperature, as used, at least 100 degrees Celsius (~~180~~212 degrees Fahrenheit) below the initial boiling point. [*Link to Note No. 44*]

~~**"Make-Up Solvent"** means that solvent added to the solvent cleaning operation to replace solvent lost through evaporation or other means.~~

"Maintenance Cleaning" means a solvent cleaning operation or activity carried out to keep clean general work areas where manufacturing or repair activity is performed, to clean tools, machinery, molds, forms, jigs and equipment. This definition does not include the cleaning of adhesive, coating, or ink application equipment.

"Manufacturing Process" means the process of making goods or articles by hand or by machinery.

"Medical Device" means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar article, including any component, accessory, raw material, partial or completed fabricated part, that meets one of the following conditions:

1. It is intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease; or
2. It is intended to affect the structure or any function of the body; or

3. It is defined in the National Formulary or the United States Pharmacopeia, or any supplement to them.

"Mixer" means any device that mechanically agitates the liquid solvent to enhance the cleaning process.

"Nonabsorbent Container" means any container made of nonporous material, which does not allow the migration of the liquid solvent through it.

"Nonatomized Solvent Flow" means the use of a solvent in the form of a liquid stream without atomization.

"Nonleaking Container" means a container without any liquid leaks.

"Open-Top Vapor ~~Solvent Cleaner~~Cleaning Machine" means ~~any batch loaded degreaser using solvent that is maintained above the initial boiling point temperature of the solvent. Degreasing occurs through the condensation of the resultant solvent vapor onto the surface of the workload~~ a batch solvent cleaning machine that has its upper surface open to the air and boils solvent to create solvent vapor used to clean and/or dry parts.

"Primary Condenser" see "**Condenser**."

"Radiation-Effect Coating" means a material that prevents radar detection.

"Reactive Organic Compound Composite Partial Pressure" means the sum of the partial pressures of compounds defined as reactive organic compounds. Reactive organic compound composite pressure shall be calculated as follows:

$$PP_c = \frac{\sum_{i=1}^{n} \left(W_i\right)\left(VP_i\right) / \left(MW_i\right)}{\left(W_w / MW_w\right) + \sum_{e=1}^{n} \left(W_e / MW_e\right) + \sum_{i=1}^{n} \left(W_i / MW_i\right)}$$

Where:

W_i = Weight of the "i"th reactive organic compound, in grams
W_w = Weight of water, in grams
W_e = Weight of the "e"th exempt organic compound, in grams
MW_i = Molecular weight of the "i"th reactive organic compound, in grams per grams-mole
MW_w = Molecular weight of water, in grams per grams-mole
MW_e = Molecular weight of the "e"th exempt compound, in grams per grams-mole
PP_c = Reactive organic compound composite partial pressure at 20 degrees Celsius, in millimeters of mercury
VP_i = Vapor pressure of the "i"th reactive organic compound at 20 degrees Celsius, in millimeters of mercury

"Refrigerated Freeboard Chiller" ~~means a secondary cooling coil mounted above the primary condenser that provides a chilled air blanket above the solvent vapor air interface to cause the condensation of additional solvent vapor.~~ see the definition for "**Freeboard Refrigeration Device (also called a 'Chiller').**"

"Remote Reservoir Cold ~~Cleaner~~ Cleaning Machine" means any device in which liquid solvent is pumped ~~through~~ to a sink-like work area ~~for cleaning parts and~~ that drains ~~immediately~~ solvent back into an enclosed container while parts are being cleaned, ~~without forming a~~ allowing no solvent to pool in the work

area~~, through a single drain hole less than 100 square centimeters (15.5 square inches) in area into an enclosed container that is not accessible for soaking parts~~. A remote reservoir cold cleaning machine that uses an enclosed container that is accessible for dipping or soaking parts is also considered to be a batch cleaning machine.

"Repair Cleaning" means a solvent cleaning operation or activity carried out during a repair process.

"Repair Process" means the process of returning a damaged object or an object not operating properly to good condition.

"Research and Development" means a facility or portion thereof used to further the development of useful materials, devices, systems, or methods, including, but not limited to, design, development, and improvement of prototypes and processes. Research and development does not include the manufacturing process itself.

"Rotating Basket" means a perforated or wire mesh cylinder containing parts to be cleaned that is slowly rotated while proceeding through the ~~degreaser~~ solvent cleaning machine.

"Scientific Instrument" means an instrument (including the components, assemblies, and subassemblies used in their manufacture) and associated accessories and reagents that is used for the detection, measurement, analysis, separation, synthesis, or sequencing of various compounds.

"Semiconductor Manufacturing" means any process or operation producing semiconductor material, slicing or polishing semiconductor material, utilizing photoresist to manufacture intermediate products, or producing either semiconductor devices or related solid state devices.

"Silicone Manufacturing" means any process or operation producing a silicone raw material (e.g., polymer, fluid, gum, gel, elastomer, dispersion, or other bulk state silicone material). Silicone manufacturing also includes any on site preliminary processes or operations that occurs before a silicone raw material is produced.

"Soils" mean contaminants that are removed from the part or parts being cleaned. Soils include, but are not limited to, grease, oils, waxes, metal chips, carbon deposits, fluxes, and tars.

"Solvent" means ~~**"Organic Solvent."**~~any liquid containing any reactive organic compound or any toxic air contaminant, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, drying agent, preservative, or other similar uses. [*Link to Note No. 45*]

"Solvent/Air Interface" means, for a vapor cleaning machine, the location of contact between the concentrated solvent vapor layer and the air. This location of contact is defined as the mid-line height of the primary condenser coils. For a cold cleaning machine, it is the location of contact between the liquid solvent and the air.

"Solvent/Air Interface Area" means; for a vapor cleaning machine, the surface area of the solvent vapor zone that is exposed to the air; for an in-line cleaning machine, it is the total surface area of all the sumps; for a cold cleaning machine, it is the surface area of the liquid solvent that is exposed to the air, except for remote reservoir cleaning machines, in which case it is the area of the drain.

[*Link to Note No.46*]

~~**"Solvent Cleaner"** means a device that applies solvent or in which solvent is applied to items for the purpose of solvent cleaning.~~

"Solvent Cleaning" means ~~the use of organic solvent to remove loosely held uncured adhesives, uncured inks, uncured coatings, and other contaminants that include, but are not limited to, dirt, soil, lubricants, coolant, moisture, grease and fingerprints from parts, products, tools, machinery, equipment and general work areas.~~ any activity, operation, or process (including, but not limited to, surface preparation, cleanup, or wipe cleaning) performed outside of a solvent cleaning machine, that uses solvent to remove uncured

adhesives, uncured coatings, uncured inks, uncured polyester resin material, uncured sealant, or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment, and general work areas. Cleaning spray equipment used for the application of coating, adhesive, ink, polyester resin material, or sealant is also considered to be solvent cleaning irrespective of the spray material being cured. [*Link to Note No. 47*]

"Solvent Cleaning Machine" means any device or piece of equipment that uses solvent liquid or vapor to remove soils, moisture, or other contaminants from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch cold, batch vapor, in-line cold, in-line vapor, remote reservoir, and gas-path solvent cleaners. Buckets, pails, and beakers with capacities of 3.785 liters (1.00 gallon) or less are not considered solvent cleaning machines. However, the use of such a container or similar containers (e.g., hand-held spray bottles) with a liquid solvent for cleaning is considered to be solvent cleaning. Any device or piece of equipment used exclusively for stripping shall not be considered to be a solvent cleaning machine. [*Link to Note No. 47*]

"Solvent Container" means that part of the solvent ~~cleaner~~ cleaning machine that is intended to hold the cleaning solvent.

"Solvent Vapor Zone" means; for a vapor cleaning machine, the area that extends from the liquid solvent surface to the level that solvent vapor is condensed. This condensation level is defined as the midline height of the primary condenser coils.

"Space Vehicle" means a vehicle designed to travel beyond the earth's atmosphere.

"Space Vehicle Component" means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any space vehicle, including mockups and prototypes.

"Spray Pump Control Switch" means a safety switch that prevents the spray pump from operating if the vapor level falls below the design operating level.

"Sump" means the part of a solvent cleaning machine where the liquid solvent is located.

"Sump Heater Coils" mean the heating system on a cleaning machine that uses steam, electricity, or hot water to heat or boil the liquid solvent.

"Superheated Vapor System" means a system that heats the solvent vapor, either passively or actively, to a temperature above the solvent's initial boiling point. Parts are held in the superheated vapor before exiting the machine to evaporate the liquid solvent on them. Hot vapor recycle is an example of a superheated vapor system.

"Superheated Vapor Zone" means any region located within the vapor zone of a vapor cleaning machine whereby solvent vapors are heated above the solvent's initial boiling point.

"Ultrasonics" means enhancement of the cleaning process by agitation of liquid solvents with high frequency sound wave vibrations.

"Vapor Cleaning Machine" means a batch or in-line solvent cleaning machine that boils liquid solvent generating solvent vapor that is used as a part of the cleaning or drying cycle.

~~**"Vapor Level Control Switch or Vapor Level Control Thermostat"** see **"High Vapor Cutoff Thermostat."**~~

~~**"Vapor Solvent Cleaner"** means any solvent cleaners that cleans through the condensation of hot solvent vapor on colder workloads.~~

"Waste Solvent Residue" means sludge that may contain dirt, oil, metal particles, and/or other undesirable waste products concentrated after heat distillation of the waste solvent either in the solvent ~~cleaner~~ cleaning machine itself or after distillation in a separate still.

"Water Layer" means a layer of water that floats above the denser solvent and provides control of solvent emissions. In many cases, the solvent used in batch cold cleaning machines is sold containing the appropriate amount of water to create a water cover.

~~**"Wipe Cleaning"** means that method of cleaning that uses a material such as a rag wetted with a solvent, coupled with a physical rubbing process to remove contaminants from surfaces.~~

"Workload" means the objects put in a ~~cleaner~~ solvent cleaning machine for the purpose of removing oil, grease, soil, coating, dirt, moisture, or other undesirable matter from the surface of the objects.

"Workload Area" means:

(1) The plane geometric surface area of the top of the submerged parts basket, or
(2) The combined plane geometric surface area(s) displaced by the submerged workload, if no basket is used.

D. General Operating Requirements. Any person who owns, operates, or uses any solvent ~~cleaner~~ cleaning machine or performs any solvent cleaning shall ensure such operation conforms to the following ~~operating~~ requirements: [*Link to Note No. 48*]

1. ~~S~~solvent, including waste solvent and waste solvent residue, and waste solvent cleaning materials such as cloth, paper, etc. shall ~~not~~ be stored or disposed of ~~in a manner that will cause or allow evaporation into the atmosphere~~in nonabsorbent and nonleaking containers equipped with tight-fitting covers. The covers shall be in place unless adding material to or removing material from the containers, the containers are empty, or doing maintenance/inspection of the containers. ~~Containers shall have a label indicating the name of the solvent/material they contain.~~ After distillation recovery of waste solvent, solvent residues shall not contain more than 20 percent ~~solvent~~ of reactive organic compound by weight.

2. The solvent ~~cleaner~~cleaning machine, ventilation system, and/or emission control equipment shall be installed, operated, and maintained ~~in proper working order~~ consistent with the manufacturer's specifications.

3. ~~Solvent~~ The cleaning ~~or solvent vapor cleaning~~ of porous or absorbent materials, such as cloth, leather, wood, or rope, is prohibited. This provision shall not apply to paper gaskets, paper filters, and medical devices.

4. ~~The~~ All ~~solvent~~ containers holding solvent shall be free of ~~all~~ liquid leaks. ~~Auxiliary cleaner~~ Solvent cleaning machine equipment, such as covers, pumps, water separators, steam traps, or distillation units shall not have any liquid leaks, visible tears, holes, or cracks. Any such liquid leak, visible tear, hole, or crack that is detected shall be repaired within one day from discovery ~~by the operator~~, or the ~~cleaner~~ solvent cleaning machine shall be drained of all solvent, ~~in a manner authorized by this Rule~~consistent with Section D.12 provisions, and shut down until replaced or repaired. Solvent ~~cleaners~~ cleaning machines shall not be operated when leaking.

5. Covers and other closure devices (e.g., valves or drain plugs) designed to reduce solvent evaporation shall not be removed or opened except to process work or to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers or other closure devices. Solvent cleaning machines shall not be operated when performing maintenance or repairs.

6. For solvent ~~degreaser~~ cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent carry-out shall be minimized by the following methods, as applicable:

   a. Except for remote reservoir cold cleaning machines, ~~The~~ the workload shall be racked.

   b. ~~For manual operations, any pools of solvent remaining on the cleaned parts shall be tipped out before removing them from the cleaner.~~Parts having cavities, holes, or blind holes shall be tipped or rotated before being removed from the solvent cleaning machine such that the solvent in the cavities, holes, or blind holes is returned to the solvent container.

   ~~c.~~ ~~Pools of solvent shall be drained by a device.~~

   ~~d~~c. The workload shall be drained within the freeboard area so that the drained solvent is returned to the solvent container.

   ~~e~~d. For cold solvent cleaning, parts shall be drained immediately after cleaning, until one of the following conditions exists:

      1) At least 15 seconds have elapsed; or

      2) Dripping of solvent ceases; or

      3) The parts become visibly dry.

   ~~f~~e. For automated parts handling systems, ~~T~~the workload shall be moved in and out of the ~~degreaser~~ solvent cleaning machine at less than ~~3.3~~3.4 meters per minute (11.2 feet per minute).

7. For solvent ~~degreaser~~ cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent flow shall be directed downward to avoid turbulence at the ~~air-vapor or air-solvent~~ solvent/air interface and to prevent liquid solvent from splashing outside of the ~~cleaner~~solvent cleaning machine. If a flexible hose or flushing device is used, flushing shall be performed only within the freeboard area of the solvent cleaning machine.

8. For solvent ~~degreaser~~ cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent flow shall not be used in a manner such that liquid solvent splashes outside the container.

9. Solvent ~~atomization operations (e.g., blow drying)~~ shall not be atomized unless ~~be~~ it is vented to an emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~N.

10. Any solvent spills shall be wiped up immediately and the used absorbent material (e.g., cloth, paper, sand, sawdust, etc.) shall be stored in closed containers that are handled in accordance with Section D.1.

11. Solvent levels shall not exceed the solvent cleaning machine's fill line.

12. Draining or filling solvent containers shall be performed at a level lower than the liquid solvent surface.

[*Link to Note No.49*]

13. When using a ventilation fan, it shall not be positioned in such a way as to direct air flow near a solvent cleaning machine opening. [*Link to Note No. 50*]

E. Additional Operating Requirements for ~~Open-top~~ Batch Vapor ~~Solvent Cleaners~~ Cleaning Machines and In-Line ~~Conveyorized~~ Vapor ~~Solvent Cleaners~~Cleaning Machines. ~~In addition to the general operating requirements specified above in Rule 321 Section D, a~~Any person who owns, operates, or uses any ~~open-top~~ batch vapor ~~solvent cleaner~~ cleaning machine or any ~~conveyorized~~ in-line vapor ~~solvent cleaner~~ cleaning machine shall ensure the equipment operation conforms to the following ~~operating~~ requirements:

1. ~~The degreaser shall be covered whenever the cooling system is off.~~ Except to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers:

   a. Idling mode covers shall be closed or in place when the equipment is in an idling mode.

   b. Downtime mode covers shall be closed or in place when the equipment is in a downtime mode.

2. When starting the ~~degreaser~~ solvent cleaning machine, the ~~cooling system~~ primary condenser shall be turned on before ~~or simultaneously with~~ the sump heater.

3. When shutting down the ~~degreaser~~ solvent cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before ~~or simultaneously with~~ the ~~cooling system~~ primary condenser is turned off.

4. The workload shall be ~~degreased~~ cleaned in the vapor zone for at least 30 seconds or until condensation ceases.

5. Parts shall be allowed to dry within the ~~degreaser~~ solvent cleaning machine until the exterior surface of the parts become visually dry.

6. Solvent spray shall be kept at least 10 centimeters (3.94 inches) below the ~~air-vapor~~ solvent/air interface.

7. The workload area shall not occupy more than half of the ~~evaporative surface area~~solvent/air interface area of the solvent ~~cleaner~~ cleaning machine.

8. For ~~cleaners~~ solvent cleaning machines equipped with water separators, water shall not be visibly detectable in the solvent phase exiting the water separator, nor shall solvent be visibly detectable in the aqueous phase leaving the separator.

9. If equipped with a superheated vapor zone:

   a. The manufacturer's specifications for determining the minimum proper dwell time within the superheated vapor system shall be followed.

   b. Parts and parts baskets shall remain in the vapor zone for at least the minimum proper dwell time.

   c. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

F. Additional Operating Requirements for Gas/~~Liquid~~-Path ~~Cleaners~~Solvent Cleaners. ~~In addition to the operating requirements specified in Rule 321 Sections D.1 – D.5 and D.9, a~~Any person who owns, operates, or uses ~~using~~ any ~~gas/liquid-path cleaner~~ gas-path solvent cleaner shall ensure the equipment operation conforms to the following ~~operating~~ requirements:

1. Cleaned parts or equipment shall be drained until dripping ceases or 15 seconds have elapsed.

2. The cover of the solvent container(s), reservoir(s) and opening(s) of a solvent collection system shall be closed at all times except ~~when the reservoir is being filled, emptied, cleaned, repaired or inspected~~ to process work or to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers or other closure devices.

G. General Equipment Requirements for Solvent ~~Cleaners~~Cleaning Machines. Any person who owns, operates, or uses ~~All~~ any solvent ~~cleaners~~ cleaning machine shall ensure that it is equipped with ~~conform to~~ the following ~~requirements~~:

1. A container ~~shall be used~~ for the solvent.

2. Except for remote reservoir cold ~~cleaners~~ cleaning machines using low volatility solvents, ~~all cleaners shall be equipped with~~ an apparatus or cover(s) to completely cover the solvent container when not processing work.

3. ~~Solvent degreasers shall be equipped with a facility~~ Except for gas-path solvent cleaners using a solvent with a reactive organic compound content of 50 grams per liter of material or less, an apparatus or a device for draining cleaned parts such that the drained solvent or drag-out is returned to the ~~cleaner~~ solvent ~~tank~~container.

4. ~~The~~ A list of the applicable operating requirements. At a minimum, the list shall include the applicable operating requirements contained in ~~Rule 321~~ Sections D, E, and F. The list of operating requirements shall be ~~legibly written~~ legible and ~~permanently and~~ conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.

5. Where solvent agitation is used, ~~the~~ equipment that achieves agitation ~~shall be achieved~~ by use of ~~using~~ pump recirculation, mechanical mixing (a mixer), or ultrasonics. Gas or air agitation shall not be used. When a pump-agitated solvent bath is used, the pump agitator shall be designed to produce a rolling motion of the solvent without any observable splashing against tank walls or parts being cleaned.

6. When employing solvent flow, ~~with a solvent degreaser, the flow shall only be~~ a flexible hose or flushing device that produces only a continuous fluid stream. An atomized or shower type spray shall not be used~~. I~~ unless it is used in an ~~conveyorized~~ in-line or enclosed ~~cleaner~~solvent cleaning machine~~, a shower type spray may be used provided that~~ where the spray is conducted in a totally confined space that is sealed from the atmosphere.

7. ~~Any degreaser equipped with~~ Where a hood, enclosure, ~~or~~ lip exhaust, or a lip exhaust connected to a hood or enclosure is employed, ~~shall not have an~~ a blower or fan such that the air ventilation rate ~~in excess of~~ shall not exceed 20 cubic meters per minute per square meter (65.6 cubic feet per minute per square feet) of ~~air-vapor or air-solvent~~ solvent/air interface ~~surface~~ area, unless necessary to meet a National Institute for Occupational Safety and Health standard.

8. ~~Effective July 17, 1997, no person shall install or add a lip exhaust to a degreaser~~ When a lip exhaust ~~unless it is~~ is installed or added after July 17, 1997, ~~vented to~~ an emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~ N.

9. A ~~The average draft rate in the solvent cleaner~~ workroom having an average draft rate, as measured parallel to the plane of the ~~degreaser~~ solvent cleaning machine opening, ~~shall~~ not exceed~~ing~~ 9.1 meters per minute (30 feet per minute), unless necessary to meet a National Institute for Occupational Safety and Health standard.

~~10. Ventilation fans shall not be positioned in such a way as to direct air flow near the degreaser openings.~~

~~11~~10. When employing an automated parts handling system, ~~The vertical~~ equipment such that the speed ~~of any powered hoist or conveyor~~ of the parts shall not exceed ~~3.3~~3.4 meters per minute (11.2 feet per minute).

H. Additional Equipment Requirements for Remote Reservoir Cold ~~Cleaners~~Cleaning Machines. ~~In addition to the requirements in Rule 321 Section G,~~ Any person who owns, operates, or uses any remote reservoir cold ~~cleaner equipment~~ cleaning machine shall ensure that it is equipped with ~~meet~~ the following ~~requirements~~:

1. ~~The~~ A sink or work area ~~shall be~~ that is sloped sufficiently towards the drain to prevent pooling of solvent.

2. ~~There shall be a~~A single drain hole, not larger than 100 square centimeters (15.5 square inches) in area, for the solvent to flow from the sink into the enclosed reservoir.

3. Except ~~for remote reservoir cold cleaners~~ when using low volatility solvents, a cover or a device, such as a valve or a drain plug, to prevent or minimize ~~the~~ solvent vapor emissions ~~shall be prevented from escaping~~ from the solvent container ~~by means of closing a cover or a device, such as a valve or a drain plug,~~ when ~~the remote reservoir is not being used, cleaned, or repaired~~ not processing work or performing monitoring, inspections, maintenance, or repairs that require the removal of the cover or device.

4. ~~The~~ A freeboard height ~~shall be~~ of 6 inches or higher.

5. ~~The unit shall have a~~ When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater.~~, if the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), agitated, or a high volatility solvent is used.~~

6. In lieu of the freeboard height required by ~~Rule 321~~ Section H.4 or the freeboard ratio required by ~~Rule 321~~ Section H.5, one of the following requirements ~~shall~~ may be met:

   a. ~~a~~ A water ~~cover~~ layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine ~~at least 1 inch deep~~ shall be used, ~~provided the solvent is insoluble in water and has a specific gravity greater than 1,~~ or

   b. ~~a~~An emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~ N shall be used.

7. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less. [*Link to Note No. 51*]

I. Additional Equipment Requirements for Batch Cold ~~Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G,~~ Any person who owns, operates, or uses any batch cold ~~cleaners~~ cleaning machine other than a remote reservoir cold cleaning machine shall ensure that it is equipped with ~~include all of~~ the following: [*Link to Note No.52*]

1. When using a high volatility solvent, ~~the unit shall be equipped with~~ a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close. If a mechanized batch cold cleaning machine (e.g., a manually loaded or semi-continuously loaded Ferris wheel or cross-rod solvent cleaning machine) is used with a high volatility solvent, the unit shall be equipped with a downtime mode cover.

2. ~~A method for draining cleaned parts, so the drained solvent is returned to the container.~~ If using a high volatility solvent, the drainage ~~facility~~ apparatus or device required by Section G.3 shall be

internal so that the cleaned parts are within the solvent ~~cleaner~~ cleaning machine and under the cover while draining. The drainage ~~facility~~ apparatus or device may be external where the internal type cannot fit into the cleaning system provided the drained solvent is returned to the solvent container.

3. When using a low volatility solvent that is not agitated, ~~the~~ a freeboard height ~~shall be~~ of 6 inches or higher or dimensions such that ~~a~~ the freeboard ratio ~~of~~ is 0.5 or greater ~~shall be maintained~~.

4. ~~The unit shall have a~~ When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater., ~~if the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), agitated, or a high volatility solvent is used.~~

5. In lieu of the freeboard height or freeboard ratio required by ~~Rule 321~~ Section I.3 or the freeboard ratio required by Section I.4, one of the following requirements may be met:

   a. ~~a water cover at least 1 inch deep shall be used, provided the solvent is insoluble in water and has a specific gravity greater than 1~~A water layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine shall be used, or

   b. ~~a~~An emission control system shall be used that meets the requirements of ~~Rule 321~~ Section ~~M~~ N shall be used.

6. A ~~permanent,~~ conspicuous mark ~~shall be maintained locating~~ denoting the maximum allowable solvent level conforming to the applicable freeboard requirements. This requirement does not apply if employing a water ~~cover~~ layer or an emission control system per ~~Rule 321~~ Section I.5.

7. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less. [*Link to Note No. 53*]

J. Additional Equipment Requirements for ~~Open-top~~ Batch Vapor ~~Solvent Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, open-top~~ Any person who owns, operates, or uses any batch vapor ~~solvent cleaners~~ cleaning machine shall ensure that it is equipped with ~~include all of~~ the following:

1. For open-top vapor cleaning machines, ~~A~~ a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close without disturbing the vapor zone. This requirement does not apply to open-top vapor ~~solvent degreasers~~ cleaning machines equipped with top enclosures, provided:

   a. the operator only opens the enclosure cover(s) or door(s) when the condenser is operative or when the ~~degreaser~~ solvent cleaning machine is shut down, and

   b. the ~~degreaser~~ solvent cleaning machine ~~evaporative surface area~~solvent/air interface area is less than 1 square meter (10.8 square feet), and

   c. the ~~degreaser~~ solvent cleaning machine cover is designed such that it can be opened and closed easily without disturbing the vapor zone.

2. For mechanized batch vapor cleaning machines (e.g., a manually-loaded or semi-continuously-loaded Ferris wheel or cross-rod solvent cleaning machine), idling and downtime mode covers.

~~2~~3. A primary condenser ~~coil~~ situated above the boiling solvent.

~~3~~4. A condenser flow switch that automatically shuts off the sump heater if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.

~~4~~5. A ~~high~~ vapor level ~~cutoff thermostat~~ control device that automatically shuts off the sump heater ~~when~~ if the ~~solvent~~ vapor level in the vapor cleaning machine rises above the ~~designed operating level~~ height of the primary condenser.

~~5~~6. For ~~degreasers~~ solvent cleaning machines with solvent flow, a device such as a spray pump control switch that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.

7. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

~~6~~8. ~~A~~ Dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater. Effective [*one year from the date of revised rule adoption*], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.

~~7~~9. ~~Cleaners~~ For solvent cleaning machines with ~~an evaporative surface area~~a solvent/air interface area of 1 square meter (10.8 square feet) or greater ~~shall be equipped with one of the following~~:

a. A ~~refrigerated freeboard chiller~~ freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the ~~air-vapor interface~~ air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost~~.~~; or

b. An enclosed design in which the cover or door opens only when the dry part is actually entering or exiting the ~~cleaner~~ solvent cleaning machine.

~~8~~10. In lieu of the freeboard ratio required by ~~Rule 321~~ Section J.~~6~~8 or the freeboard chiller/enclosed design required by Section J.~~7~~9, an emission control system that meets the requirements of Section ~~M~~ N may be used.

11. Effective [*one year from the date of revised rule adoption*], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:

a. An automated parts handling system;

b. A circumferential trough;

c. A water separator (not required for solvents that form azeotropes with water);

d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used. [*Link to Note No. 54*]

K. Additional Equipment Requirements for ~~Conveyorized~~ In-Line Cold ~~Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, conveyorized~~ Any person who owns, operates, or uses any batch in-line cold ~~cleaners~~ cleaning machine shall ensure that it is ~~be~~ equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.

2. Openings such that ~~T~~the average clearance between workload material and the edges of the ~~cleaner~~ solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.

3. Down-time mode covers ~~for closing off the entrance and exit during shutdown hours, or an equivalent device that cover at least 90 percent of the opening~~. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.

4. ~~A~~ Dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater ~~that is physically verifiable~~.

5. In lieu of the freeboard ratio required by ~~Rule 321~~ Section K.4, ~~use of~~ an emission control system that meets the requirements of Section ~~M~~N may be used.

6. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less. [*Link to Note No. 55*]

L. Additional Equipment Requirements for ~~Conveyorized~~ In-Line Vapor ~~Solvent Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, conveyorized~~ Any person who owns, operates, or uses any in-line vapor ~~solvent cleaners~~ cleaning machine shall ensure that it is ~~be~~ equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.

2. Openings such that ~~T~~the average clearance between workload material and the edges of the ~~cleaner~~ solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.

3. Idling and ~~D~~down-time mode covers ~~for closing off the entrance and exit during shutdown hours, or an equivalent device that cover at least 90 percent of the opening~~. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.

4. A primary condenser ~~coil~~ situated above the boiling solvent.

5. A condenser flow switch that automatically shuts off the sump heater if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.

6. A ~~high~~ vapor level ~~cutoff thermostat~~ control device that automatically shuts off the sump heater ~~when~~ if the ~~solvent~~ vapor level in the vapor cleaning machine rises above the ~~designed operating level~~ height of the primary condenser.

7. For ~~degreasers~~ solvent cleaning machines with solvent flow, a device such as a spray pump control switch ~~device~~ that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.

8. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

~~8~~9. ~~A~~ Dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater ~~that is physically verifiable~~. Effective [*one year from the date of revised rule adoption*], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.

~~9~~10. In lieu of the freeboard ratio required by ~~Rule 321~~ Section L.~~8~~9, one of the following ~~shall~~ may be met:

a. A ~~refrigerated freeboard chiller~~ freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the ~~air-vapor interface~~ air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost; or

b. An emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~ N shall be used.

11. Effective [*one year from the date of revised rule adoption*], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:

a. A circumferential trough;

b. A water separator (not required for solvents that form azeotropes with water);

c. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

d. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used. [*Link to Note No. 56*]

M. Requirements - Solvent Cleaning. [*Link to Note No. 57*]

Section M requirements apply to any person performing solvent cleaning, including, but not limited to, use of wipe cleaning cloths, cotton swabs, dabber bottles, hand-held spray bottles, squirt bottles, aerosol products, and the cleaning of application equipment. The following requirements become effective [*one year from the date of revised rule adoption*] and are in addition to the general operating requirements specified in Section D.

1. **Solvent Requirements.** Except when using an emission control system that meets the requirements of Section N, no person shall use any solvent to perform solvent cleaning which exceeds the applicable grams of reactive organic compound per liter of material limit specified in Table 1.

Table 1: Reactive Organic Compound Content Limits for Solvent Cleaning

SOLVENT CLEANING ACTIVITY	ROC Limit, grams of ROC per liter of material (pounds of ROC per gallon[a])	
(a) Product Cleaning During Manufacturing Processes and Surface Preparation for Coating Application:		
(i) General	50 (0.42)	[*Link to Note No. 58*]
(ii) Electrical Apparatus Components & Electronic Components	900 (7.51)	[*Link to Note No. 59*]
(iii) Medical Devices & Pharmaceuticals	900 (7.51)	
(iv) Silicone Manufacturing	900 (7.51)	[*Link to Note No. 60*]
(b) Repair Cleaning and Maintenance Cleaning:		
(i) General	50 (0.42)	[*Link to Note No. 58*]
(ii) Electrical Apparatus Components & Electronic Components	900 (7.51)	[*Link to Note No. 59*]
(iii) Medical Devices & Pharmaceuticals:		
(I) Tools, Equipment, & Machinery	900 (7.51)	
(II) General Work Surfaces	900 (7.51)	
(iv) Silicone Manufacturing	900 (7.51)	[*Link to Note No. 60*]
(c) Cleaning of Coatings Application Equipment	950 (7.93)	[*Link to Note No. 59*]
(d) Cleaning of the Following Items and Equipment and their Components: (i) Aerospace Vehicles; (ii) Aerospace Vehicle Payloads and Satellites; (iii) Aerospace Vehicle, Aerospace Vehicle Payload, and Satellite: (I) Transport Equipment (e.g., railcars, trucks, trailers, forklifts, and containers), and (II) Support Processing Equipment (e.g., clean rooms, tools, payload fairing fixtures, alignment jigs, fuel and oxidizer loading carts and associated transfer lines).	900 (7.51)	[*Link to Note No. 61*]

[a] English units are provided for information only.

2. **Cleaning Devices and Methods.** Except for solvent cleaning of spray application equipment, any person performing solvent cleaning with a solvent containing more than 50 grams per liter of material shall use one or more of the following cleaning devices or methods: [*Link to Note No. 62*]

a. Wipe cleaning where solvent is dispensed to wipe cleaning materials from containers that are kept closed to prevent evaporation, except while dispensing solvent or replenishing the solvent supply;

b. Application of solvent from hand-held spray bottles, squirt bottles, or other closed containers with a capacity of one liter or less; or

c. Non-atomized solvent flow, dip, or flush method where pooling on surfaces being cleaned is prevented or drained, and all solvent runoff is collected in a manner that enables solvent recovery or disposal. The collection system shall be kept closed to prevent evaporation except while collecting solvent runoff or emptying the collection system.

3. **Solvent Cleaning of Spray Application Equipment.** Any person cleaning spray application equipment with a solvent containing more than 50 grams of reactive organic compound per liter of material shall use an enclosed system, or equipment that is proven to the satisfaction of the Control Officer to be equally effective as an enclosed system at controlling emissions. If an enclosed system is used, it shall totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it shall be used according to the manufacturer's recommendations and be closed when not in use. [*Link to Note No. 63*]

~~M~~N. **Emission Control System Requirements.** Any person who owns, operates, or uses any emission control system required by ~~owning or operating a solvent cleaner subject to this rule may use~~ Sections D.9, G.8, or T.2.b.4) ~~an emission control system~~ or as an alternative compliance method as provided for in this rule ~~to Rule 321 Sections D.9, G.8, H.6.b, I.5.b, J.8, K.5, or L.9.b, provided that~~shall ensure that the following requirements are met: [*Link to Note No. 64*]

1. The overall efficiency (the capture system efficiency multiplied by the emission control device efficiency) of the total system shall not be less than 85 percent by weight in reducing total reactive organic compound and toxic air contaminant emissions. [*Link to Note No. 65*]

2. When using a carbon ~~adsorption~~ adsorber, the system exhaust shall be no more than 25 parts per million of ~~solvent~~ reactive organic compound by volume, calculated as carbon, over a complete adsorption cycle,

3. The emission collection system shall have a ventilation rate between 15 to 20 cubic meters per minute per square meter of ~~air-vapor or air-solvent~~ solvent/air interface area (49.2 to 65.6 cubic feet per minute per square feet of ~~air-vapor or air-solvent~~ solvent air interface ~~surface~~ area), unless otherwise required to meet a National Institute for Occupational Safety and Health standard.

4. An application for installation of the emission control equipment is submitted and the Control Officer grants an Authority to Construct for the equipment.

5. An initial source test is accomplished by [*one year from the date of revised rule adoption*] or a later deadline established in an Authority to Construct to demonstrate compliance with the overall efficiency of the total system and/or the 25 parts per million reactive organic compound by volume limits of this rule. [*Link to Note No. 66*]

6. Compliance through the use of an emission control system will not result in reactive organic compound emissions in excess of the reactive organic compound emissions which would result from compliance with Sections H.7, I.7, K.6, or M.1. [*Link to Note No. 67*]

O. Alternative Operating and Equipment Requirements for an Airless Solvent Cleaning Machine or an Air-Tight Solvent Cleaning Machine. In lieu of meeting the requirements of Sections E through L, any person may use an airless solvent cleaning machine or air-tight solvent cleaning machine provided all of the following requirements are met: [*Link to Note No. 68*]

1. The equipment is operated in accordance with the manufacturer's specifications and operated with a door or other pressure sealing apparatus that is in place during all cleaning and drying cycles.

2. No pressure relief device shall allow liquid solvent to drain out.

3. A differential pressure gauge shall be installed to indicate the sealed chamber pressure.

4. A list of operating requirements shall be legible and conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.

~~N~~P. Test Methods.

Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning shall comply with the following test methods:

1. The reactive organic compound content of solvents shall be measured by the Environmental Protection Agency Reference Method 24 (40 CFR, Part 60, Appendix A-7).

2. The initial boiling point of solvents shall be determined by ASTM D- 1078-~~86~~05, "Standard Test Method for Distillation Range of Volatile Organic Liquids~~.~~," ASTM International.

3. The capture system efficiency shall be determined in accordance with the Environmental Protection Agency method described in 40 CFR, §52.741(a)(4)(iii) when the emission control system is used for reducing emissions of reactive organic compounds. For emission control systems handling compounds that are toxic air contaminants but not reactive organic compounds, the capture system efficiency shall be determined by using the same aforementioned method modified in a manner approved by the Control Officer to quantify the mass of liquid or gaseous reactive organic compounds and/or toxic air contaminants.

4. The emission control device efficiency shall be determined pursuant to the Environmental Protection Agency method described in 40 CFR, §~~52.741(a)(4)(iv).~~ 51, Appendix M, Methods 204-204F, when the emission control system is used for reducing emissions of reactive organic compounds. For emission control systems handling any compound that is a toxic air contaminant but not a reactive organic compound, the emission control device efficiency shall be determined using:

   a. an Environmental Protection Agency approved test method or methods, or

   b. in the case where there is no Environmental Protection Agency approved test method, a Control Officer approved detection method applicable for each target toxics specie.

   c. Several Environmental Protection Agency and/or Control Officer approved test methods on the emission control device efficiency may need to be employed to demonstrate that the emission control system overall efficiency is at least 85 percent by weight in reducing emissions of reactive organic compounds and/or toxic air contaminants. In addition, techniques to convert "parts per million by volume" test method results to 1) "parts per million by weight" and/or 2) "mass emission rates" (e.g., pounds per hour) shall be approved by the Control Officer.

5. The volumetric flowrate shall be determined in accordance with the Environmental Protection Agency Methods 2, 2A, 2C, ~~and~~ 2D, 2F, or 2G (40 CFR, Part 60, Appendix A-1). [*Link to Note No. 69*]

6. The average workroom draft rate shall be measured parallel to the plane of the ~~degreaser~~ solvent cleaning machine opening with a thermistor anemometer with an accuracy within ± 2 feet per minute and a calibration pursuant to the National Institute of Standards and Technology.

7. The identity of components in solvents shall be determined using manufacturer's formulation data or by using ASTM E 168-~~67~~06, "Standard Practices for General Techniques of Infrared Quantitative Analysis," ASTM International, ASTM E 169-~~87~~04, "Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis," ASTM International, or ASTM E 260-~~85~~96 (2006), "Standard Practice for Packed Column Gas Chromatography," ASTM International.

8. Emissions of ~~ROC~~ reactive organic compounds from the exhaust of an emission control system shall be measured by the ~~appropriate EPA~~ Environmental Protection Agency Method 18 ~~or 25, or, if applicable, 25A or 25B may be used~~ (40 CFR, Part 60, Appendix A-7), with gas chromatography-flame ionization detection speciation analysis for C1, C2, C3, C4, C5, C6+ species. Alternatively, the Environmental Protection Agency Method 25 or 25A in combination with Method 18 may be used.

~~O~~**Q. Operation~~al~~ and Maintenance Plan.** Any person proposing to use an emission control device to comply with this rule pursuant to ~~Rule 321~~ Section ~~M~~ N shall submit, with the Authority to Construct application, an emission control device Operation and Maintenance Plan to the Control Officer for approval. ~~Owners or operators of emission control devices installed as of July 17, 1997, if not previously submitted, shall submit Operation & Maintenance Plans by January 17, 1998 and obtain approval of the plan by the Control Officer.~~ The Operation and Maintenance Plan shall specify: [*Link to Note No. 70*]

1. operation and maintenance procedures of emissions-producing operation, and

2. which records shall be kept to document these operation and maintenance procedures.

3. In addition, ~~These~~ these records shall comply with the requirements of ~~Rule 321~~ Section ~~P~~R.1.c and ~~P.3~~R.3. The Operation and Maintenance Plan shall be implemented upon approval of the Control Officer.

~~P~~**R. Recordkeeping Requirements.**

1. Any person ~~holding a permit for~~who owns, operates, or uses a solvent ~~cleaner~~ cleaning machine or performs solvent cleaning that is subject to this rule shall comply with the following requirements:

   a. Record and ~~M~~maintain ~~and have available on site solvent manufacturer specification sheets that show~~ the following information ~~for each solvent~~:

      1) ~~Type of solvent (chemical or manufacturer's product name).~~Brand name, stock identification number, and generic product class for each solvent used during the month at the stationary source.

      2) ~~The solvent initial boiling point.~~Material safety data sheets for each material listed in response to Section R.1.a.1).

      3) Purchase records for each material listed in response to Section R.1.a.1).

   b. Record ~~each quarter~~ the following information for the stationary source:

1) ~~The total volume of make-up solvent used, itemized by each solvent's chemical or manufacturer's product name. If the solvent is a mix of materials blended by the operator, the mix ratio by each solvent's chemical or manufacturer's product name shall be recorded.~~On a monthly basis, the total monthly volume (gallons) usage and reactive organic compound content (grams per liter or pounds per gallon of reactive organic compound) for each material listed in response to Section R.1.a.1).

2) ~~The date~~ Records confirming compliance with the acceptable disposal methods listed in Section D.1, each time waste solvent or waste solvent residue is removed from the ~~facility~~ stationary source for disposal.

3) For solvent cleaning, the type of cleaning activity for each solvent used at the stationary source in accordance with the cleaning categories specified in Table 1 of this rule.

4) For each solvent cleaning machine:

i. Type of solvent cleaning machine.

ii. Brand name of each solvent used in the solvent cleaning machine and the reactive organic compound content of each solvent, as used.

iii. The solvent(s) initial boiling point.

5) When the solvent used is a mixture of different materials that are blended by the operator, the mix ratio of the batch shall be recorded and the reactive organic compound content of the batch shall be calculated and recorded in order to determine compliance with the specified limits of reactive organic compound content, as applied.

c. If using an emission control system pursuant to ~~Rule 321~~ Section ~~M~~ N as a means of complying with this rule, the person shall maintain such records as required by the Operation and Maintenance Plan in Section ~~O~~ Q on a daily basis. Key operating parameters and other information necessary to verify compliance with the required overall efficiency of the total system, as specified in Section N.1, shall be recorded. These parameters shall include, but not be limited to:

1) Hours of operation;

2) All maintenance work that requires the emission control system to be shut down;

3) All information needed to demonstrate continuous compliance with Section N, such as temperatures, pressures, and/or flow rates.

~~2.~~ ~~Any person claiming an exemption from Rule 321, pursuant to Section B.2.b, shall record each quarter the following information for the stationary source: the aggregate evaporative surface area of all solvent cleaners subject to the Rule 321 Section B.2.b exemption claim.~~ [*Link to Note No. 71*]

~~3~~2. In addition to the records required by Section R.1, any person claiming the Section B.9 exemption or the Section B.15 exemption, shall maintain records in order to demonstrate compliance with the solvent usage rate aggregate limits. For Section B.9 exemption claims, daily records on a facility basis shall be maintained. For Section B.15 exemption claims, monthly and calendar year total records on a stationary source basis shall be maintained.

3. Maintain the ~~R~~records kept pursuant to this ~~section~~ rule ~~shall be maintained~~ on site for at least ~~2~~ 3 years. Thereafter, ~~the records shall be~~ maintain~~ed~~ such records either on site or readily available for expeditious inspection and review for an additional ~~3~~ 2 years.

~~Q~~S. Reporting Requirements

Any person holding a permit for a solvent ~~cleaner~~ cleaning machine or solvent cleaning subject to the requirements of this rule shall submit an annual report to the ~~Control~~ District. At a minimum, ~~T~~the annual report shall contain the ~~quarterly~~ monthly records required by ~~Rule 321~~ Section ~~P~~R.1.b.1), the annual totals based on each of the solvent's monthly data, the name and address of the Permittee, and the Permit to Operate number that the solvent cleaning machine and/or solvent cleaning is subject to. The report shall be due March 1 for the previous calendar year.

~~R~~T. Compliance Schedule

Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning subject to this rule shall meet the following compliance schedule:

1. New solvent cleaning machines and solvent cleaning operations:

   Commencing [*date of revised rule adoption*], any new solvent cleaning machine shall comply with this rule the first time it is operated in the District. Also commencing [*date of revised rule adoption*], any new solvent cleaning shall comply with this rule the first time it is performed in the District. [*Link to Note No. 72*]

2. Existing solvent cleaning machines:

   a. For any solvent cleaning machine previously subject to the Rule 321 adopted on September 18, 1997, commencing [*date of revised rule adoption*], the owner or operator shall ensure that the equipment complies with the applicable provisions of Rule 321. The provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of [*one year from the date of revised rule adoption*]. [*Link to Note No. 73*]

   b. For any solvent cleaning machine previously exempt from the September 18, 1997 amended Rule 321 that lost its exemption by the adoption of amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and/or Rule 321 on [*date of revised rule adoption*], the owner or operator of such equipment shall comply with the following: [*Link to Note No. 74*]

~~1. The owner or operator of any solvent cleaning equipment in operation as of July 17, 1997 and subject to the requirements of this rule shall comply with the following:~~

   ~~a.~~ 1) By ~~August 16, 1997~~[*30 days from the date of revised rule adoption*], be in full compliance with the applicable operating requirements of ~~Rule 321~~ Sections D, E, and F.

   ~~b.~~ 2) By ~~January 13, 1998~~[*180 days from the date of revised rule adoption*], be in full compliance with the applicable recordkeeping and reporting provisions of ~~Rule 321~~ Sections ~~P~~ R and ~~Q~~S.

   ~~c.~~ 3) By ~~July 17, 1998~~[*365 days from the date of revised rule adoption*], be in full compliance with the applicable equipment requirements of ~~Rule 321~~ Sections G, H, I, J~~,~~ K, L, and ~~M~~N.

~~d.~~ 4) ~~Notwithstanding Rule 321 Section R.1.c, the provisions of Section G.8 shall take effect on July 17, 1997.~~Any lip exhaust installed after [*date of revised rule adoption*] shall be vented to an emission control system that meets the requirements of Section N at the time of installation, notwithstanding the dates in Sections G.8 and T.2.b.3. [*Link to Note No. 75*]

~~2. This rule applies to any new or modified solvent cleaning equipment on July 17, 1997.~~

3. Existing solvent cleaning operations: [*Link to Note No. 76*]

The owner or operator of any facility performing solvent cleaning as of [*date of revised rule adoption*] and subject to the requirements of this rule shall comply with the following:

a. By [*30 days from the date of revised rule adoption*], be in full compliance with the applicable operating requirements of Section D.

b. By [*180 days from the date of revised rule adoption*], be in full compliance with the applicable recordkeeping and reporting provisions of Sections R and S.

c. By [*365 days from the date of revised rule adoption*], be in full compliance with the solvent cleaning requirements of Rule Section M.

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
1	Rule Title	The *solvent cleaning machines* term is from 40 CFR, Part 63, Subpart T. The *solvent cleaning* term is modeled on the term in the San Joaquin Valley Unified APCD (SJV) Rule 4663. "Solvent cleaning" is generally defined as those solvent activities, operations, and processes that occur outside of a solvent cleaning machine (SCM).	Click here.	Page F-1
2	A.	The District used the SJV Rule 4663 "Applicability" provision as a model for this section.	Click here.	Page F-1
3	B.1	The revised 321.B.1 text will make the use of a solvent containing two percent or less of the following materials exempt from the rule (except for the recordkeeping provisions): 1. reactive organic compounds and 2. toxic air contaminants. If either one is exceeded, then the exemption will not apply. The recordkeeping provisions are added to facilitate verification of exemption claims. If a solvent cleaning machine is using a hazardous air pollutant and is subject to the 40CFR Part 63 Subpart T requirements, the equipment will be exempt by Section B.5 (providing the equipment complies with the applicable federal requirements).	Click here.	Page F-1
4	Deleted B.2	To make the new/revised requirements applicable for solvent cleaning, small cold cleaning machines, and remote reservoir cleaning machines, the one gallon capacity and one square foot surface area exemptions need to be deleted. For additional information on this deletion, see the discussion in Appendix E, Page 1, under the 321.B exemptions, item 2. Click here to go to that section.	Click here.	Page F-1
5	Deleted B.3 and Revised B.2	The District is proposing to delete the existing B.3 text because it is unnecessary. The proposed amended Rule (PAR) 321 Section J.9 provision indicates that the requirements only apply to units with a surface area of 10.8 square feet or greater. The new text adds an architectural coating application equipment exemption. This exemption is necessary to standby itself (i.e., not be included with the B.6 provision) because Rule 323 does not currently have any requirements or exemptions on the cleaning of application equipment. The owners/operators that apply architectural coatings should easily comply with the 950 grams of ROC per liter limit. Thus, the requirement does not warrant recordkeeping provisions for compliance verification. The District modeled this exemption on the South Coast AQMD (SC) Rule 1171, Section (h)(2)(H), as adopted May 6, 2005.	Click here.	Page F-1

[a] When using a computer to view this material, you may return to the PAR 321 text by clicking the "here" link in the table using the left mouse button.

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
6	Deleted B.4.a	The deletion of the wipe cleaning exemption is necessary for consistency with the new PAR 321 solvent cleaning provisions.	Click here.	Page F-1
7	B.3	The District updated the name of the ATCM.	Click here.	Pages F-1 and F-2
8	B.4	This revised text is modeled on the exemption in the SJV Rule 4663.4.2.	Click here.	Page F-2
9	Deleted B.4.d	The deletion of the spray gun cleaning exemption is necessary for consistency with the PAR 321.	Click here.	Page F-2
10	B.5	The District is proposing that the definition of *solvent* include any liquid containing any ROC or toxic air contaminant (TAC). All HAP solvents are TACs. The addition of the "notwithstanding Section B.1" text in Rule 321.B.5 is to prevail over the Section B.1 exemption. Thus, a SCM subject to and complying with 40 CFR, Part 63, Subpart T, is exempt irrespective that the unit uses a cleaning agent that contains more than 2 percent solvent that is a TAC.	Click here.	Page F-2
11	B.5	The listing of the chemicals in this section is no longer necessary with the addition of the *halogenated hazardous air pollutant solvent* definition in Rule 321.	Click here.	Page F-2
12	Deleted B.4.f	The PAR 321 has provisions that apply to these types of units (e.g., Section O requirements for airless and air-tight solvent cleaning machines). Thus, the District needs to eliminate this exemption.	Click here.	Page F-2
13	B.6	Exempting the solvent cleaning operations that are subject to other rules from Rule 321 is consistent with the approach of putting the solvent cleaning requirements into each of the operation- or equipment-specific rules. The SJV and VC solvent cleaning rules have similar exemptions.	Click here.	Page F-2
14	B.7	This exemption is the same one found in SJV Rule 4663 Section 4.1 and VC Rule 74.6 Section E.1.c.	Click here.	Page F-2
15	B.8	The District modeled this exemption on provisions in the SJV Rule 4663 Sections 4.5.1 and 4.5.2, the SC Rule 1171 Section (g)(3), and VC Rule 74.6 Sections E.2.c and d.	Click here.	Page F-3
16	B.8	The PAR 321.B.8.d provision stems from various exemptions in the SC Rule 1122 and the SJV Rule 4662, the SBCAPCD responses to concerns from the regulated community, and the limits for like categories in the Section M.1, Table 1. For cleaning the specified products, PAR 321.B.8.d creates the same ROC-content limits found in Section M.1, Table 1. Hence, there should be no need for source to switch from using a SCM to performing solvent cleaning to be eligible to use solvents with higher ROC-content limits.	Click here.	Page F-3
17	B.9	Exemption B.9 is similar to the one found in SC Rule 1171(g)(4) and SJV Rule 4663.4.8. The District added the recordkeeping provision to facilitate determinations of exemption applicability. Also, in place of the reference to "CARB regulations" (as found in other air district rules) staff cited the consumer product provisions (California Code of Regulations, Title 17, Section 94507 et seq.) to be more specific on the requirement.	Click here.	Page F-3
18	B.10	The District modeled this exemption on the SC Rule 1171 Section (h)(6)(B) as adopted on October 8, 1999 and SJV Rule 4663 Section 4.6 provisions.	Click here.	Page F-3

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
19	B.11	The proposed new Section B.11.a and b exemptions are similar to the SC Rule 1171 Section (g)(11)(A) and (B) provisions. Staff added the Section B.11.c exemption because gas-path cleaners inject solvent into gas turbines or jet engines under pressure and there is likely atomization occurring during the process.	Click here.	Page F-3
20	B.12	With the addition of the term *moisture* to the solvent cleaning definition, tarmac de-icing operations become a subset of solvent cleaning. No air districts require control techniques for aircraft de-icing. A feasibility study on controlling de-icing operations has not been performed. Thus, the District prefers not to apply Rule 321 provisions to such operations at this time and is adding this exemption.	Click here.	Page F-3
21	B.13	This exemption is similar to an exemption provided in the SJV Rule 4663 Section 5.1.6 (adopted December 20, 2001). The SJV staff added this exemption in response to an industry concern about prohibiting the use of "Hudson" type sprayers, which are hand-pump pressurized containers with atomizing spray nozzles.	Click here.	Page F-3
22	B.14	The District is adding this exemption to clarify that the Rule 321 solvent cleaning requirements do not apply to such sources.	Click here.	Pages F-3 and F-4
23	B.15	This exemption is similar to the one found in the SJV Rule 4663 Section 4.4.	Click here.	Page F-4
24	B.16.a - f	Exemptions B.16.a - f stem from similar provisions found in the SC Rule 1171(g) and the VC Rule 74.6.E.2.	Click here.	Page F-4
25	B.16.g	The District added this exemption to allow offshore platform operators to use mineral spirits to remove crude oil residues. Limiting the solvent's composite partial pressure to 8 mm of Hg at 20 degrees Celsius or less is consistent with the U.S.EPA guidance in the document titled, "Control Techniques Guidelines: Industrial Cleaning Solvents," September 2006 (EPA-HQ-OAR-2006-0535). Mineral spirits meet the composite partial pressure limit and the 800 grams per liter ROC content limit.	Click here.	Page F-4
26	B.17	These exemptions are similar to the VC Rule 74.6, Section E.2.m and n exemptions.	Click here.	Page F-4
27	B.18	This exemption is similar to the VC Rule 74.6.1, Section G.3 exemption.	Click here.	Page F-4
28	B.19	The District modeled this exemption on the VC Rule 74.6.E.1.h text.	Click here.	Page F-4

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
29	B.20	This is a limited exemption from several new vapor cleaning machine requirements. Equipment subject to this exemption will not be required to have an automated parts handling system, an enhanced freeboard refrigeration device, a superheated vapor zone, or a freeboard ratio of 1.0. The District is proposing this exemption to provide relief for several existing uncontrolled vapor cleaners used by Raytheon to clean electronic components. Raytheon indicates it has explored using other equipment (e.g., airless and air-tight systems) but has not been able to find suitable replacements. The SC Rule 1122 (E) provides a narrow and unique exemption for specific parts cleaning operations, which is similar to the approach the District is taking. The proposed maximum ROC limit of 188 pounds per month per stationary source is based on data provided by Raytheon and may not represent the equipment's maximum potential to emit. The District is proposing the qualifying provisions of this exemption, including the pounds per month per stationary source limit, as a means to develop an exemption that will be acceptable to Raytheon, the District, ARB, and U.S.EPA.	Click here.	Page F-5
30	B.21	This is an exemption that is unique to SBC. The District is aware that medical device manufacturers sometime leak-test devices using a solvent bath. This limited exemption would allow the practice to continue without subjecting the solvent wash stations to the rule's minimum freeboard height and/or free ratio requirements, or alternative compliance methods (water cover or emission control system).	Click here.	Page F-5
31	B.22	The District is adding this exemption to clarify that metal lift-off operations and the other specifically listed operations are not subject to the Rule 321 requirements. (These wipe cleaning operations are currently exempt from Rule 321.) Members of the regulated community indicated that they need to use n-methyl-2-pyrrolidone (NMP) for these specific operations. Further, that they have searched for but have not been able to find suitable replacement solvents that meet their cleanliness demands. Although NMP has a high-ROC content (1,027 g/l) it has an extremely low composite partial pressure (0.29 mm Hg at 20 °C), which tends to reduce the evaporation rate and emissions.	Click here.	Page F-5
32	B.23	This exemption stems from a request from a manufacturer. The company has a small sump that the operator lifts out of the SCM and empties by pouring the solvent directly into the bulk container. The District agreed that for the small volume of solvent transferred (about 2 - 3 gallons) an alternative method involving siphoning solvent would not likely achieve a significantly lower emission rate. Thus, the District is adding this exemption.	Click here.	Page F-5
33	B.24	The District is providing this specific exemption in response to a request from Raytheon for a limited waiver from the requirement to have a freeboard ratio of 1.0.	Click here.	Page F-5

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
34	C (Section Title: Definitions)	In general, the solvent cleaning machine terms used herein have the same meaning as those found in 40 CFR, Part 63, Subpart T - National Emission Standards for Halogenated Solvent Cleaning (40 CFR §63.460 et seq.). The basis for using the definitions from the federal statute is that: 1. It is the most global regulatory document available relative to solvent cleaning machine requirements, and 2. U.S.EPA and manufacturers worked together to develop the terms, and 3. They are available on the Internet (http://www.gpoaccess.gov/cfr/retrieve.html, under Title "40," CFR "63," Section "461"). The District modeled the *solvent cleaning* terms and definitions on those used by other air districts.	Click here.	Page F-5
35	C (Airless and Air-Tight SCM Definition)	These definitions are the same ones found in SJV Rule 4662. PAR 321, Section O, provides an alternative compliance method to Sections E through L involving the use of either an airless or air-tight solvent cleaning machine.	Click here.	Page F-5
36	C (Deleted Control Device Definition)	The District changed the term to *emission control device* and relocated it so that it would be in alphabetical order. The PAR 321 uses the 40 CFR, Part 63, Subpart T, *control device* term when describing a *vapor level control device*. PAR 321 also uses the term *control device* when establishing requirements for the emission controls. Thus, it is necessary to differentiate between these two uses of the term *control device*.	Click here.	Page F-7
37	C (Conveyorized [In-Line or Continuous] Cleaning Machine Definition)	40 CFR, Part 63, Subpart T, provisions do not use the term *conveyorized*. For congruency with the SC and SJV degreasing rules, the conveyorized term is being retained. The addition of *web* is provided for consistency with the *continuous web cleaning machine* definition. The terms *gyro* and *cross-rod* cleaning machines are being deleted because these are loaded manually or semi-continuously, which makes them batch cleaning machines.	Click here.	Page F-7
38	C (Deleted Degreaser Definition)	The District is revising the *degreaser* definitions to be consistent with 40 CFR, Part 63, Subpart T, wherever possible. The federal regulation does not define *degreaser* and does not use the term.[a] Instead, 40 CFR, Part 63, Subpart T, uses *solvent cleaning machine*. Therefore, staff replaced the term *degreaser* with *solvent cleaning machine* throughout Rule 321 and deleted the definition of *degreaser* from Section C. Rule 102 includes a definition of *degreaser* to clarify that degreaser has the same meaning as *solvent cleaning machine*.	Click here.	Page F-7
39	C (Electronic Components Definition)	The District deviated from similar definitions found in the SC, SJV, and VC rules. The proposed definition is intended to be more descriptive and incorporates *semiconductor* terms. The District is not planning to have a separate *semiconductor manufacturing* rule as is done in SC and VC.	Click here.	Page F-8

[a] There is one exception. The 40 CFR, Part 63, Subpart T, Section 63.461 uses the term *degreaser* in the definition of *batch cleaning machine.*

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
40	C (Deleted Evaporative Surface Area Definition)	*Evaporative surface area* has been replaced by the 40 CFR, Part 63, Subpart T, *solvent/air interface area* term.	Click here.	Page F-8
41	C (Gas-Path Solvent Cleaner Definition)	Staff used the San Diego County APCD (SD) Rule 67.6(c)(8) "gas-path cleaning machine" as a model for the proposed revised definition. For rule clarity, staff recommends that the current "liquid-path" portion of the term be deleted. The PAR 321, Section M.2.c, includes *solvent flow* and *solvent flush* methods as acceptable cleaning techniques for solvent cleaning. Without the deletion of "liquid-path" there could be confusion between the solvent cleaning and gas/liquid-path solvent cleaner requirements. Thus, the "liquid-path" description is removed from the term and the proposed amended Section F operating requirements apply only to gas-path solvent cleaners.	Click here.	Page F-9
42	C (High Volatility Solvent Definition)	A *high volatility solvent* includes any solvent with an initial boiling point (IBP): 1. ≤ 248 ºF or 2. > 248 ºF, but the in-use temperature is not ≤ 212 ºF below the solvent's IBP. The Rule 202.U.2.b uses a solvent IBP temperature exemption applicability threshold of 302 ºF or greater. For a remote reservoir SCM employing turpentine (IBP = 302 ºF) used in an environment without air conditioning, the ambient and in-use temperature could be expected to reach 90 ºF or greater. Such a unit would be exempt from permit, but would need to comply with the Rule 321 Section H.5 0.75 freeboard ratio requirement because the solvent would be classified as a *high volatility solvent*.	Click here.	Page F-10
43	C (In-Line Cleaning Machine or Continuous Cleaning Machine Definition)	The revised definition is from 40 CFR, Part 63, Subpart T. A mechanized solvent cleaning machine is an *in-line* or *continuous cleaning machine* only if it uses an automated parts handling system to provide a continuous supply of parts. If a cleaner is loaded manually or semi-continuously, it is not an in-line cleaning machine or a continuous solvent cleaning machine. Gyro (Ferris wheel) and cross rod cleaning machines are not in-line or continuous cleaning machines because the parts being cleaned are loaded manually or semi-continuously.	Click here.	Page F-9
44	C (Low Volatility Solvent Definition)	The definition stems from the ARB RACT/BARCT document. However, the District discovered that the definition had an error (100 degrees Celsius equals 212 degrees Fahrenheit, not 180 degrees Fahrenheit). Thus, the revised definition takes into account the correct Fahrenheit temperature for deeming a solvent a *low volatility solvent*.	Click here.	Page F-10

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
45	C (Solvent Definition)	The revised definition includes "any toxic air contaminant" text, which is unique compared to other air district solvent definitions. The reasons that the District is including toxic air contaminants (TACs) in this project are discussed in Appendix I, Page I-16, (see "Definition of 'Solvent' Including Toxic Air Contaminants (TACs)"). Click here to go to the Appendix I, Page I-16, discussion.	Click here.	Page F-12
46	C (Solvent/Air Interface and Solvent/Air Interface Area Definitions)	These definitions are generally consistent with the definitions found in 40 CFR, Part 63, Subpart T. *Solvent/air* interface replaces the current *air-solvent interface* and *air-vapor interface* terms. The *solvent/air interface* term appears in the definitions of *freeboard area* and *freeboard height*. *Solvent/air interface area* replaces the current *evaporative surface area* term. The *solvent/air interface area* term appears in various Rule 321 operation and equipment requirements. The District added the text on the area being the drain area for remote reservoir cleaners at the request of the regulated community and for consistency with the earlier *evaporative surface area* definition.	Click here.	Page F-12
47	C (Solvent Cleaning & Solvent Cleaning Machine Definitions)	The *solvent cleaning* and *solvent cleaning machine* definitions appear in Rules 102 and 321. Rules 102 and 321 have different *solvent* definitions. The Rule 102 definition indicates it has the same meaning as *organic solvent.* Whereas the Rule 321 *solvent* definition includes a TAC aspect and does not use the material's boiling point to determine if it is a solvent.	Click here.	Page F-12 and Page F-13
48	D	In general, the District added "owns, operates, or uses" to sections on applicability and rule requirements to improve rule clarity. This terminology is being added in numerous places throughout the revised rule. For the sake of brevity, the notes in this annotated draft PAR 321 will not re-iterate the addition of the "owns, operates, or uses" text.	Click here.	Page F-14
49	D.10 – D.12	Requirements in PAR321.D.10 and 11 are similar to those found in 40 CFR, Part 63, Subpart T, and SC Rule 1122. The intent is to ensure that good housekeeping procedures are followed. The Section D.12 provision is modeled on language from SC Rule 1122(c)(1)(E).	Click here.	Page F-15
50	D.13	The District moved this provision from Rule 321, Section G.10. A similar provision is found in the SC Rule 1122, Section (c)(1)(K), Work Practice Requirements.	Click here.	Page F-15
51	H.7	Limiting the solvent's ROC content will likely affect the type of solvent used in remote reservoir cleaners (e.g., Safety Kleen units) in shops such as automobile repair shops. Limiting remote reservoir cleaner solvent ROC content is consistent with the approach taken by SJV, SC, and VC. The 50 grams of ROC per liter limit is based on the limit specified in the SC Rule 1122, adopted July 11, 1997.	Click here.	Page F-18

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
52	I	If a remote reservoir cold cleaning machine has an enclosed container that is accessible for dipping or soaking parts, such machine is subject to the provisions in Section I. (See the definition of "Remote Reservoir Cleaning Machine," page F-11, or click here, for the text on remote reservoir cold cleaners that are designed to allow dip or soak cleaning are considered to be batch cold cleaning machines.)	Click here.	Page F-18
53	I.7	The 50 grams of ROC per liter limit is based on the limit specified in the SC Rule 1122, adopted July 11, 1997.	Click here.	Page F-19
54	J.11	The District modeled the Section J.11 requirements on provisions in: 1. The SJV Rule 4662, Sections 5.4.10.7 - 5.4.10.12; and 2. The SC Rule 1122, Section (e)(1)(B).	Click here.	Page F-20
55	K.6	The 50 grams of ROC per liter limit is based on the limit specified in the SC Rule 1122, adopted July 11, 1997.	Click here.	Page F-21
56	L.11	The District modeled the Section L.11 requirements on provisions in: 1. The SJV Rule 4662, Sections 5.5.7.7 - 5.5.7.12; and 2. The SC Rule 1122, Section (e)(2)(C).	Click here.	Page F-22
57	M	In general, the proposed new Section M provisions are modeled on requirements in the SC Rule 1171, Solvent Cleaning Operations; the SJV Rule 4663, Organic Solvent Cleaning, Storage, and Disposal; and the VC Rule 74.6.	Click here.	Page F-22
58	M.1, Table 1, Category (a)(i) & Category (b)(i)	These limits are based on those limits in the SJV Rule 4663 (effective November 15, 2003)	Click here.	Page F-23
59	M.1, Table 1, Categories (a)(ii), (a)(iii), (b)(ii), (b)(iii), and (c)	The District based these limits on the limits in the SJV Rule 4663 (effective November 15, 2002 through November 14, 2003).	Click here.	Page F-23
60	M.1, Table 1, Categories (a)(iv) and (b)(iv)	The silicone manufacturing limits were added in response to comments by a member of the regulated community.	Click here.	Page F-23
61	M.1, Table 1, Category (d)	The District based the limit on comments from the regulated community and the Vandenberg Air Force Base practice of using IPA for cleaning fuel transfer lines.	Click here.	Page F-23
62	M.2	These provisions on cleaning devices and methods are similar to requirements found in SC Rule 1171, Section (c)(2); SJV Rule 4663, Section 5.2.5; and VC Rule 74.6, Section B.2.	Click here.	Page F-24

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
63	M.3	The proposed new 321.M.3 provisions are modeled on the provisions in SJV Rule 4663, Section 5.2.7. The Section M, Table 1 category (c) allows the solvent used for cleaning application equipment to have an ROC content up to 950 grams per liter. However, under the Section M.3 provision, an enclosed system (or other APCO-approved equipment) is needed if the solvent's ROC content exceeds 50 grams per liter.	Click here.	Page F-24
64	N	Section D.9 (solvent atomization), Section G.8 (lip exhausts installed after July 17, 1997), and proposed amended Rule 321 Section T.2.b.4) (lip exhausts installed on previously exempt SCMs after the rule adoption date) require the use of an emission control system that complies with Section N. Many other sections allow the use of an emission control system that complies with Section N as an alternative compliance method. Instead of listing those rule sections in the rule, the District elected to simply indicate *or as an alternative compliance method as provided for in this rule*. The PAR 321 Sections that provide for use of an emission control system as an alternative compliance method include: H.7, I.7, J.11, K.6, L.11, and M.1	Click here.	Page F-24
65	N.1	The District added *and toxic air contaminant emissions* to Section N.1 to cover cases where a source is using a liquid containing a toxic air contaminant and wants to use an emission control system as an alternative compliance method.	Click here.	Page F-24
66	N.5	The new Section N.5 provision on a deadline for completing an initial source test is being added to ensure that sources complete such a test in a timely manner	Click here.	Page F-24
67	N.6	This requirement is similar to the provision found in SJV Rule 4663, Section 5.5.5. It is an overarching provision that prohibits use of an emission control system unless the ROC emission rate from such system is equal to or less than the emissions otherwise expected with the use of a complying solvent. The provision prevents a source from using a large quantity of high-ROC content solvent with an emission control system unless the control system's overall efficiency is such that it achieves a lower emission rate than the one that would have been achieved through use of a complying solvent. Theoretically, this provision may require that a system's overall control efficiency be above the 85% requirement in Section N.1 to comply with Section N.6.	Click here.	Page F-24
68	O	The SC Rule 1122 and SJV Rule 4662 allow use of air-tight cleaning systems and airless cleaning systems. These systems are state-of-the-art machines that have low emissions.	Click here.	Page F-25

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
69	P.5	To provide additional options, the District recommends the addition of these two test methods: 1. U.S.EPA Test Appendix A-1, Method 2F, Determination of Stack Gas Velocity and Volumetric Flow Rate with Three-Dimensional Probes, and 2. U.S.EPA Test Appendix A-2, Method 2G, Determination of Stack Gas Velocity and Volumetric Flow Rate with Two-Dimensional Probes.	Click here.	Page F-26
70	Q	The deleted text should no longer be necessary as sources should have already obtained the APCO approval for their Operation and Maintenance Plans.	Click here.	Page F-26
71	Deleted P.2.	The District is eliminating the *small surface area exemption* (Rule 321.B.2.b). Thus, the recordkeeping provision associated with this exemption is no longer needed.	Click here.	Page F-27
72	T.1	When the District indicates that qualifying SCMs or solvent cleaning *shall comply with the rule the first time it is operated or performed in the District,* it should be recognized that the provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of one year from the date of revised rule adoption. Thus, the District does not require new equipment or solvent cleaning operations to comply with those rule provisions before the section's effective date.	Click here.	Page F-28
73	T.2.a	The owners and operators of existing solvent machines previously subject to Rule 321 are required to maintain continuous compliance when the newly adopted revised rule supersedes the Rule 321 adopted on September 18, 1997.	Click here.	Page F-28
74	T.2.b	Changes to Rules 102, 202, and 321 may cause some previously exempt solvent cleaning machines to become subject to Rule 321 for the first time. For example, an unheated solvent rinsing container having a capacity of 9 gallons and designed to operate in a closed system fashion is presently exempt by Rule 202.U.1 and Rule 321.B.4.f. However, under the revised rules, such a unit will no longer be exempt. The District is proposing incremental, phased compliance periods for such units that follow the present rule compliance periods.	Click here.	Page F-28
75	T.2.b.4)	The District is revising this section to indicate that any lip exhaust installed after the adoption of the revised rule will need to be vented to an emission control system at the time of its installation.	Click here.	Page F-29
76	T.3	The adoption of the revised Rule 321 will eliminate the solvent cleaning (wipe cleaning) exemption in Section B.4.a. In general, all existing qualifying solvent cleaning operations are becoming subject to Rule 321 for the first time via the proposed amended rule adoption. The District is providing incremental, phased compliance periods for solvent cleaning similar to those in the existing rule (adopted September 18, 1997).	Click here.	Page F-29

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Appendix G
Summarized Data on Emission Reductions, Emissions, and Cost-Effectiveness

Table 1. PROJECTED EMISSION REDUCTIONS FOR CALENDAR YEAR 2011[a]
Reactive Organic Compounds in Tons per Year (Tons per Day)

Item	Company/Facility or Area Source Category	Facility or EIC Number	Device No.	Category[b]	Projected CY 2011 Emissions, tons per year (tons per day)	CY 2011 Emissions After Control, tons per year (tons per day)[c]	CY 2011 Emission Reductions, tons per year (tons per day)[c]
1	Bardex Corporation	01152	108834	SCM	0.12 (0.00033)	0.03 (0.00009)	0.09 (0.00024)
2	Celite Corporation	00012	008043	SC	0.15 (0.00042)	0.15 (0.00040)	0.01 (0.00002)
3	Celite Corporation	00012	008043	SCM	0.04 (0.00010)	0.01 (0.00003)	0.03 (0.00008)
4	Helix Medical, LLC.	04487	107500	SC	3.49 (0.00957)	3.35 (0.00919)	0.14 (0.00038)
5	Indigo Systems Corporation	09745	107595	SC	0.79 (0.00217)	0.76 (0.00208)	0.03 (0.00009)
6	Innovative Micro Technology, Inc. (IMT)	10867	109942	SC	1.42 (0.00388)	1.36 (0.00373)	0.06 (0.00016)
7	Innovative Micro Technology, Inc. (IMT)	10867	110204	SC	0.17 (0.00048)	0.17 (0.00046)	0.01 (0.00002)
8	International Transducer Co.	01634	107650	SC	1.07 (0.00293)	1.03 (0.00281)	0.04 (0.00012)
9	Lockheed Martin Missiles & Fire Control, SB Focalplane	09424	009932	SC	0.43 (0.00118)	0.41 (0.00113)	0.02 (0.00005)
10	Lockheed Martin Missiles & Fire Control, SB Focalplane	09424	010049	SC	1.17 (0.00322)	1.13 (0.00309)	0.05 (0.00013)
11	Lockheed Martin Missiles & Fire Control, SB Focalplane	09424	010050	SC	0.65 (0.00179)	0.63 (0.00172)	0.03 (0.00007)
12	Medtronic PS Medical	04635	107596	SC	4.66 (0.01277)	4.47 (0.01225)	0.19 (0.00051)
13	National Aeronautics & Space Admin., VAFB, Solvent Usage (SLC-2)	06100	111283	SC	0.15 (0.00042)	0.15 (0.00040)	0.01 (0.00002)
14	NuSil Technology	02361	001356	SC	1.12 (0.00308)	1.08 (0.00295)	0.04 (0.00012)
15	NuSil Technology	02361	006026	SC	0.42 (0.00115)	0.40 (0.00111)	0.02 (0.00005)
16	NuSil Technology, Silicone Technology	04621	006001	SC	4.19 (0.01148)	4.02 (0.01102)	0.17 (0.00046)

[a] The data shown in this table represents calendar year 2011 figures. The District used data from the 2007 emission inventory and applied activity (growth), compliance efficiency, and control factors.
[b] Solvent Cleaning Machine (SCM), Solvent Cleaning (SC), or Area Source (AS) categories.
[c] Includes the effect of having an 80 percent compliance efficiency.

Item	Company/Facility or Area Source Category	Facility or EIC Number	Device No.	Category[b]	Projected CY 2011 Emissions, tons per year (tons per day)	CY 2011 Emissions After Control, tons per year (tons per day)[c]	CY 2011 Emission Reductions, tons per year (tons per day)[c]
17	Pacific Scientific, EKD	08934	107600	SC	0.29 (0.00081)	0.28 (0.00077)	0.01 (0.00003)
18	Raytheon Space & Airborne Systems	01971	005161	SC	1.02 (0.00279)	0.98 (0.00268)	0.04 (0.00011)
19	Raytheon Space & Airborne Systems	01971	005163	SC	0.28 (0.00077)	0.27 (0.00074)	0.01 (0.00003)
20	Raytheon Space & Airborne Systems	01971	108489	SC	0.12 (0.00032)	0.11 (0.00031)	0.00 (0.00001)
21	Raytheon Space & Airborne Systems	03890	005234	SC	1.07 (0.00292)	1.02 (0.00280)	0.04 (0.00012)
22	Raytheon Space & Airborne Systems	04140	107601	SC	1.28 (0.00350)	1.25 (0.00341)	0.03 (0.00009)
23	Raytheon Space & Airborne Systems	08742	109000	SC	0.58 (0.00159)	0.56 (0.00153)	0.02 (0.00006)
24	Superconductor Technologies, Inc.	10341	107607	SC	0.25 (0.00067)	0.24 (0.00065)	0.01 (0.00003)
25	United States Air Force, VAFB, Solvent Usage (HAZMART)	00201	007604	SC	1.92 (0.00526)	1.84 (0.00505)	0.08 (0.00021)
26	Degreasing-Cold Cleaning-Petroleum Naphtha: General	220-204-0500-0000	N/A	AS	379.52 (1.03979)	269.69 (0.73887)	109.84 (0.30092)
27	Degreasing-Cold Cleaning-Alcohols (Unspecified)	220-204-3022-0000	N/A	AS	25.54 (0.06999)	24.62 (0.06745)	0.92 (0.00253)
28	Degreasing-Cold Cleaning-Terpenes (Unspecified)	220-204-3333-0000	N/A	AS	14.60 (0.03999)	10.37 (0.02842)	4.22 (0.01157)
29	Degreasing-Cold Cleaning-Other/Not Classified: Specify Degreasing	220-204-8106-0000	N/A	AS	69.34 (0.18996)	49.23 (0.13487)	20.11 (0.05509)
30	Degreasing-Handwiping-Petroleum Naphtha	220-208-0500-0000	N/A	AS	47.44 (0.12997)	19.98 (0.05474)	27.46 (0.07523)
31	Degreasing-Handwiping-Alcohols (Unspecified)	220-208-3022-0000	N/A	AS	58.39 (0.15997)	56.28 (0.15418)	2.11 (0.00579)
32	Degreasing-Handwiping-Glycol Ethers (Unspecified)	220-208-3176-0000	N/A	AS	7.30 (0.02000)	2.96 (0.00812)	4.33 (0.01188)
33	Degreasing-Handwiping-Ketones (Unspecified)	220-208-3204-0000	N/A	AS	43.79 (0.11998)	27.90 (0.07643)	15.89 (0.04354)
34	Degreasing-Handwiping-Toluene/Xylene	220-208-3339-0000	N/A	AS	10.95 (0.02999)	10.55 (0.02890)	0.40 (0.00110)
35	Degreasing-Handwiping-Degreasing Solvents-Pure (Unspecified)	220-208-8104-0000	N/A	AS	3.65 (0.01000)	2.72 (0.00746)	0.92 (0.00253)
36	Degreasing-Handwiping-Degreasing Solvents-Blends (Unspecified)	220-208-8106-0000	N/A	AS	18.25 (0.04999)	13.62 (0.03732)	4.62 (0.01267)
				Totals	705.63 (1.93323)	513.62 (1.40718)	192.01 (0.52605)

Table 2. EMISSION REDUCTION ESTIMATES FROM THE 2007 CLEAN AIR PLAN ANALYSIS VERSUS THE CURRENT DATA FOR REVISED RULE 321

Category	**CY 2015 Projected Emission Reductions, tons per year (tons per day)**	**CY 2020 Projected Emission Reductions, tons per year (tons per day)**
Emissions Reductions per the 2007 Clean Air Plan (Base Year: CY 2002)		
ARB Area Source	249.14 (0.6826)	274.28 (0.7515)
Solvent Cleaning Machines (SCMs)	4.91 (0.0134)	4.90 (0.0134)
Solvent Cleaning (SC)	8.89 (0.0244)	8.86 (0.0243)
TOTAL	262.94 (0.7204)	288.04 (0.7891)
Emissions Reductions per the 2010 Rulemaking Effort (Base Year: CY 2007)		
ARB Area Source	190.84 (0.5229)	190.84 (0.5229)
Solvent Cleaning Machines (SCMs)	0.11 (0.0003)	0.11 (0.0003)
Solvent Cleaning (SC)	1.06 (0.0029)	1.06 (0.0029)
TOTAL	192.02 (0.5261)	192.02 (0.5261)
2007 Clean Air Plan Over-Projected Emission Reductions		
DIFFERENCE	-70.92 -(0.1943)	-96.02 -(0.2631)

Table 3. BREAKDOWN OF THE 2007 BASE YEAR
SOLVENT EMISSIONS DATA BY INVENTORY CATEGORIES[a]

Descriptions	ROC Emissions, tons per year (tons per day)	Percent of the Total
1. ARB Area-Wide Category for Degreasing (EIC 220-204-XXXX-0000 and 220-208-XXXX-0000)	678.90 (1.86000)	52.85%
2. ARB Area-Wide Category for Cleanup Solvent Emissions Associated with Auto Refinishing, Metal Parts and Products Coatings, Wood Furniture and Fabricated Products Coatings Category (EIC 230-240-8300-0000)	54.60 (0.21000)	4.25%
3. ARB Area-Wide Category for Cleanup Solvent Emissions Associated with Printing (EIC 240-995-80000-0000)	21.54 (0.05901)	1.68%
4. ARB Area-Wide Category for Cleanup Solvent Emissions Associated with the use of Adhesives and Sealants (EIC 250-292-8202-0000 and 250-292-8250-0000)	5.52 (0.02124)	0.43%
5. ARB Area-Wide "Other" Solvent Category for (EIC 299-995-8000-0000)	28.54 (0.10978)	2.22%
6. ARB Area-Wide Category for Cleanup Solvent Emissions Associated with Fiberglassing (EIC 410-403-5018-0000)	0.32 (0.00124)	0.03%
7. ARB Area-Wide Category for Solvent Cleaning Emissions from the use of Consumer Products (EIC 510-506-XXXX-0000)	412.45 (1.13000)	32.11%
8. ARB Area-Wide Category for Cleanup Solvent Emissions Associated with Architectural Coating Use (EIC 520-520-XXXX-0000)	26.00 (0.10000)	2.02%
9. Santa Barbara County APCD Point Source Inventory for Emissions from Solvent Cleaning Machines and Solvent Cleaning, Cleanup Solvent Emissions Associated with Auto Refinishing, Metal Parts and Products Coatings, Wood Furniture and Fabricated Products Coatings, Printing, Adhesives and Sealants, Fiberglassing, and Application of Architectural Coatings (EICs 220-204-XXXX-0000, 220-208-XXXX-0000, 230-240-8300-0000, 240-995-80000-0000, 250-292-8202-0000, 250-292-8250-0000, 410-403-5018-0000, and 520-520-XXXX-0000)	56.63 (0.15516)	4.41%
TOTAL	1,284.51 (3.64642)	100.00%

[a] The District included this table in response to requests from the regulated community. The table shows the ROC emission contributions by the different inventory categories.

Table 4. PERCENTAGE BREAKDOWNS OF THE 2007 BASE YEAR SOLVENT EMISSIONS DATA BY INDUSTRY TYPES[a]

Breakdown Description	Point Sources					Area Sources
	Mining (includes Oil & Gas)	Electronic Device Mfg	Medical Device Mfg	Aircraft and Aerospace	Other[b]	
Percentage Compared to the Total Stationary Source Emissions (56.63 TPY, 0.1552 TPD)	28.02%	15.81%	27.43%	21.48%	7.25%	-
Percentage Compared to the Total Emissions (1284.51 TPY, 3.6464 TPD)	1.24%	0.70%	1.21%	0.95%	0.32%	95.59%

Table 5. COST-EFFECTIVENESS FOR REPLACING TWO HIGH-ROC COLD CLEANERS WITH ONE AQUEOUS UNIT[c]

Control Option: Switching from Two High-ROC Cold Cleaners to:	Cost per Year	Cost-Effectiveness ($/ton of ROC reduced)
One Low-Use Batch-Loaded Automated Aqueous Unit	-$112 (savings)	-$2,560 (savings)
One Average-Use Batch-Loaded Automated Aqueous Unit	-$362 (savings)	-$3,310 (savings)
One High-Use Batch-Loaded Automated Aqueous Unit	-$412 (savings)	-$1,880 (savings)

[a] The District included this table in response to requests from the regulated community. The table shows the emissions contributions (percentages) by different industry types based on the District point source data and the ARB area source inventory. In cases where more than one category was applicable (e.g., emissions from the manufacturing of electronic equipment used in aerospace vehicles), staff included the data in the end use category. The largest category of emissions, the ARB area-wide degreasing category, may also include data from the point source industry types shown in this table.

[b] Includes facilities that are not in the other categories (e.g., a wooden dashboard manufacturer, concrete batch plants, an architectural product manufacturer, automobile refinishing, furniture coating/staining operations, various metal parts and products coating operations, a water treatment system manufacturer, and a sign manufacturer).

[c] Reference: San Joaquin Valley Unified Air Pollution Control District, Final Staff Report - Amendments to Rule 4662 (Organic Solvent Degreasing Operations), May 11, 2001.

Table 6. COST-EFFECTIVENESS FOR REPLACING
A HIGH-ROC COLD CLEANER WITH AN AQUEOUS OR ENZYME UNIT[a]

Control Option: Switching from One High-ROC Cold Cleaners to:	Cost per Year	Cost-Effectiveness ($/ton of ROC reduced)
Low-Use Aqueous Unit	$545	$12,940
Average-Use Aqueous Unit	$903	$8,560
High-Use Aqueous Unit	$1,393	$6,600
Low-Use Enzyme Unit	$370	$8,120
Average-Use Enzyme Unit	$430	$3,800
High-Use Enzyme Unit	$470	$2,080
One Low-Use Batch-Loaded Automated Aqueous Unit	$130	$9,440
One Average-Use Batch-Loaded Automated Aqueous Unit	$240	$2,320
One High-Use Batch-Loaded Automated Aqueous Unit	$790	$3,840

Table 7. COST-EFFECTIVENESS FOR SOLVENT CLEANING TECHNIQUES[b]

Scenario	Cost per Year	Emission Reduction (tons/year)	Cost-Effectiveness ($/ton of ROC reduced)
1. Use of an Aqueous Cleaning Solution Diluted at a 4:1 Ratio	-$281,038 (savings)	283.83	-$990 (savings)
2. Use of an Aqueous Cleaning Solution Diluted at a 2:1 Ratio	$615,039	283.83	$2,167

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[a] Reference: San Joaquin Valley Unified Air Pollution Control District, Final Staff Report - Amendments to Rule 4662 (Organic Solvent Degreasing Operations), May 11, 2001.
[b] Compiled from data in the San Joaquin Valley Unified Air Pollution Control District, Final Staff Report: Organic Solvent Cleaning Project, Appendix A, December 20, 2001.

Appendix H
Santa Barbara County
Identification of Existing Federal and Air Pollution Control District Regulations that Apply to the Same Equipment or Source Type Covered in Rule 321

This section is included to comply with the California Health & Safety Code Section 40727.2 requirements.

Federal Air Pollution Control Requirements

The federal requirements in the below-referenced statutes apply to the same equipment or source types covered by Rule 321:

- 40 CFR, Part 63, Subpart T, National Emission Standards for Hazardous Air Pollutants: National Emission Standards for Halogenated Solvent Cleaning. (Solvent cleaning machines.)

- 40 CFR, Part 63, Subpart GG, National Emission Standards for Aerospace Manufacturing and Rework Facilities. (Handwipe cleaning in the aerospace industry.)

Santa Barbara County Air Pollution Control District Requirements

These are shown in the following table.

Table 1. RULES THAT APPLY TO SOLVENT CLEANING MACHINES AND SOLVENT CLEANING SUBJECT TO RULE 321

GENERIC REQUIREMENTS	AFFECTED EMISSION UNITS	BASIS FOR APPLICABILITY
RULE 201: Permits Required	All emission units	Emission of pollutants
RULE 202: Exemptions to Rule 201	Applicable emission units	Insignificant activities/emissions, per size/rating/function
RULE 210: Fees	All emission units	Administrative
RULE 212: Emission Statements	All emission units	Administrative
RULE 302: Visible Emissions	All emission units	Particulate matter emissions
RULE 303: Nuisance	All emission units	Emissions that can injure, damage or offend.
RULE 317: Organic Solvents	All emission units	Emission of pollutants
RULE 322: Metal Surface Coating Thinner and Reducer	All emission units	Composition of organics in all metal surface coating thinners and reducers shall not be photochemically reactive
RULE 324: Disposal and Evaporation of Solvents	All emission units	Solvent disposal requirements
REGULATION VIII: New Source Review	All emission units	Addition of new equipment or modification to existing equipment. Applications to generate ERC Certificates.
REGULATION XIII (RULES 1301-1305): Part 70 Operating Permits	All emission units	A stationary source is a major source.

A review of Table 1 indicates that there are no overlapping or conflicting averaging provisions, units, or any other pertinent provisions associated with emission limits.

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Appendix I
Santa Barbara County
Clarification of Rule Issues

The District worked closely with the regulated community to develop special approaches to their individual needs and to clarify rule text. As a result of these efforts, staff received extensive feedback and input during the development stages. Also, members of the regulated community raised questions about the intent of certain rule provisions through discussions with staff and at the rule development public workshops and meetings.

The following text provides clarification of rule issues and consolidates comments/responses.[a] To help the reader locate a specific issue, a table of contents is provided below.

Table 1. TABLE OF CONTENTS FOR THE CLARIFICATION OF RULE ISSUES

[a] Comments received during the formal public comment period preceding the Board adoption hearing on the proposed rule changes, and staff's response to these comments, will be presented to the District Board of Directors as part of the rule adoption process.

Rule 102

Request to Modify the Definition of *Reactive Organic Compound*

Question/Issue: The definition of "reactive organic compound" should be updated to include the following exempt compounds:

Methyl formate, tertiary-butyl acetate, HFE-7100, and HFE-7200

Answer/Response: The District is revising the *reactive organic compound* (ROC) definition by incorporating all of the 40 CFR, Part 51, Section 51.100(s) exempt compounds. The PAR 102 ROC definition includes a note on there being Rule 202.D.10.l.1 and 2 gatekeepers on some of the *exempt compounds*. The Rule 102 note indicates:

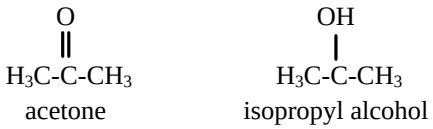
> Rule 202.D.10.l.1 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of any one of the following exempt compounds: dimethyl carbonate, methyl formate, HCFC-225ca, HCFC-225cb, HFC-43-10mee, HFC-245fa, HFC-365mfc, or HFE-7100 [$(CF_3)_2CFCF_2OCH_3$ or $C_4F_9OC_2H_5$]. Rule 202.D.10.l.2 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of tertiary-butyl acetate. The one gallon per year per stationary source limit is a per compound limit for each compound in aggregate for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

The new Rule 202.10.l provision will override and negate any otherwise applicable permit exemptions if a source uses more than one gallon per year per stationary source of any of the nine listed compounds. The need to issue Permits on the use of these compounds stems from ARB not providing a recommendation to include these as exempt compounds. This approach will allow the District the opportunity to perform any CEQA and/or health risk assessments that may be triggered by such use.

Adding IPA to the Exempt Compound List in the Rule 102 Definition of "Reactive Organic Compounds"

Question/Issue: IPA should be considered to be an exempt compound (i.e., a non-ROC). IPA is very similar in chemical nature, structure and ozone forming capabilities to acetone which has already been de-listed.

Scientific justification for exemption of IPA can be found in the chemical structure of IPA in comparison to the structure of acetone which is currently exempted in Santa Barbara County and the entire United States. Acetone and IPA are differentiated by the mere substitutions of an atom of oxygen for a hydroxyl group.



Answer/Response: When the Environmental Protection Agency lists IPA as an exempt compound in the 40 CFR, Part 51, Section 51.100(s), definition of volatile organic compounds (VOC), the District will consider modifying the Rule 102 definition of reactive organic compounds to include this compound.

Definition of "Coating"

Question/Issue: On the new definition of "coating" in Rule 102, is it the District's intent to include adhesives and sealants?

Answer/Response: Yes. (The "coating" definition is from SJV Rule 4663.)

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Definition of "Solvent" and the Rule 321.B.1 Exemption

Question/Issue: Earlier drafts of PAR 102 and PAR 321 were confusing on the definition of "solvent" and the Rule 321.B.1 exemption provision. Is it the District's intention that Rule 321 will apply to a solvent that contains only a trace amount of TAC?

Answer/Response: No, if a solvent contains a TAC in excess of 2 percent by weight, then Rule 321 will apply. The revised PAR 321.B.1 text now reads:

1. Any solvent cleaning machine equipped with and any solvent cleaning performed with a solvent (including emulsions) that contains two percent by weight or less of each of the following:

    a. Reactive organic compounds (as determined by Environmental Protection Agency method 24), and

    b. Toxic air contaminants (as determined by generic solvent data, solvent manufacturer's composition data or by a gas chromatography test and a mass spectrometry test).

    c. Any person claiming this exemption shall maintain the records specified in Sections R.1.a.1) and R.1.a.2) in a manner consistent with Section R.3 and make them available for review.

"Solvent Cleaning" Definition

Question/Issue: The "solvent cleaning" definition should include "loosely held" text to avoid confusion and to differentiate processes where loosely held contaminants like grease and oils are readily removed from surfaces versus processes requiring scraping and/or stripping.

Answer/Response: The new "solvent cleaning" definition proposed in amended Rule 102 is modeled on the SJV Rule 4663 definition. Although the proposed definition does not use the term "loosely held," it does include the adjective "uncured" in several places. Also, the District is adding a "stripping" definition in Rule 102 and text in the definitions of "solvent cleaning" and "solvent cleaning machine" to clarify when "stripping" does and does not apply.

Clarification of the "Stripping" Definition

Question/Issue: Would the removal of dried waxes (requires toluene) be considered "stripping"?

Answer/Response: No, the process of removing wax from a part or product with a solvent falls within the PAR 102 definition of "solvent cleaning." Toluene (ROC content 866 g/l) may be allowed per the PAR 321.M.1, Table 1, limits depending on the solvent cleaning category.

Request to Include the Definition of "Toxic Air Contaminant" in Rule 102

Question/Issue: The District should include a definition of "toxic air contaminant" in Rule 102 to help sources understand the requirements.

Answer/Response: OK, the District added the following definition to PAR 102:

> "Toxic Air Contaminant" means "Toxic air contaminant" as defined in Health and Safety Code Section 39655.

To help sources understand what compounds are TACs per Health and Safety Code Section 39655, staff developed a list of TACs. This list is provided as Appendix M, to the Rule 321 project's Background Paper.

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Scope of the "Application Equipment" Definition

Question/Issue: Does the District view metal deposition (e.g., evaporation, sputtering) as an "application operation"? I'd recommend adding some language in PAR 321 to make this clear.

Answer/Response: Yes, technically a "metal deposition operation" is considered to involve "application equipment." PAR 102 includes new definitions for "application equipment" and "coating." The scope of these definitions includes "metal deposition operations." PAR 321.B.22 provides exemptions for film deposition processes and related maintenance operations.

Rule 201

Rule 201 Permitting Program and Issuing Permits with Pounds per Day and Tons per Year Emission Limits

Question/Issue: Why does the District issue permits with pounds per day and tons per year limits?

When a permit is issued with pounds per day limits, lowering the ROC content of individual materials does not result in a net air quality improvement unless the permit is also amended. Thus, sources with permits that have been issued in pounds per day should be exempt from all prohibitive rule ROC limit requirements.

Answer/Response: Provisions in Regulation VIII, New Source Review (NSR), have thresholds based on pounds per day and tons per year. These thresholds are the genesis for the District to issue permits with conditions limiting emissions in pounds per day and tons per year.

The revised Rule 321 will limit the solvent's ROC content, which may result in an air quality benefit depending on the existing specific operation and solvents involved.

If the revised Rule 321 provisions achieve emission reductions for activities that have already been offset, then the offset liability would be reduced. The permit holder could choose to revise the permit accordingly. Rule 802.E.2 and E.3 provisions require that there be a net air quality benefit.

Rule 201 Permitting Program and the Need for a PTO Modification when Switching Solvents

Question/Issue: Will a source permitted to use an ROC solvent need to get a modified Permit to Operate if it wants to switch to a different compound?

Answer/Response: No, unless 1) there is an increase in ROC emissions that exceeds the currently permitted rate, 2) there is an increase in TAC emissions that exceed a toxic risk assessment emissions cap, or 3) the new solvent is subject to the Rule 202.D.10.l provision. A source using a TAC should already be subject to health risk analysis (HRA) on a periodic basis per the AB 2588 process. During a new source review process, the District does a health risk screening analysis and performs more-detailed modeling if needed. If the PTO did not require a modification, when the District performs the permit reevaluation we will update any health risk data to reflect the use of the current solvent.

Question/Issue: What about switching from an ROC solvent to a non-ROC TAC solvent, would there be TAC emission limits in the permit?

Answer/Response: No, only a toxic risk assessment gatekeeper in the permitting records.

Rule 202

The Thresholds Should be Changed to 25 Grams of ROC per Liter

Question/Issue: The thresholds in Rule 202, Sections, I.3, U.2.d.i, and U.3 should be changed to be 25 grams of ROC per liter.

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Answer/Response: We are aware that the South Coast AQMD Rule 219 has permitting thresholds for equipment using solvents above 25 grams per liter. The District plans to lower the Rule 321 general solvent limit to 25 grams per liter in a few years and will likely amend Rule 202 at that time for consistency with the Rule 321 provisions.

Meaning of "Liquid Surface Area"

Question/Issue: On the Rule 202.U.2.a exemption provision, we are concerned that there may be some interpretation on the surface area being the surface area of the drum under the drain and not the drain.

Answer/Response: The District added text to Rule 202.U.2.a and the definition of "Solvent/Air Interface Area" in Rule 321 to specify it is the area of the drain for remote reservoir solvent cleaning machines.

Support Documentation Required When Claiming the Exemption for Remote Reservoir SCMs (Aggregate Surface Area is Less than 10 Square Feet)

Question/Issue: Will the proposed amended rules require sources to provide support documentation on their use of remote reservoir solvent cleaning machines to ensure that the 10 square feet aggregate threshold is not exceeded?

Answer/Response: Existing Rule 202.D.1 requires that records be kept and made available upon request. The District is not proposing any revisions to that requirement.

Sources claiming an exemption under Rule 202.U (including Section 2.a, which generally applies to remote reservoir solvent cold cleaning machines) are currently required to keep records per Rule 202.D.1. At a large source with numerous remote reservoir SCMs, the District recommends that the records be routinely updated (monthly or, at a minimum, quarterly) to ensure that the Rule 202.U.2.a "10 square feet" exemption applicability threshold limit is not exceeded.

Existing sources claiming the Rule 321.B.2.b "small surface area" exemption are required to maintain quarterly records per the existing Rule 321.P.2 provision. Thus, there should already be procedures in place for such sources for demonstrating they are eligible for the exemption claim.

New Term "Cleaning Agents"

Question/Issue: In earlier drafts of revised Rule 202.U.2.c and d, there is a new term: cleaning agents. Why not just say "solvent."

Answer/Response: OK, the District now proposes to replace the existing current "materials" text with "solvent" or "solvents."

55 Gallons of Solvent per Year Permit Exemption Limit

Question/Issue: Rules 202.U.3 needs to be revised to address the use of low-ROC solvents such that the 55 gallons per year threshold is not triggered when using low-ROC solvent.

Answer/Response: The District added text to this section to exclude low-ROC solvents from the tally when determining compliance with the 55 gallons per year per source threshold figure. Hence, a source may use more than 55 gallons per year of solvent in solvent cleaning without a permit providing: 1) the solvent has an ROC content of 50 grams per liter or less, 2) the source does not exceed the 10 tons per calendar year aggregate provision of Rule 202.U, and 3) the solvent cleaning complies with provisions in Rule 321.

Question/Issue: Our interpretation of the Rule 202.U.3 exemption is that any facility at a stationary source that uses more than 55 gallons per year of wipe solvents is required to get an air permit for its overall solvent use.

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Answer/Response: The 55 gallons per year or less usage rate provision is a "stationary source" limit, not a "facility" limit. The District modified Rule 202 on June 19, 2008 to clarify that the 55 gallons per year usage is a stationary source limitation.

Wipe Cleaning Permit Exemption

Question/Issue: Delete Rule 202.U.3 because other air districts do not require permits for solvent wipe cleaning.

Answer/Response: The District added the provision as a gatekeeper in 1997 when there were significant changes made to Regulations II and VIII. We added the gatekeeper text at the request of the Environmental Protection Agency. We would reconsider this request if the U.S.EPA suggested that we remove it.

Confusing Text in Existing Rule 202.U.3.

Question/Issue: Rule 202.U.3 indicates, "Equipment used in wipe cleaning operations …" Wipe cleaning is typically done by hand without employing equipment. Is it the District's intent to exempt wipe cleaning from permit requirements?

Answer/Response: No, it is the District's intent to require permits for wipe cleaning operations that exceed 55 gallons per year per stationary source. The District has revised the text for clarification.

Rule 321

Rule 321's Complexity

Question/Issue: Some members of the regulated community believe the rule is too complicated and hard to follow.

Answer/Response: The District is working with the regulated community to improve rule clarity on the modified text. The SCM and solvent cleaning requirements are similar to the provisions found in other district rules. However, our "packaging" of the requirements is a little different. Some air districts have one rule for SCMs and another rule for solvent cleaning. For PAR 321, the SCM requirements are in Sections D - L and the solvent cleaning requirements are in Sections D and M.

To provide additional guidance on the provisions, staff prepared the Background Paper's Appendix L, Flowchart Overviews of Key Provisions of Rule 202 and Proposed Amended Rule 321.

Request to Not Modify Rule 321

Question/Issue: "Leave well enough alone." Presently, while Santa Barbara's air quality continues to improve it is particularly perplexing why this type of law that restricts basic manufacturing competitiveness would be proposed as essential to maintaining compliance with current state and federal ozone standards.

Answer/Response: For many years, manufacturers in other areas in the state (e.g., South Coast AQMD, San Joaquin Valley Unified APCD, Ventura County, Bay Area AQMD, Sacramento Metropolitan AQMD areas) have complied with requirements similar to the ones we proposed. Adopting the revised Rule 321 is necessary to comply with the state requirement to adopt every feasible control measure and is part of the Federal Ozone Maintenance Plan. The District has been very accommodating to industry requests for exemption and/or proposals for specific cleaning categories with high ROC solvent limits. We do not anticipate that the regulated community will be significantly impacted by the adoption of the proposed rule revisions. In some cases, industry may find cost savings by switching to new technologies and/or aqueous solvent cleaning methods.

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Solvent Emissions from Hospitals (and Other Health Care Facilities) and Janitorial Services

Question/Issue: Why do the District rules exempt or not apply to 1) IPA solvent wipe cleaning emissions at hospitals and other health care facilities, and 2) solvent cleaning emissions from commercial janitorial services?

We request the rulemaking and enforcement authority assigned to the District, allowing regulation of stationary sources, be applied evenhandedly to all local businesses and with objective scientific rationale.

Answer/Response: The revised rule needs to meet the "every feasible measure" requirement in state law. In general, if other air districts have adopted rules and such rules have achieved emission reductions, then the Santa Barbara County APCD should also adopt similar control measures. No air districts have regulated emissions of IPA from wipe cleaning at hospitals or solvent cleaning emissions from janitorial services.

Analysis indicates that the IPA solvent cleaning emissions at hospitals and other health care facilities are less than 1 percent and the commercial janitorial cleaning emissions are about 4.5 percent of the total solvent emissions in the inventory.

The cleaning techniques used in hospitals and other health care facilities and by janitors do not lend themselves well to the solvent cleaning control techniques found in the industrial setting. The District has added exemptions into Rule 202 and 321 to clarify that such cleaning is not subject to permitting or the solvent cleaning provisions (reference PAR 202.U.4 & 5 and PAR 321.B.7 & 14.)

Ozone Depleting and/or Global Warming Compounds

Question/Issue: Will the revised rule regulate ozone depleting and global warming compounds?

Answer/Response: It is not the purpose of Rule 321 to regulate ozone depleting and global warming compounds. If such a compound is an ROC or TAC, Rule 321 will apply (unless the solvent is otherwise exempt from Rule 321). For an ozone depleting and global warming compound that is not an ROC or TAC, it will not be subject to Rule 321. For example, HFE-7100 (two isomers) is not an ROC or a TAC, but it is a global warming compound. The use of HFE-7100 in a vapor SCM will not be subject to Rule 321. However, the use of this compound in excess of one gallon per year per source will require a permit per PAR 202.D.10.l.l. If the state added HFE-7100 to the TAC list, the compound would become subject to Rule 321.

Question/Issue: The District is modifying Rule 321 to reduce ROC emissions. There is no mandate to reduce ozone depleting compounds (ODCs) in this project. Thus, the regulated community requests that the revised Rule 321 not have specific requirements to reduce emissions of ODCs.

Answer/Response: PAR 321 includes a new definition for solvent:

> "Solvent" means any liquid containing any reactive organic compound or any toxic air contaminant, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, drying agent, preservative, or other similar uses.

Rule 321 will regulate any ODCs that meet the definition of "solvent" unless otherwise exempted by the rule. However, there will not be any specific requirements applicable to only ODCs.

Question/Issue: The regulated community requests that the District not include global warming compounds (e.g., hydrofluorocarbons and perfluorocarbons) in the rulemaking effort.

Answer/Response: The Rule 321 project is not specifically targeting global warming compounds or implementing requirements specific to these compounds. Any solvent containing a greenhouse gas that is not a toxic air contaminant and not an ROC (i.e., is listed as an "exempt compound" in the Rule 102 definition of "reactive organic compound") will be exempt from Rule 321 by Section B.1.

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Exemptions and Definitions

Question/Issue: Ensure the revised rule clearly exempts (and defines) specific operations (e.g., Semiconductor, Aerospace). High volatility solvent cleaning, with isopropyl alcohol, toluene, methyl alcohol, etc. is required to prevent rust formation or other microscopic contamination.

Answer/Response: PAR 321.B.22 provides an exemption for some semiconductor manufacturing processes that need to use high ROC solvents like n-methyl-2-pyrrolidone (NMP). Stripping of photoresist is considered exempt per PAR 321, Section B.4. The District needs to regulate most of the processes involved in semiconductor manufacturing in lieu of adopting a separate semiconductor rule.

Section C includes definitions for "semiconductor manufacturing," "aerospace vehicle," "aerospace vehicle component," "space vehicle," "and "space vehicle component."

The portions of Rule 321 that will apply to the cleaning of the aerospace vehicles, their components, and satellites will allow the use of the aforementioned solvents.

Request to Exempt Isopropyl Alcohol

Question/Issue: Isopropyl alcohol should be exempt from Rule 321 when used in solvent wipe cleaning.

Answer/Response: We disagree. No air district with a solvent cleaning rule has exempted IPA solvent cleaning from their rules. To do so would be inconsistent with the mandate to adopt every feasible measure. Further, IPA is a reactive organic compound that is also a toxic air contaminant. Thus, the proposed amended Rule 321 requirements will apply when IPA is used in solvent cleaning machines and solvent cleaning.

Question/Issue: Isopropyl alcohol is a non-photochemically reactive solvent. Per Rule 317, sources may use up to 3,000 pounds (or 430 gallons per day) of isopropyl alcohol before implementing add-on control equipment. The District should exempt IPA from all of the PAR 321 requirements.

Answer/Response: IPA is not a "photochemically reactive solvent," but it is a "reactive organic compound." It is also a toxic air contaminant. Unlike Rule 317, PAR 321 will apply to materials that are classified as an ROC, TAC, or both. Thus, the proposed amended Rule 321 requirements will apply when IPA is used in solvent cleaning machines or when performing solvent cleaning.

Request to Exempt Small Containers (e.g., One Liter) from Rule 321 Solvent Cleaning Requirements

Question/Issue: PAR 321 should exempt containers having a capacity of one liter or less in volume; including containers that are filled on site using industry approved pumps and aerosol products.

Answer/Response: The PAR 321 Sections B.9 and B.11.b provide partial rule exemptions for the use of aerosol products and small containers (e.g., spray bottles, squirt bottles, and other containers having a capacity of one liter or less). However, depending on the category, some solvent cleaning activities using such containers will need to use low-ROC materials.

Loss of Rule 321 Exemptions

Question/Issue: Why is the District deleting the current Rule 321.B.4.f exemption for small sealed degreasers?

Answer/Response: The District proposes to delete the 10 gallons capacity enclosed solvent cleaner exemption because the revised rule will govern airless and air-tight solvent cleaning machines. Making such enclosed solvent cleaners subject to Rule 321 is consistent with approaches used by other air districts and the mandate to implement every feasible measure.

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Question/Issue: Why is the District removing the Rule 321 exemptions in Sections B.2.a and b for solvent cleaning machines with a capacity of one gallon or less or a surface area of less than one square foot?

Answer/Response: The current Rule 321.B.2.a and b exemptions need to be removed for 1) consistency with the revised applicability provision, 2) to make the new solvent cleaning requirements applicable, and 3) to make the revised SCM requirements applicable.

Use of a solvent with a container that has one gallon capacity or less is considered to be "solvent cleaning." This is clarified in the new Rule 102 definition of "solvent cleaning machine," which indicates: ". . . Buckets, pails, and beakers with capacities of 3.785 liters (1.00 gallon) or less are not considered solvent cleaning machines. However, the use of such a container or similar containers (e.g., hand-held spray bottles) with a liquid solvent for cleaning is considered to be solvent cleaning . . ." There are many new provisions in the PAR 321 that will apply to solvent cleaning that would otherwise be exempt from the rule if the 321.B.2.a exemption was not removed.

The removal of the "less than one square foot evaporative surface area" exemption is needed because the revised Rule 321 provisions will apply to degreasers that were previously exempt. For example, the sink-on-a-drum cleaners (remote reservoir SCMs) will need to meet the 50 g/l and other Rule 321 requirements, unless they are subject to an applicable exemption.

Request to Exempt Paint Clean-Up Operations that Use Solvents

Question/Issue: The cleaning of paint clean-up operations should be exempt.

Answer/Response: The District disagrees that the cleaning of application equipment should be exempt. Similar to requirements in other air districts, PAR 321.M.3 will require the use an enclosed system (or equivalent) when using a solvent with an ROC content of greater than 50 grams per liter to clean spray application equipment.

Compounds that are Classified as being both a "Toxic Air Contaminant" and a "Non-Reactive Organic Compound"

Question/Issue: What compounds are classified as being both a toxic air contaminant and a non-reactive organic compound? When these compounds are used in concentrations exceeding two percent, the PAR 321.B.1 exemption will not apply (i.e., the PAR 321.B.1.b gatekeeper would be exceeded).

Answer/Response: To date, the District has identified six compounds that fall into this category:

1. tert-butyl acetate (t-BAc), CAS Number: 540-88-5
2. methylene chloride (METH), dichloromethane (DCM), CAS Number: 75-09-2
3. perchloroethylene (PERC), tetrachloroethylene, CAS Number: 127-18-4
4. 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113), CAS Number: 76-13-1
5. 1,1,1-trichloroethane (TCA); methyl chloroform, CAS Number: 71-55-6
6. trichlorofluoromethane (CFC-11), CAS Number: 75-69-4

This list may change due to additional compounds being identified or additions to 1) the TAC list and/or 2) the Rule 102 ROC definition's "exempt compound" list.

Methods for Determining a Solvent's ROC Content

Question/Issue: Will the District require that a solvent user have a U.S.EPA Method 24 test done to determine the ROC content of a solvent or will the VOC data from a material safety data sheet (MSDS) be sufficient?

Answer/Response: If the solvent manufacturer based the VOC data in their MSDS on a U.S.EPA Method 24 test, the District will not require the users to have a test performed. (Some MSDSs specify that the VOC data is based on U.S.EPA Method 24.)

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Another approach to verifying ROC content involves PAR 321.P.7, which will permit the identification of solvent components by manufacturer's formulation data (or ASTM International methods). Staff could determine the ROC content by using the manufacturer's formulation data coupled with solvent density data published in an acceptable reference document. This approach should be viable when the solvent in question is comprised of only one compound that is known to be an ROC.

If the manufacturer's formulation data approach is not feasible or the basis for the MSDS VOC data is in doubt or the accuracy of the manufacturer's data is questionable, the District may require solvent users to obtain U.S.EPA Method 24 results.

"Stripping" Exemption

Question/Issue: On PAR 321.B.4, can a source use this exemption to strip cured sealants?

Answer/Response: Yes, we changed the text to include "cured sealants."

Removing Cured or Partially Cured Silicone from Production Equipment (e.g., Wooden Stirring Spoons)

Question/Issue: Under the PAR 321 requirements, will sources be allowed to use xylene and IPA to break apart the bonds of silicone that are partially or completely cured?

Answer/Response: Yes, the PAR 321.M.1 Table 1 limits will allow the cleaning of partially cured silicone:

1. Associated with maintenance and/or repair cleaning associated with the manufacturing of silicone, electronic, and/or medical devices, or

2. From tools, equipment, and machinery involved with the manufacturing of silicone, electronic, and/or medical devices.

Xylene and IPA both have ROC contents below 900 grams per liter (g/l). This limit is being proposed in Rule 321, Section M.1. The PAR 321.B.8.exemption provides a similar 900 g/l limit for SCMs when performing such cleaning described in items 1 and 2 above.

The removal of completely cured silicone is considered to be "stripping," which is exempt by PAR 321.B.4. Rule 102 provides definitions that may help clarify these terms and requirements too:

"Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.

"Cured Adhesive, Cured Coating, or Cured Ink" means an adhesive, coating, or ink that is dry to the touch.

"Stripping" means the use of solvent to remove materials such as cured adhesives, cured inks, cured sealants, cured or dried paints, cured or dried paint residues, or temporary protective coatings.

Exemption for Stripping Cured Coatings, etc.

Question/Issue: The provisions of the proposed rule should not apply to stripping of cured coatings, cured adhesives, and cured inks.

Answer/Response: We concur; PAR 321, Section B.4 provides an exemption from stripping cured coatings, cured adhesives, and cured inks, except when removing cured materials from spray application equipment.

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Exemptions for Solvent Cleaning Subject to Other District Rules

Question/Issue: PAR 321 should provide exemptions for any cleaning operations that are subject to other District rules. The SJVUAPCD and VCAPCD rules provide such exemptions.

Answer/Response: PAR 321.B.6 provides such exemptions.

ROC Limits for Batch Solvent Cleaning Machines Cleaning Electro-Optical Devices

Question/Issue: The PAR 321 should allow the use of solvents, such as isopropyl alcohol and cyclohexane/isopropyl alcohol mixtures, that have ROC contents greater than 50 g/l in batch SCMs, as required by government contracts for 1) electro-optical devices used in the aircraft decoys and satellites, and 2) high precision optics designed to sense, detect, or transmit light energy.

Answer/Response: Batch solvent cleaning machines used to clean high-precision optics will be allowed to use such solvents per the PAR 321.B.8 exemption.

Exemption from Sections H.7, I.7, and K.6

Question/Issue: Does PAR 321.B.8.d exempt all of Sections H, I, and K, or only the effective date?

Answer/Response: This paragraph exempts qualifying SCMs from the solvent ROC content limit (50 g/l or less). The other provisions of Section H, I, and K need to be met. The requirement for the solvent to have a 50 g/l of ROC content or less is within each of the referenced sections: H.7, I.7, and K.6. Operators of SCMs not eligible for the PAR 321.B.8 exemption will need to comply with the solvent ROC limit of 50 g/l or less by the effective date, which will be one year from the date the Board adopts the rule.

Specific Exemptions from the ROC Limits for Highly Technical and/or Precision Equipment Cleaning

Question/Issue: The cleaning of solar cells, fluid systems, avionic equipment, laser optics, telescopes, and microscopes should be exempt from Rule 321 requirements.

Answer/Response: The District has provided exemptions from the Rule 321 ROC limits in PAR 321.B.8.a for these items. The revised text indicates:

> Cleaning of solar cells, laser hardware, scientific instruments, high-precision optics, telescopes, microscopes, avionic equipment, and aerospace and military fluid systems.

Question/Issue: The PAR 321.B.8.a exemption includes scientific instrument, but the definition of "scientific instrument" does not include telescopes and microscopes.

Answer/Response: Staff added microscopes and telescopes into the Rule 321.B.8.a exemption list.

Analytical Equipment Exemption

Question/Issue: The use of solvents to 1) clean laboratory equipment, and 2) dilute ("cut") samples during a laboratory analysis should be exempt.

Answer/Response: PAR 321.B.8.b provides an exemption from the rules' ROC content limits for cleaning in laboratory tests and analyses. And Section B.19 provides an exemption when using a solvent as a diluent (cut).

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Request to Exempt Research and Development Programs from Solvent ROC-Content Limits

Question/Issue: PAR 321 should include an exemption from the rule's solvent ROC-content limits for research and development (R & D) programs.

Answer/Response: The District added such a provision for short-term (less than 2 years) R & D programs in PAR 321.B.8.b.

Aerosol Solvent Exemption

Question/Issue: Rule 321 should include an exemption for the use of small quantities of aerosol solvents and the threshold should be on a facility basis.

Answer/Response: The proposed amended Rule 321, Section B.9, includes a partial exemption for aerosol products. The exemption's upper usage rate limit is 160 ounces per day per facility.

Exemptions/Requirements for Squeeze Bottles, Beakers, and Solvent Containers Having 1 Gallon Capacity or Less

Question/Issue: Use of squeeze bottles, beakers, and bench scale solvent containers are critical to our operations. What exemptions and/or requirements in the PAR 321 will apply to their use?

Answer/Response: The PAR 321 Sections B.9 and B.11.b provide partial rule exemptions for the use of small containers. However, such solvent cleaning activities using small containers will need to comply with the PAR 321.M.1, Table 1, ROC limits, which may require use of low-ROC materials depending on the cleaning category. Also, the PAR 321.D, M.2, R, and possibly S provisions apply. If the container has a capacity greater than 1 gallon, the operation qualifies as using a "solvent cleaning machine," per the PAR 102 definition for this term.

There Should be No ROC Limits When Cleaning Application Equipment Associated with Satellite Coatings and Radiation-Effect Coatings

Question/Issue: The PAR 321 ROC limits should not apply when cleaning application equipment used in:

1. satellite coating operations, and
2. radiation-effect coating operations.

Answer/Response: The PAR 321.B.10 includes such exemptions.

Exemption for Wipe Cleaning at Health Care Facilities, etc.

Question/Issue: Does Rule 321.B.14 apply to veterinary clinics/hospitals?

Answer/Response: Yes. The text indicates, " . . . hospital, clinics . . . " and the intent is to include all of them.

Exemption from the Solvent Cleaning ROC-Content Limits for Sources Using 55 Gallons of Solvent per Year or Less

Question/Issue: Will the revised Rule 321 provide an exemption from the solvent cleaning ROC content limits for sources using 55 gallons of solvent per year or less?

Answer/Response: Yes, such sources will not be subject to the PAR 321.M.1, Table 1 limits (per PAR 321.B.15). Solvents with a reactive organic compound content of 50 g/l of material or less will not count towards the 55 gallons per year aggregate limit. However, the "good housekeeping" requirements of Section D and the provisions in Sections M.2, 3, R.2, R.3, and possibly S will apply to sources exempt by Section B.15.

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Solvent Cleaning Exemption for Offshore Oil and Gas Platforms

Question/Issue: Requiring wipe cleaning solvents to have a low ROC content for solvent cleaning on offshore oil and gas platforms will create wastewater quality discharge issues.

Answer/Response: The District added an exemption (Rule 321, Section B.16.g) to address this concern. This new exemption limits the solvent ROC content to 800 g/l and the solvent ROC composite partial pressure to no greater than 8 mm of Hg at 20 °C when performing wipe cleaning on offshore platforms. Mineral spirits are available that will comply with the ROC content and pressure limits. Exemptions in PAR 321.B.6 may also apply.

Cleaning of Vacuum Chambers

Question/Issue: What are the requirements when wiping down vacuum chambers with n-methyl-2-pyrrolidone (NMP) solvent?

Answer/Response: The cleaning of vacuum chambers should qualify for the PAR 321.B.22 exemption, which provides an exemption for some manufacturing and maintenance processes that need to use NMP solvent.

Suggested Changes to the Definition of "Electronic Components"

Question/Issue: Ensure that the revised rule definition of "electronic components" is broad (e.g., includes semiconductor, charged coupled devices, thermal electric coolers, etc.). Also, include clarification in the rule's support document of what is meant by the definition's text "except for the actual cabinet in which the components are housed."

Answer/Response: Staff has worked closely with the regulated community to expand the definition of "electronic components" to ensure that it is sufficiently broad.

The definitions of "Electrical Apparatus Components" and "Electronic Components" both include the phrase, "except for the actual cabinet in which the components are housed." The intent is to allow manufacturers of electrical apparatus and/or electronic components to use solvents with high ROC contents (up to 900 g/l), but require the use of low-ROC solvents when cleaning the final cabinet in which the completed components are installed. However, for equipment requiring a high degree of cleanliness (e.g., components and devices manufactured and/or assembled in clean rooms), Rule 321.B.8 allows the use of high-ROC content solvents.

Gas Turbine Engine Cleaning

Question/Issue: What provisions of Rule 321 apply to the cleaning of internal parts of a gas turbine engine?

Answer/Response: Equipment used in the cleaning of gas turbine engines is considered to be a "Gas-Path Solvent Cleaner," as defined in PAR 321, Section C. Rule 321 provisions will not apply if the solvent is exempt by Rule 321.B.1. It is the District's understanding that these operations use solvents that have an ROC content less than 2 percent, by weight.

If the operation is not exempt from Rule 321, then the following Rule 321 sections apply:

1. D, General Operating Requirements,
2. F, Additional Operating Requirements for Gas-Path Solvent Cleaners, and
3. G, General Equipment Requirements for Solvent Cleaning Machines.

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Definition of "Medical Device"

Question/Issue: Should the definition of "medical device" include the raw materials used to manufacture medical devices like the definition of "aerospace vehicle component" has?

Answer/Response: Yes, we believe it should. Thus, the District revised the definition to include such text.

Definition of "Solvent" Including Toxic Air Contaminants (TACs)

Question/Issue: Why is the District including TACs in the project?

Answer/Response: The District wants Rule 321 to apply to non-ROC solvent such as methylene chloride and other TAC solvents not covered by a MACT (NESHAP). Staff has seen that the adoption of some new and revised rules for reducing ROC emissions could have the tendency to increase TAC emissions. For example, coating manufacturers complying with ROC limits may replaced an ROC solvent in a coating with a material that is classified as both a non-ROC and TAC. By including TACs in the solvent definition, there should not be a significant increase in TAC emissions from the revised Rule 321.

Question/Issue: This rule is being promulgated in response to an ROC control measure, not as a toxic air contaminant control measure. If the District wants to regulate TAC solvents, CARB or the District should first develop an air toxic control measure. The regulated community is requesting that TAC be taken out of the *solvent* definition.

Answer/Response: Including TACs in the project will: 1) allow TAC solvents to be controlled by Rule 321, which is consistent with the District's mission to protect public health, 2) provide a method to deter TAC increases, 3) give sources incentives to reduce TAC emissions by using airless/air-tight SCMs or alternative solvents, and 4) be consistent with CEQA documents on the control measure.

Question/Issue: In the draft Background Paper, Appendix K, under the industry impacts from Rule 102, it indicates that there are no impacts from the new definitions. If there are no impacts from including TACs in the project, why have it? The District needs to either change Appendix K to say yes there are some impacts (e.g., a health risk assessment may be triggered) or take TACs out.

Answer/Response: The addition of the TAC text to the solvent definition is not changing our permitting review process. Thus, there will be no effect on when TAC screening and/or when health risk assessments will be done. The District has updated the Background Paper's Appendix K to reflect some of the other potential impacts due to changing the solvent definition and the Rule 202 changes.

Question/Issue: Some of the members of the regulated community do not believe the District has the authority to control TAC solvents as proposed in this rulemaking effort.

Answer/Response: Air districts have a long-standing authority to regulate toxic air contaminants.

Question/Issue: Have other air districts regulated toxic air contaminants through their solvent cleaning machine and/or solvent cleaning rules?

Answer/Response: Other air districts have not been as explicit on regulating TACs as the District's proposed approach.

In SC Rule 1122, Solvent Degreasing, the applicability section indicates that the rule applies to SCMs that carry out solvent degreasing operations with a VOC solvent or a NESHAPs halogenated solvent.

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SC Rule 1171, Solvent Cleaning Operations, Section (a) indicates that the purpose of the rule is to reduce volatile organic compounds, toxic air contaminants, and ozone-depleting or global warming compounds from the use, storage and disposal of solvent cleaning materials in solvent cleaning operations and activities.

The state prohibited the use of several TACs in recent modifications to the state Consumer Product regulation on multi-purpose solvent and paint thinner products.

Request for a Definition of and Provisions for "Solvent Cleaning Stations"

Question/Issue: The PAR 321 should include a definition of "solvent cleaning stations" and provisions for them similar to those found in the South Coast AQMD Rule 1164, Semiconductor Manufacturing. This definition indicates: "SOLVENT CLEANING STATIONS is a workplace equipped to remove surface contaminants using a liquid or vapor solvent containing volatile organic compounds."

Answer/Response: The District disagrees. Adding such a definition could cause confusion over when a *solvent cleaning machine* is employed and when *solvent cleaning* is being performed. The new definitions in PAR 102 and the PAR 321 provide clear delineations for these two terms and the requirements that apply to them.

Change in the Method for Determining the Contact Location of the Solvent/Air Interface for Vapor SCMs

Question/Issue: The current *air-vapor interface* (*solvent/air interface* in PAR 321) definition indicates that the effective top of the vapor layer may be determined as the maximum height where condensation occurs on a cold metal object lowered into the vapor zone. Under PAR 321, the location of contact is defined as the mid-line height of the primary condenser coils. What is the basis for this change?

Answer/Response: The District is modeling the Rule 321 project SCM terms and definitions on those found in 40 CFR, Part 63, Subpart T, National Emission Standards for Halogenated Solvent Cleaning. Staff prefers the mid-line height basis for determining the location of contact of the solvent/air interface because it is easier to determine and it is consistent with the federal provisions. It should be noted that this change may affect the freeboard ratio figure. For additional information see "Requirement for Vapor SCMs to Have a Freeboard Ratio of 1.0," page I-23.

Level of Stringency of the PAR 321 Requirements

Question/Issue: The District proposes to modify Rule 321 using solvent rules in the South Coast AQMD and San Joaquin Valley Unified APCD as models. However, these areas have extreme non-attainment status, while Santa Barbara County has federal maintenance attainment status. In light of this situation, the District should use rules adopted before 1999 as the models for the current PAR 321.

Answer/Response: The District modeled the proposed revised requirements for solvent cleaning machines on South Coast (SC) Rule 1122, as adopted on July 11, 1997. The proposed solvent cleaning requirements are modeled on a combination of rules: South Coast Rule 1171, as adopted on October 8, 1999, and SJV Rule 4663, as adopted on December 20, 2001. Staff also considered and added exemption provisions from the Ventura County APCD solvent rules.

Santa Barbara County is nonattainment for the state ozone standard and the proposed amended Rule 321 requirements are consistent with the state requirement to adopt every feasible measure.

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Inspection and Maintenance Plan Not Required for Solvent Cleaning Machines

Question/Issue: Will the proposed amended rules require sources to have inspection and maintenance (I & M) plans to monitor operations of remote reservoir solvent cleaning machines?

Answer/Response: No, PAR 321 does not include any provisions for I & M plans.

Enforcement of the New ROC-Limits

Question/Issue: How will the District enforce the requirement to use low-ROC solvents, especially at unpermitted facilities like auto repair shops?

Answer/Response: We have a county-wide surveillance program, where we are visiting all facilities, permitted and unpermitted, that may have emissions. Through this surveillance program we determine compliance with permit requirements and with Rule 321 provisions. Regarding the use of low-ROC solvents, a vendor (Safety-Kleen) indicated to us that they will ensure that the equipment they service complies with the revised Rule 321 requirements.

Requirements for Remote Reservoir Cleaners that Were Previously Exempt from Rule 321

Question/Issue: What requirements will apply to the sink-on-a-drum units under the PAR 321? These have typically been exempt by the Rule 321.B.2.b one square foot exemption, which is being deleted.

Answer/Response: If a sink-on-a-drum (remote reservoir) SCM is not exempt by a provision in Rule 321.B, such unit will be subject to:

1. Section D, General Operating Requirements,
2. Section G, General Equipment Requirements for Solvent Cleaning Machines,
3. Section H, Additional Equipment Requirements for Remote Reservoir Cold Cleaning Machines (includes the requirement to use a solvent with an ROC content of 50 g/l or less),
4. Section I, Additional Equipment Requirements for Batch Cold Cleaning Machines.[a]
5. Section R, Recordkeeping Requirements,
6. Section S, Reporting Requirements,[b] and
7. Section T, Compliance Schedule.

Question/Issue: What Rule 321 requirements may be a challenge or difficult for these units to meet?

Answer/Response: The PAR 321.H.5 provision may be triggered, which would require dimensions such that the freeboard ratio is 0.75 or greater. This could occur if the solvent employed is a high volatility solvent (Safety Kleen 105 is a high volatility solvent unless its temperature is never at 98 ºF or higher).

A source may eliminate the need to meet the 0.75 freeboard ratio requirement by switching to a low volatility solvent. Such a solvent may be an aqueous- or detergent-type cleaning agent or a solvent with an ROC content of 50 g/l or less. For SCMs that were previously exempt, PAR 321.T.2.b.3 provides a deadline of 365 days from the rule amendment date for sources to comply with the Section H provisions.

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[a] Section I applies if the solvent container is accessible for dipping or soaking parts.
[b] Annual reporting applies if the remote reservoir SCM is subject to a Permit to Operate.

CEQA Analysis for the Rule 321 Project's "Closed Container" Requirement

Question/Issue: The California Environmental Quality Act (CEQA) analysis for the Rule 321 project needs to assess the increased generation of hazardous waste as a result of the proposed closed container requirement.

This analysis should include the secondary emissions generated by the transportation of this hazardous waste material to approved waste collection sites. For example, existing District rules do not prohibit the air drying of rags during miscellaneous wipe solvent operations. The proposed rule would eliminate this practice, resulting in the generation of a new hazardous waste stream.

Answer/Response: The District does not foresee that there will be any unmitigated significant CEQA issues. The proposed equipment designs, limits, and operating requirements in PAR 321 have been established in many other California air districts.

Meaning of "Tight-Fitting Cover"

Question/Issue: In PAR 321.D.1, what does "tight-fitting cover" mean?

Answer/Response: A top that is made specifically for a container would typically be a tight-fitting cover. Something with a bunch of visible gaps would not be a tight-fitting cover. A tight-fitting cover is one that will stay on if bumped and is not easily knocked off. A cover that is too big for the top of the container and could easily be pushed off would not be a "tight fitting cover." It doesn't have to be vapor-tight.

Cover Requirements

Question/Issue: The existing requirement should be expanded to allow the removal of the cover for additional reasons (e.g., to perform monitoring, inspections, or repairs).

Answer/Response: The District revised the text to indicate that the covers shall not be removed or opened except to process work or perform monitoring, inspections, maintenance, or repairs that require the removal of the covers.

Use of Nitrogen Gas to Expedite Solvent Draining/Removal from Cleaned Parts

Question/Issue: Are operators that perform solvent cleaning (dip cleaning) allowed to direct a gentle nitrogen gas stream onto parts to expedite the draining of solvent from internal cavities and/or to dry residual solvent films? The process uses low pressure nitrogen gas where the solvent is not atomized and the solvent runoff is collected for solvent recovery or disposal.

Answer/Response: Yes, such a process is allowed without add-on control equipment under the provisions of Rule 321 Section D.9 and Section M.2.c because there is no solvent being atomized and the runoff solvent is collected accordingly.

Necessity of the Proposed New Housekeeping Requirements

Question/Issue: The District indicated that it modeled the new PAR 321.D.10 to 12 requirements on provisions in:

1. 40 CFR Part 63, Subpart T for NESHAP Halogenated Solvent Cleaning, and
2. South Coast AQMD Rule 1122.

This rule should not address TACs; thus no Rule 321 requirements should be based on the federal regulation. In addition, the SCAQMD is a highly industrial air basin containing many more of these solvent sources, and that air basin is classified as extreme nonattainment of federal ozone air quality standards, whereas Santa Barbara

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County is in attainment of federal ozone attainment standards. Therefore, these new requirements need not be imposed upon sources within the jurisdiction of the SBCAPCD.

Answer/Response: The same "good housekeeping" techniques found within the federal regulation for reducing hazardous air pollutant emissions will also reduce ROC emissions. Also, using the provisions within SC solvent rules as models for the SBC solvent rule is consistent with the state requirement to adopt every feasible control techniques.

Enforcement of the Proposed New Housekeeping Requirements

Question/Issue: The new proposed housekeeping requirements in PAR 321.D could lead to increased costs for operators, increased recordkeeping and reporting requirements, and a greater potential for Notices of Violation during facility inspections. There is also a concern that these housekeeping requirements will be unequally enforced, because the SBCAPCD will not have the resources to inspect the unpermitted sources, beyond periodic inspections. Thus, we request the elimination of PAR 321, Sections 10 to 13.

Answer/Response: The District needs to include these requirements because they have been implemented in other air districts and they are necessary to meet the state requirement for the adoption of "every feasible measure." To provide equal enforcement, the District conducts surveillance of unpermitted SCMs.

Looking at the PAR 321.D.10 - 13 housekeeping provisions individually:

321.D.10 - Requirement to Clean Up Solvent Spills This expands the existing Rule 321.D.1 provision, which indicates, "Solvent, including waste solvent, shall not be stored or disposed of in a manner that will cause or allow evaporation into the atmosphere." It is similar to text in SC Rules 1122(c)(1)(L) and 1122(c)(2)(P) and 40CFR §63.462(c)(5). We believe that it a reasonable requirement that operators clean up solvent spills immediately when they occur.

321.D.11 - Solvent Levels are Not to Exceed the Fill Line This is an extension of the existing Rule 321.D.2 provision, "The solvent cleaner . . . shall be installed, operated, and maintained in proper working order." The District is proposing the same text found in SC Rule 1122(c)(1)(M) and 1122(c)(2)(Q). Preventing overfilling of SCMs will help to reduce spills and improve compliance with other requirements (e.g., maintaining the proper freeboard height/ratio, helping to avoid solvent splashing outside of the SCM).

321.D.12 - SCM Solvent Transfer Methods At the request of industry, the District modified the earlier text (which had been modeled on the 40 CFR §63.463(d)(8) provision). The currently proposed text is verbatim from SC Rule 1122(c)(1)(E). We believe it is reasonable to require this technique, which will help in reducing emissions from solvent transfers.

321.D.13 - Positioning Ventilation Fans This provision is virtually the same one found in current Rule 321.G.10, SC Rule 1122(c)(1)(K), SC Rule 1122(c)(2)(N), and VC Rule 74.6.1.C.10. We cannot eliminate this provision as it is currently in the Rule 321, which U.S.EPA has incorporated into the State Implementation Plan.

Allowing Minimal Amounts of Solvent Atomization Without Emission Controls

Question/Issue: The rule should provide limited exemptions to 1) the solvent atomization prohibition, and 2) the requirement to employ add-on control equipment when atomizing solvent.

Answer/Response: PAR 321.B.11 provisions provide exemptions from the solvent atomization prohibition for specific equipment and containers.

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Transferring Solvent

Question/Issue: The PAR 321.D.12 (dated May 14, 2009) indicates that the solvent shall be transferred using threaded or other leakproof couplings. So, if you have a transfer pump, you can't put the pump in the bottom of the drum, because you don't have a threaded or leakproof coupling?

Answer/Response: The District revised this provision using text from the SC Rule 1122; the PAR 321.D.12 provision now indicates:

> Draining or filling solvent containers shall be performed at a level lower than the liquid solvent surface.

Question/Issue: How would solvent draining per D.12 be applied to a small cleaning machine that has a small container? In my case, we pick up a tub containing about 2 - 3 gallons of solvent and pour it directly into the bulk storage drum. Filling another container to transport the solvent doesn't seem like it would result in any emission decrease.

Answer/Response: Staff added an exemption in PAR 321.B.23 to cover such a scenario:

> The provisions in Section D.12 shall not apply to a solvent container (e.g., a bucket, pail, or tub) having a maximum capacity of 8 gallons or less, provided the operator drains the solvent from such container by pouring it directly into a storage container.

Question/Issue: Does the Rule 321.D.12 requirement apply to bulk solvent storage containers?

Answer/Response: No. The way Rule 321.D.12 is written it applies to *solvent containers*. And Rule 321 defines *solvent container* as, " . . . that part of the solvent cleaning machine that is intended to hold the cleaning solvent." Hence, Rule 321.D.12 only applies to solvent containers that are integral to solvent cleaning machines.

Request to Eliminate Potentially Antiquated Parts of Rule 321

Question/Issue: There are unnecessary sections of PAR 321 that can be deleted.

Answer/Response: Although the Santa Barbara County APCD point source inventory may not include certain devices (e.g., gas-path cleaners, in-line SCMs, or cross-rod SCMs), they could be currently in use without being in the inventory due to their permit-exempt status. As shown in the Background Paper, Appendix L, Figure 1, Page L-3, there are several permit exemptions that apply to such equipment. It is necessary to retain these SCM requirements for new units as well. For these reasons, the District is reluctant to remove requirements from the existing rule (which U.S.EPA has approved into the State Implementation Plan).

PAR 321.H.7, I.7, & K.6 Sentence Structure

Question/Issue: The language after the *effective date* references in PAR 321 H.7, I.7, and K.6 appears incomplete.

Answer/Response: We reviewed the text in question and found that the sentence structure is correct. The intent is to require SCMs to be equipped with solvents having an ROC content of 50 g/l or less, effective one year from the date of the rule revision, unless a SCM is controlled by an emission control system meeting the requirements in Section N.

Using Section H.7 as an example, the proposed (abbreviated) text is: "Any person who . . . operates . . . any remote reservoir cold cleaning machine shall ensure that it is equipped with the following: . . . 7. . . . solvent that contains 50 grams of reactive organic compound per liter of material or less."

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The omitted text provides qualifiers on 1) when the 50 g/l requirement becomes effective and 2) how the use of add-on control equipment may be used in lieu of meeting the 50 g/l requirement.

Aqueous Solvents Will Not Work for Many Solvent Applications

Question/Issue: For many solvent-cleaning operations, aqueous cleaners are functionally ineffective.

Answer/Response: The proposed amended Rule 321 solvent ROC limits take into account the specific needs for the various industries. For electronic and medical device manufacturing and silicone manufacturing processes that require a higher degree of cleanliness, the rule will allow up to 900 grams of ROC per liter. Similar limits for the different types of facilities and processes have been successfully used in other air districts.

Cleaning Electronic Components and Medical Devices with the IPA

Question/Issue: IPA should be allowed to be used when cleaning electronic components and medical devices.

Answer/Response: Such cleaning operations may be eligible for an exemption in Section B.8. If not, the Section M.1, Table 1, ROC limit is 900 g/l for these categories. IPA has an ROC content of 785 g/l in its purest form. Thus, undiluted IPA may be used under the proposed provisions for the aforementioned categories.

Making Certain Solvents Illegal

Question/Issue: This proposed rule would make certain hydrocarbon solvents illegal for use in wipe cleaning operations.

Answer/Response: That is true for solvent cleaning categories 1) not eligible to be exempt by a Section B provision (e.g., B.15 – the 55 gallons per year exemption), or 2) that need to use solvents with a higher ROC content than the ones allowed in Section M.1, Table 1. The District is proposing to adopt solvent cleaning provisions that have been successfully implemented in other air districts. Further, where there is a need to use high-ROC solvents, we have included higher limits or an exemption in the rule.

Rule 321 Impacts

Question/Issue: Revised Rule 321 will impact businesses that are already operating under permit with the District. Effectively, the "reward" that businesses will receive for their years, and in many cases decades, of compliant operation and fee remittance is an outright ban on select materials (e.g., IPA) that are essential to performing the ordinary course business activities of their enterprises. The District can achieve the reduction in ozone precursors required by their Clean Air Plan by the adoption of other proposed rules.

Answer/Response: Some industries (e.g., automotive repair shops) that have not already switched over will see a positive impact to their operating costs from complying with the revised Rule 321 requirements. The change to aqueous- or detergent-type solvents has resulted in cost-savings in others regions where the control techniques have been implemented.

The District is not proposing to ban IPA (for more detail, see the response to the "Disclosure of Emission Inventory Data and Banning IPA" topic, under "321 - Support Data," page I-27). The District's approach to regulating solvent cleaning is reasonable, consistent with the Clean Air Plan, and fulfills the requirement to adopt "every feasible measure."

The District disagrees that the emission reductions from revising Rule 321 can be achieved through the adoption of other proposed control measures. The adoption of PAR 321 will achieve more than one-half a ton per day of ROC emission reductions. Those emission reductions exceed the combined emission reductions from all of the other proposed revised control measures listed in the 2007 CAP, Table 4-3.

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Setting the General Solvent ROC-Content Limit at 50 or 25 Grams per Liter

Question/Issue: The project should be based on a "general solvent use" ROC-content limit of 50 g/l, not 25 g/l.

Answer/Response: When we first proposed the solvent rule changes in the 2001 Clean Air Plan, air district's with solvent cleaning requirements were setting the solvent limit for general use at 50 grams per liter. Although these air districts have since lowered the rules' ROC limits to 25 g/l for general solvent use, we will continue to propose the 50 g/l limit for this category as committed to in the 2001 CAP. And, we will be using earlier versions of the other air district rule requirements for establishing the ROC limits.

ARB and U.S.EPA have recommended that the District revise the rules to have the 25 g/l cut-off. Therefore, a possibility exists that ARB and/or U.S.EPA will not approve the revised rule at the proposed ROC limits.

PAR 321 and Interactions with Rules 322 and 324

Question/Issue: The District should examine the interaction between Rule 322, Metal Surface Coating Thinner and Reducer, and Rule 324, Disposal and Evaporation of Solvents, with the proposed revisions to Rule 321. Could Rules 322 and 324 be eliminated, as they appear to be redundant following the adoption of the proposed rule changes?

Answer/Response: No, the provisions in Rules 322 and 324 should not be repealed. There is no interaction or interdependency between the PAR 321 and the Rule 322 or Rule 324 requirements. Rules 322 and 324 are general umbrella- or catch-all-type rules that do not have any requirements specific to the use of solvent cleaning machines or provisions on solvent cleaning. Also, the PAR 321 will have limited applicability. Thus, a person disposing of a solvent not subject to the Rule 321 solvent disposal provisions would be subject to Rule 324 requirements

PAR 321 and Interaction with Rule 317

Question/Issue: How will the requirements of Rule 317, Organic Solvents, interact with those in PAR 321?

Answer/Response: Rule 317 is a general umbrella- or catch-all-type rule that applies to a wide range of sources and regulates "photochemically" and "nonphotochemically" reactive solvents. Rule 321 regulates "reactive organic compounds," which includes a larger set of chemicals when compared to chemicals categorized as "photochemically reactive organic compounds."

Sources subject to Rule 321 are required to comply with all other applicable SBCAPCD prohibitory rules (including Rule 317). The modified Rule 321 will have limits on the ROC content of solvents, but not daily limits on ROC emissions.

Solvent Cleaning Emissions that Have Been Offset and the Need to Comply with Prohibitory Rule Requirements

Question/Issue: A source performing solvent cleaning that has offset the emissions at a 1.2 to 1 ratio should not be required to comply with the revised Rule 321 requirements because the emissions have been fully mitigated.

Answer/Response: Such permitted solvent activities need to comply with the permit conditions and all applicable rules. If the revised Rule 321 requires use of solvents with lower-ROC contents for the solvent cleaning operation having emission offsets, then the ROC-content requirements need to be met. In such a case, the offset liability would be reduced and the permit holder could choose to revise the permit accordingly.

Requirement for Vapor SCMs to Have a Freeboard Ratio of 1.0

Question/Issue: Under the PAR 321 requirements, will I need to increase the freeboard ratio in my vapor SCM to 1.0?

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Answer/Response: Yes, if the SCM is subject to the PAR 321.J.8 or L.9 requirement and the SCM is not controlled by an emission control system complying with the Section N requirements. The deadline for complying with the increased freeboard ratio requirement will be one year from the date of rule adoption.

It should be noted that the method for determining the *solvent/air interface* has been revised to be the mid-line height of the primary condenser coils. This change may affect the freeboard ratio figure. For additional information see "Change in the Method for Determining the Contact Location of the Solvent/Air Interface for Vapor SCMs," page I-17.

Use of a Low Volatility or Partial Pressure Alternative

Question/Issue: It is recommended that solvent cleaning with low volatility solvents be addressed in the rule. As currently proposed the rule may encourage the use of higher volatility solvents with lower ROC content, resulting in higher overall emissions. (E.g., replacing toluene with propylene glycol monomethyl ether acetate [PGMEA]).

Answer/Response: Other air districts have moved away from having composite partial pressure provisions in their rules. We believe that they found those provisions unnecessary and that industry did not substitute higher volatility solvents to comply with the rule because their solvent rules provided adequate specific exemptions.

Cleaning of "Clean Rooms" and General Work Areas

Question/Issue: What will the ROC limit be for the cleaning of "clean rooms" and general work areas?

Answer/Response: Maintenance cleaning of "clean rooms" and general work areas associated with the manufacturing and/or repair activities involving electronics, medical devices, silicone manufacturing, or aerospace vehicles/payloads (and their components) will be limited to 900 g/l [PAR 321.M.1, Table 1, Cleaning Activities in (b)(ii) - (b)(iv) and (d)(iii)(II)]. The solvent ROC limit for "general" maintenance cleaning will be 50 g/l [PAR 321.M.1, Table 1, Cleaning Activity (b)(i)]. The PAR 321 includes a definition for "maintenance cleaning."

ROC Limits for Aerospace Solvent Cleaning

Question/Issue: What is the ROC solvent limit for solvent cleaning associated with aerospace applications in the proposed amended rule? All components of an assembly require the same high level of cleanliness to ensure all contaminants are removed. Under vacuum, any contamination, no matter how microscopic, may become loose or outgas causing system failure.

Answer/Response: 900 g/l per PAR 321.M.1, Table 1, Cleaning Activity (d), unless cleaning the coatings application equipment, in which case it is 950 g/l per the table's Cleaning Activity (c) limit.

Solvent ROC Content Limit When Cleaning Spray Application Equipment

Question/Issue: What is the solvent ROC content limit when cleaning spray application equipment under the proposed amended rule?

Answer/Response: For cleaning architectural coating application equipment, the Rule 321.B.2 upper exemption limit, is 950 g/l. The Section M.1, Table 1, also limits the ROC content to 950 g/l.

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ROC Limits When Performing Repair and Maintenance Cleaning of Electronic and Cleaning Coatings Application Equipment

Question/Issue: What are the PAR 321 solvent ROC-content limits for:

1. electronic apparatus components & electronic components subject to repair or maintenance cleaning, and
2. the cleaning of coatings application equipment?

Answer/Response: The limits in PAR 321, Section M.1, Table 1, for the repair cleaning and maintenance cleaning of electrical apparatus components and electronic components is 900 g/l. The limit for cleaning coatings application equipment is 950 g/l.

PAR 321.M.1 Table 1 Limits

Question/Issue: It is recommended that solvent cleaning with low volatility solvents outside of a machine be addressed in the amended rules.

Answer/Response: The early South Coast AQMD and San Joaquin Valley APCD solvent cleaning rules included an option to comply with composite partial pressure limits or ROC limits. However, their current rules have ROC limits with no option to comply with a composite partial pressure limit. It appears that those air districts amended their rules to provide only ROCs limit and have worked around the cases where use of high-ROC solvents is needed by providing specific exemptions. In a similar manner, we are also providing many specific exemptions.

Adding a Specific Category to PAR 321.M.1, Table 1, for "Silicone Manufacturing"

Question/Issue: Silicone manufacturing processes require the use of IPA. The raw silicone materials are used in many products including medical devices and electrical wire insulation, which require a high-degree of cleanliness. The District should provide ROC limits for silicone manufacturing that are equivalent to the limits for medical device manufacturing and electrical apparatus components & electronic components manufacturing.

Answer/Response: Agreed, the District added this category to the rule's Table 1, Cleaning Activities (a)(iv) and (b)(iv), with a 900 g/l limit. And we added a definition of *silicone manufacturing* in PAR 321.C.

Purging Operations

Question/Issue: PAR 321 should include allowances for purging operations using inert gases (e.g., nitrogen), air, and hydraulic fluid.

Answer/Response: The District has included *solvent flow* and *flush method* provisions in PAR 321.M.2.c for such operations. However, it should be noted that "degassing" operations subject to or specifically exempt from Rule 343 will be exempt from Rule 321 per proposed Section B.6.f.

Purging operations involving inert gases or air that are used to purge a solvent with an ROC and a TAC concentration at two percent or less would be exempt per Rule 321.B.1. However, purging with air/inert gases to remove solvents not eligible for the Rule 321.B.1 exemption or purging with hydraulic fluid will need to comply with the PAR 321.M.2.c provisions. (Hydraulic fluid has an ROC content > 2 percent.)

Meaning of "Enclosed"

Question/Issue: Is there a definition of the word "enclosed"?

Answer/Response: No, however the Rule 321.M.3 text describes what an enclosed system will encompass.

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Scope of the PAR 321.M.3 provisions and Omitting the Word "Spray" from the Rule 321 Definition of "Application Equipment"

Question/Issue: Does PAR 321.M.3 apply to solvent cleaning of all application equipment or just spray application equipment? Should the Rule 102 definition of "application equipment" be changed to "spray application equipment" to clarify that only spray application equipment is subject to the rules?

Answer/Response: The intent of the PAR 321.M.3 provision as originally written was to require the cleaning of spray application equipment with either low ROC-content solvent or with the use of an enclosed system. To clarify, the District added the word "spray" in the appropriate places.

On the suggestion to add "spray" to the PAR 102 "application equipment" term, we prefer not to make this addition. The definition of "application equipment" applies throughout the rulebook and needs to be more general so that it can apply to items such as printing presses, trowels, paint brushes, rollers, etc. (PAR 321.B.2 also uses the term "application equipment" in several exemptions and Table 1.)

Methods for Determining Compliance with the PAR 321.N.6 Provision

Question/Issue: How will compliance with the PAR 321.N.6 provision be determined?

Answer/Response: In general, the District will determine compliance with this provision as part of the evaluation for the emission control system's Authority to Construct. During this evaluation, staff will calculate what the emissions would be 1) from the emission control system when a source uses specified quantities of non-complying solvents, and 2) if the source used the same quantities of complying solvents. If the calculated emission rate with a control system is less than the rate using uncontrolled complying solvents, then the project would comply with the PAR 321.N.6 requirement.

After the equipment is constructed, source tests of the emission control system's overall efficiency may be used in combination with usage records and calculations to verify compliance with the Section N.6 provision. Later compliance determinations (e.g., those associated with routine inspections and/or permit reevaluations) will include calculations for determining the theoretical emissions if complying solvents were used and the actual emissions from the control system. The actual controlled emission may be determined from usage records, solvent ROC contents, and new and/or historical source test results on the overall emission control system's efficiency.

Increased Recordkeeping Provisions

Question/Issue: PAR 321.R.1.b.3 requires sources performing solvent cleaning to record the amount of solvent used for each type of cleaning activity specified in Table 1. Businesses will need to modify recordkeeping to classify each cleaning activity, which will increase efforts related to recordkeeping with little benefit or reducing actual emissions to the atmosphere.

Answer/Response: Additional recordkeeping requirements are needed to provide a method for demonstrating and verifying that the higher-ROC solvents are used appropriately. The proposed revised recordkeeping provisions are similar to those found in other air district solvent cleaning rules. Industry has indicated that a need exists to allow the use of higher ROC-content solvents for various types of cleaning activities. We believe that the regulated community finds the additional recordkeeping costs an acceptable tradeoff so that they have available higher ROC limits for specific solvent cleaning activities.

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Use of Blended/Mixed Solvents

Question/Issue: The rule needs to provide a method for solvent users to specify the "as-applied" solvent ROC content especially when they perform on site blending of solvents or prepare aqueous solvent from concentrate. Requiring businesses to buy solvents premixed, rather than separate, would only add to costs rather than reduce solvent emissions to the atmosphere.

Answer/Response: Section R.1.b.5 allows solvent users to determine solvent "as-applied" ROC content at the time of application. Sources may wish to obtain the District's approval of the mix ratio recordkeeping practices and ROC calculation method to ensure compliance with the Rule 321.R.1.b.5 provisions. Nothing in PAR 321 prohibits the mixing of solvents, provided the applicable ROC-content limits and other rule requirements (e.g., Section R.1.b.5) are met.

Disclosure of Emission Inventory Data and Banning IPA

Question/Issue: The District should provide data on emission sources impacting our local air regardless of business class. In order for the District's Community Advisory Council, the District Board, and the general public to make an informed decision regarding a ban on IPA use in our County, they should rightly be provided full disclosure of the stationary sources currently allowed to operate without permits.

Answer/Response: The District has provided the public with data on emissions that impact the local air quality in our Clean Air Plans. The 2007 CAP, Section 3, provides emission inventory data. Table 3-1 breaks down the ROC emissions for different categories (e.g. laundering, degreasing, etc). In addition, the District has included tables in the Rule 321 Background Paper, Appendix G, page G-4, that provide percentage breakdowns on solvent emissions from different emission categories and industry types.

Staff prefers not to characterize any of the PAR 321 requirements as "banning" any particular compound. While certain parts of PAR 321 will limit a solvent's ROC content, there are many exceptions being built into the rule. Proposed amended Rule 321.H.7, I.7, and K.6 include solvent ROC content limits for certain solvent cleaning machines (assuming they are not exempt by a provision in PAR 321.B). Also, PAR 321.M.1 includes solvent ROC limits for certain operations, many of which are higher than the ROC content for undiluted IPA. By providing flexibility to specific industry operations while adopting proven solvent emission reduction techniques, the District will meet the state requirement to adopt "every feasible measure."

Request for a Summary that Compares the Emissions Contribution for all Sources of Solvent Emissions

Question/Issue: The regulated community would like a comparison to others solvent users that need to control emissions. There should be a breakdown in percentages of medical device manufacturing, pharmaceutical, electronic device manufacturing, aerospace, and then the CAC, when we look at it, can see how much we are contributing to the emissions versus these two classes (hospitals and janitorial) that are being exempted.

Answer/Response: These summaries are provided in the Background Paper, Appendix G, page G-5, Tables 3 and 4.

Emission Reduction Calculations

Question/Issue: Some of us would like to see the calculations that support Table 1 in Appendix G.

Answer/Response: A document that details the emission calculation method is available from the District upon request.

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Emission Reduction Estimates

Question/Issue: The numbers in the Background Paper are different (higher) from the ones shown in the Clean Air Plan.

Answer/Response: The emission reductions are actually lower. The District overestimated the emission reductions in the 2007 CAP. The Background Paper (Appendix G, Table 2, page G-3) provides a table to show the comparison of the emission reductions from the 2007 CAP analysis and the current rulemaking activity.

Emission Reductions from Hospitals, Janitorial, and Autobody Shops

Question/Issue: How much of the emission reductions are associated with hospitals and janitorial and autobody shops?

Answer/Response: There are no emission reductions anticipated for hospitals and janitorial solvent use due to their exempt status. For autobody shops, which are not included in the PAR 321 project, the 2008 rulemaking action indicated that the revised Rule 339 solvent requirements would achieve emission reductions of:

0.0096 TPD (2.50 TPY) in 2015, and
0.0102 TPD (2.65 TPY) in 2020

Unspecified ARB Area Source Categories

Question/Issue: The regulated community would also like to get more information (descriptions) on what goes into the "unspecified" categories.

Answer/Response: A document that provides information on this subject is available from the District upon request.

Emission Reductions from Auto Repair Shops

Question/Issue: What emission reductions are anticipated from the auto repair shops?

Answer/Response: Assuming 75 percent of the CES 83659 (EIC 220-204-0500-0000) emissions are associated with remote reservoir cleaners at auto repair shops, the PAR 321 ROC emission reductions will be:

0.2257 TPD (98.80 TPY) in 2015 and 2020.

Basis for Calculating Emissions from Hospitals and Janitorial Services

Question/Issue: I don't like the methodology that calculates emissions based on head-count; looking at the number of employees as a potential to emit. I just have a hard time seeing how that correlates. Purchase records would probably be the most accurate.

Answer/Response: The District is willing to consider alternative calculations that use a reasonable basis for determining these emissions.

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Modeling Rule 321 on Other Air District Rules

Question/Issue: When drafting PAR 321, we do not need to follow the other air district's rules word for word, right?

Answer/Response: That is correct; we can be flexible, to a degree. We may run the risk of getting unfavorable recommendations and/or disapprovals from ARB and/or U.S.EPA if we stray too far from the provisions found in other air district solvent rules.

Rule 323

Architectural Coating Application Equipment Cleaning

Question/Issue: Rule 323 does not contain any type of exemption for solvents used for cleaning coating equipment. Will the revised Rule 323 or 321 exempt solvents used for equipment cleaning?

Answer/Response: The District included an exemption in Rule 321.B.2 for the cleaning of architectural coating application equipment. Per the 2007 CAP, the District will revise either Rule 321 or 323 to include solvent cleaning requirements later.

Rule 339

Requirement to Use Low-ROC Solvents for Auto Painting.

Question/Issue: How will the District's rule address the auto painting industry's need to use pre-sanding solvents that have high ROC contents?

Answer/Response: The District modified Rule 339 in 2008 to include a limited exemption in Rule 339.B.8 for pre-sanding solvents.

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Appendix J
Santa Barbara County
Comparison of the Adjoining Air District Permitting and Prohibitory Rules for Solvent Cleaning Machines and Solvent Cleaning

Air districts adjacent to the Santa Barbara County Air Pollution Control District include the San Joaquin Unified Valley Air Pollution Control District, the Ventura County Air Pollution Control District, and the San Luis Obispo County Air Pollution Control District. For brevity, the following acronyms are employed for the different Air Pollution Control Districts in the following analysis:

San Joaquin Unified Valley Air Pollution Control District (APCD): SJV
San Luis Obispo County APCD: SLO
Santa Barbara County APCD: SBC
Ventura County APCD: VC

For performing the comparisons of the proposed revised rules, staff considered the following categories:

1. Definitions found in the "definitions" rule of the rulebook,
2. Permit exemptions,
3. Prohibitory rule requirements for solvent cleaning machines, and
4. Prohibitory rule requirements for solvent cleaning.

The following provides a summary of the similarities and differences for each of these categories.

DEFINITIONS FOUND IN THE "DEFINITIONS" RULE OF THE RULEBOOK (SBC RULE 102)

In general, the SJV, SLO, and VC rules relative to solvent cleaning machines and solvent cleaning include definitions that are similar to the ones we are proposing for Rule 102. The definitions being added to Rule 102 are needed to clarify terms that are used in Rule 202 (Exemptions to Rule 201) and Rule 321 (Solvent Cleaning Machines and Solvent Cleaning). Some of the new Rule 321 terms may also be added to operation-specific rules (323, 330, 337, 349, 351, 353, or 354) when the SBC modifies them to include enhanced solvent cleaning requirements.

The proposed amended Rule (PAR) 102 amended *reactive organic compound* definition includes an amended list of *exempt compounds*. The following table shows the list of the compounds the SBC is adding to the ROC definition as exempt compounds with notations on whether the adjoining air districts also include the compound as an exempt compound.

Compound	Is the Compound In the SJV Rule 1020 VOC Definition?	Is the Compound In the SLO Rule 105 VOC Definition?	Is the Compound In the VC Rule 2 Exempt Compound Definition?
dimethyl carbonate	No	No	Yes
methyl formate; $HCOOCH_3$	Yes[1]	No	Yes
propylene carbonate	No	No	Yes
tertiary-butyl acetate; $C_6H_{12}O_2$ (1,1-dimethylethyl ester)[2]	Yes[1]	No	Yes

[1] The Rule has a provision on an application for an Authority to Construct and Permit to Operate needing to be submitted if an operator elects to use more than one gallon per year per facility of the compound.
[2] Tertiary-butyl acetate (also known as t-butyl acetate or tBAc) shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds.

Compound	Is the Compound In the SJV Rule 1020 VOC Definition?	Is the Compound In the SLO Rule 105 VOC Definition?	Is the Compound In the VC Rule 2 Exempt Compound Definition?
HCFC-31 (chlorofluoromethane)	Yes	Yes	Yes
HCFC-151a (1-chloro-1-fluoroethane)	Yes	Yes	Yes
HCFC-225ca (3,3-dichloro-1,1,1,2,2-pentafluoropropane)	Yes	Yes	Yes
HCFC-225cb (1,3-dichloro-1,1,2,2,3-pentafluoropropane)	Yes	Yes	Yes
HFC-23 (trifluoromethane)	Yes	Yes	Yes
HFC-32 (difluoromethane)	Yes	Yes	Yes
HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane)	Yes	Yes	Yes
HFC-161 (ethylfluoride)	Yes	Yes	Yes
HFC-236ea (1,1,1,2,3,3-hexafluoropropane)	Yes	Yes	Yes
HFC-236fa (1,1,1,3,3,3-hexafluoropropane)	Yes	Yes	Yes
HFC-245ca (1,1,2,2,3-pentafluoropropane)	Yes	Yes	Yes
HFC-245ea (1,1,2,3,3-pentafluoropropane)	Yes	Yes	Yes
HFC-245eb (1,1,1,2,3-pentafluoropropane)	Yes	Yes	Yes
HFC-245fa (1,1,1,3,3-pentafluoropropane)	Yes	Yes	Yes
HFC-365mfc (1,1,1,3,3-pentafluorobutane)	Yes	Yes	Yes
HFE-7100; $(CF_3)_2CFCF_2OCH_3$; (2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane) or $C_4F_9OCH_3$; (1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane)	No	No	No
HFE-7200; $(CF_3)_2CFCF_2OC_2H_5$; (2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane) or $C_4F_9OC_2H_5$; (1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane)	No	No	No

PERMIT EXEMPTIONS (SBC RULE 202)

Exceptions to Permit Exemptions, 1 Ton per Year Exemptions, Temporary Equipment Exemptions, and Low Emitting Units Exemptions. SBC, SLO, and SJV rules include provisions on exceptions to permit exemptions that negate an exemption under certain conditions. The VC rule does not have any such exceptions. A permit exemption unique to SBC is an exemption for sources with uncontrolled actual emissions less than 1 ton per year. VC and SBC have temporary equipment exemptions, but the VC rule is limited to the temporary use of gasoline storage containers. SJV and SLO do not have temporary equipment permit exemptions. Found in the SJV and SLO rule are exemptions for low emitting units (not to exceed 2 pounds per day). No such exemption is within the SBC or VC rules.

Exemptions for Unheated Nonconveyorized Cleaning Equipment. All four air districts include exemptions for unheated nonconveyorized cleaning equipment. The SJV and SLO rule provisions are somewhat similar. They both limit the exemption to units that emit less than 25 gallons of solvent per year. However, the provisions on the unit's surface area (10 ft^2 vs. 10.8 ft^2) and the solvent initial boiling point (248°F vs. 302°F) differ. The VC rule allows heated, but not boiling, units provided the ROC emissions from the entire source is less than 1,000 pounds per every

rolling 12 consecutive calendar month period. The VC cutoff on the initial boiling point is 302°F and the surface area cutoff is 10.8 ft^2. The SBC Rule 202.U.1 exemption will apply to units of 1 gallon capacity or less and the Section 202.U.2 exemption will continue to have exemptions similar to those in the adjoining air districts (e.g., exemptions for small surface area [1 ft^2], aqueous cleaning solutions, and high boiling point solvent [≥302°F]).

Exemptions for Solvent Wipe Cleaning Operations. SBC Rule 202.U.3 provides an exemption for wipe cleaning operations provided the usage rate does not exceed 55 gallons per year per stationary source and the aggregate emissions from all equipment subject to Rule 202.U.3 do not exceed a 10 tons per calendar year gatekeeper. The SLO and SJV rules do not include a specific exemption for wipe cleaning. The VC Rule 23.F.10.d includes an exemption for wipe cleaning, provided the aggregated emissions from solvent cleaning operations (including cold cleaners, vapor degreasers, wipe cleaning, and flush cleaning) is less than 200 pounds each of each ROC, methylene chloride, 1,1,1 trichloroethane, and perchloroethylene are lost to the atmosphere from all such activities at the stationary source during any rolling period of 12 consecutive calendar months.

Exemptions that Could Apply to Solvent Cleaning and Exemptions for Miscellaneous Solvent Use. VC Rule 23.F.6 provides an exemption that could apply to solvents: nonrefillable aerosol cans. Also, exemptions in VC Rules 23.F.7, 8, and 9 cover organic compound emissions from a variety of operations; including 1) facility, grounds, and building maintenance and repair - not including maintenance and repair of process and industrial equipment when performed by contractors; 2) janitorial maintenance (including graffiti removal); and 3) office and administrative use of solvents - does not include production activities by facility involved in graphic arts. The SLO, SJV, and existing SBC exemptions do not include exemptions similar to these VC exemptions. However, SBC is proposing to add exemptions for 1) janitorial cleaning (Rule 202.U.5) and 2) solvent cleaning to disinfect and decontaminate surfaces and equipment at hospitals, health care facilities, etc. (Rule 202.U.4). The adjoining air districts do not have an exemption similar to the proposed Rule 202.U.4 provision.

Exemptions for Low-ROC Solvent Use. VC Rules 23.F.10.a and b exempt cleaning operations and materials if the cleaning agents: 1) are certified by the SCAQMD as Clean Air Solvents, or 2) contain no more than 25 g/l of ROC as used or applied, and no more than 5 percent by weight combined of methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform. SBC Rule 202.U.2.c exempts solvents with a ROC content of 2 percent or less by weight. An exact comparison of the percent by weight and the number of grams per liter is not possible without knowing the solvents density. SJV and SLO rules do not include a specific exemption for low-ROC solvents.

PROHIBITORY RULE REQUIREMENTS FOR SOLVENT CLEANING MACHINES AND SOLVENT CLEANING (SBC RULE 321)

The solvent cleaning machine and solvent cleaning requirements have several components, as outlined below.

- **Applicability.** The SLO Rule 416 does not have an *applicability* section. The SJV Rule 4662 indicates it applies to all organic solvent degreasing operations. The SJV Rule 4663 indicates it applies to any organic solvent cleaning performed outside a degreaser during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources; and to the storage and disposal of all solvents and waste solvent materials at stationary sources.

  The VC Rule 74.6 *applicability* provision covers solvent cleaning and degreasing. It basically indicates that the rule applies to any person who performs solvent cleaning activities and any person who manufactures or supplies solvent for use in solvent cleaning activities in Ventura County (unless the cleaning activity is exempt from Rule 74.6 or the solvent used has an ROC content of 25 grams per liter or less). The VC Rule 74.6.1 indicates it applies to batch loaded vapor degreasers.

  The SBC PAR 321 *applicability* provision indicates the rule will apply to *solvent cleaning machines* and *solvent cleaning*. The use of the *solvent cleaning machine* term is a new approach adopted only by the SBC. This term is essentially the same one found in 40 CFR, Part 63, Subpart T. Thus, there is an inherent difference in terms used to describe *degreasers* vs. *solvent cleaning machines* throughout PAR 321 when compared with the adjoining Air Pollution Control District solvent rules. The SBC *solvent cleaning* term is modeled on the SJV Rule 4663 definition of *organic solvent cleaning*.

The SBC PAR 321 *applicability* provision is similar to the one found in the SJV Rule 4663. However, PAR 321, Section A, indicates, "This rule shall apply to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning ..." Thus, the owner, operator, and end user are responsible for compliance with Rule 321.

- **Exemptions.** These are in several categories:

  - **Wipe Cleaning.** SLO exempts wipe cleaning from the solvent rule requirements. There is no such exemption in the SJV, or the SBC PAR 321.

  - **Low-ROC and Low-TAC Solvents.** VC Rules 74.6 and 74.6.1 exempt solvents certified by the SCAQMD as Clean Air Solvents and solvent with an ROC-content no more than 25 grams per liter (as applied). The SJV Rule 4662 and 4663 have implied exemptions for solvents containing less than 25 grams per liter of ROC via the rules' definition of *solvent*. As mentioned in the following discussion on the SBC Rule 321 *solvent* definition, the VC and SJV *solvent* definitions only include solvents that contain ROCs. Thus, the VC and SJV solvent rules do not apply to non-ROC solvents that contain TACs.

    SLO does not have an exemption in this category.

    The PAR 321.B.1 *two percent or less* exemption is being expanded to apply to the solvent's ROC and TAC content. Thus, *solvent cleaning* and *solvent cleaning machines* will be exempt from Rule 321 (except for recordkeeping to substantiate the exemption claims) if the solvent has an ROC content and a TAC content of two percent or less. If either the ROC or the TAC content exceeds two percent, then the exemption will not apply.

  - **Small Capacity and/or Limited Surface Area.** The SLO Rule 416 provides partial exemptions from emission reduction techniques for various units not exceeding certain thresholds.

    The SJV Rule 4662, Sections 4.2 and 4.3 provide an exemption for qualifying degreasers that have an open top surface area of less than 1.0 square foot or with a capacity < 2 gallons.

    The VC Rule 74.6, Surface Cleaning and Degreasing, does not include exemptions in this category. However, the VC Rule 74.6.1, Batch Loaded Vapor Degreasers, Section G.3 small vapor degreaser provisions provide exemptions from the requirements to install an automated parts handling system and enhanced emission control equipment. To qualify, the unit must meet certain size/capacity provisions and not emit more than 55 gallons per month.

    The SBC is proposing to delete the general small cleaner exemptions (Rule 321.B.2) because the PAR 321 has new provisions that will apply to these smaller-sized containers and devices. The District is adding two limited exemptions (321.B.18 and 20) for vapor solvent cleaning machines. These provisions will exempt qualifying units from some of the new requirements for vapor solvent cleaning machines. There is also a partial exemption in PAR 321.B.23 to allow pouring solvent from small containers into bulk storage containers without the use of transfer hoses, piping, or tubes.

  - **Solvent Cleaning Machines Subject to 40 CFR, Part 63, Subpart T Provisions.** The SLO Rule 416 and the SJV Rule 4662 do not have any exemptions in this category. Both the VC Rule 74.6 and 74.6.1 provide this exemption. Staff proposes that the SBC PAR 321 retain this exemption.

  - **Equipment and Operations Subject to Other Rules.** The SLO Rule 416 does not have any exemptions in this category. The SJV Rule 4662 does not have any explicit exemptions in this category. However, SJV Rule 4662, Section 4.1, exempts cleaning outside a degreaser. This implies solvent cleaning subject to the SJV Rule 4663 is exempt from Rule 4662. The SJV Rule 4663, Section 4.3, provides exemptions to operations specifically subject to or exempted by 14 other rules.

VC Rule 74.6, Section E.1.f provides exemptions for any cleaning operation subject to one of the listed six prohibitory rules. Also, Section E.1.d of this rule includes an exemption for vapor degreasers. Batch loaded vapor degreaser are subject to Rule 74.6.1.

The SBC PAR 321, Section B.3 exempts dry cleaning operations (either subject to Rule 320 or the State Airborne Toxic Control Measure) from the entire Rule 321 provisions. Section B.6 provides exemptions from the *solvent cleaning* aspects of Rule 321 for eleven SBC prohibitory rules.

- **Exemption from the ROC Limits for Solvent Cleaning When Using Limited Amounts of Solvent.** The SLO solvent rule does not have an exemption in this category. The VC Rule 74.6, Section E.2.o, allows use of non-compliant solvent in certain circumstances. The facilitywide usage is to be less than 1 gallon per week, compliant solvents cannot be available, and records substantiating the exemption claim need to be maintained.

  The SJV Rule 4663, Section 4.4, provides an exemption to the solvent cleaning ROC limits for stationary sources using no more than 55 gallons per any rolling, consecutive 365-day period. This SJV exemption requires that daily records be maintained to support the exemption claim. The SBC PAR 321, Section B.15 provides a similar exemption to the solvent cleaning ROC limits for stationary sources using no more than 55 gallons per year. PAR 321.R.2 requires that monthly and calendar year total records be maintained on a stationary source basis to support the exemption claim.

- **Janitorial Cleaning (Including Graffiti Removal).** This exemption is for solvent wipe cleaning associated with janitorial cleaning, but does not include the cleaning of general work areas at stationary sources. The SBC PAR 321, Section, B.7, the VC Rule 74.6, Section E.1.c, and the SJV Rule 4663, Section 4.1, include an exemption for janitorial cleaning. The SLO solvent rule does not have a similar exemption specific to janitorial cleaning, but their rule is for solvent cleaning machines. Further, the SLO rule has a general solvent wipe cleaning exemption.

- **Aerosol Solvent Cleaning.** The PAR 321.B.9 has a limited exemption (from the solvent atomization prohibition and the solvent ROC limit) for cleaning with aerosol solvents. The genesis of this exemption stems from provisions in the South Coast AQMD Rule 1171, Section (h)(4).

  The VC Rule 74.6, Section E.1.b, provides an exemption for the use of aerosol products.
  The SLO and SJV solvent rules do not include an exemption for the use of aerosol solvent cleaning.

- **Specific Parts Cleaning Requiring Higher-Degrees of Cleanliness.** The SLO Rule 416 does not have any exemptions in this category.

  The SJV Rule 4662 exempts the cleaning of electrical; high-precision optics; electronic applications; aerospace and military applications for cleaning of solar cells, laser hardware, fluids systems, and space vehicle components; and components used in research and development programs and laboratory tests for quality assurance. However, to qualify for the exemption, such cleaning must employ an unheated SCM that has an area of less than one square feet or a capacity of less than 2 gallons and a non-halogenated solvent. Further, the solvent usage needs to be less than five gallons per month and other provisions must be met.

  The VC Rule 74.6, Section 2 provides exemptions from the solvent partial pressure and ROC content limits for equipment similar to the ones listed in the SJV Rule 4662. The VC Rule exemption list includes additional items as well (e.g., manufacturing cleaning of nuts and bolts intended for automotive racing applications and cleaning of precision-lapped mechanical seals in pumps).

  The SBC PAR 321 includes exemptions on the solvent ROC content limit for several specific parts cleaning categories. The District modeled these exemptions on similar exemptions in the SJV and VC rules.

- **Gas-Path Cleaner.** The SLO and SJV rules do not have any exemptions in this category. VC Rule 74.6, Section E.3 exempts aircraft engine gas path cleaning and gas turbine gas path cleaning from the requirements in 1) Section B.1 (solvent partial pressure and ROC content limits), and 2) Section B.2 (required cleaning devices and methods) if the solvent's ROC content is 200 grams per liter or less.

  The SBC PAR 321 has special provisions applicable to gas-path cleaners and therefore does not have an exemption for these types of cleaners.

- **Aircraft and Aerospace Vehicle De-Icing.** None of the adjoining Air Pollution Control Districts have this exemption. The SBC is adding the exemption because 1) the removal of moisture with a solvent (e.g., diluted ethylene glycol) is considered to be solvent cleaning, and 2) it is not our intent to regulate de-icing activities (no other air districts have applied their solvent cleaning rules to such).

- **Exemption from Enhanced Control Techniques for Qualifying Small Vapor SCMs.** For qualifying small units (solvent/air interface area less than1 square foot or capacity less than 2 gallons), the SBC Rule 321 will allow equipment use without an automated parts handling system, a freeboard refrigeration device, or a superheated vapor zone. The genesis for this exemption stems from an exemption in the VC Rule 74.6.1. The SJV Rule 4662 provides a broader exemption, which has more qualifiers. The SLO solvent rule does not provide a similar exemption.

- **Exempting Solvents When they Are Not Used for Cleaning.** The VC Rule 74.6 includes an exemption for the use of solvent for purposes other than solvent cleaning activities. For example, a solvent may be used as coating thinner or to dilute a sample for laboratory analysis. It is not the intent of Rule 321 to regulate such uses. Thus, the SBC staff added an exemption similar to the VC Rule 74.6.E.1.h exemption. The SJV and SLO rules do not include such an exemption.

- **Exemption from the Workload Area Limit, Minimum Freeboard Ratio Requirement, and/or Enhanced Control Techniques for Qualifying Vapor SCMs Used in the Manufacturing of Electronic Components.** These are limited exemptions for vapor cleaning machines used in the manufacturing of electronic components. These exemptions (PAR 321.B.20 and 321.B.24) are unique to SBC and will allow qualifying vapor solvent cleaning machines to be operated without meeting the workload area limit (PAR 321.E.7), the freeboard ratio requirement (J.8), and/or without using the enhanced control techniques (J.8 and J.11.a, d, and e). The District is proposing these exemptions based on input from Raytheon and their existing operations. Raytheon has indicated that they have a highly-specialized cleaning process for a product requiring a high degree of cleanliness. Further, they have been unable to find a suitable solvent replacement and/or equipment that would comply with the PAR 321 provisions while meeting their high-cleanliness standard.

- **Solvent Wash Stations used in Medical Device Manufacturing Processes.** The SBC proposes to exempt solvent sinks used during medical device manufacturing for product leak testing from certain rule requirements. The exemption (PAR 321.B.21) will allow such sinks to be used without meeting the requirements to have a minimum freeboard height/ratio and be employed without a low-ROC solvent. These sinks are currently exempt by the Rule 321, Section B.2 – small surface area and/or capacity – exemption. Product solvent cleaning during the quality control/assurance testing is incidental to the process. Providing this exemption is consistent with the intent of PAR 321 to control emissions from solvent cleaning and solvent cleaning machines. The adjoining air districts do not include a similar exemption in their rules.

- **Metal Lift-Off and Other Semiconductor and Microelectromechanical Operations.** This exemption is unique to SBC; the adjoining air districts solvent rules do not include this category. The District is adding this exemption to clarify that metal lift-off operations and the other specifically listed operations are not subject to the Rule 321 requirements.

- **Definitions.** Generally, the definitions used in the SBC PAR 321 are different from those used by the adjoining air districts. As previously mentioned, the terms for *degreasers* are being modified to be

consistent with the terms found in 40 CFR, Part 63, Subpart T. Also, the SBC PAR 321 *solvent* definition includes *any liquid containing any reactive organic compound or any toxic air contaminant*. The SLO rules do not include a definition of *solvent*. And the VC and SJV solvent definitions are limited to reactive organic compounds (or volatile organic compounds, which generally means the same as reactive organic compounds). Thus, the VC and SJV *solvent* definitions do not include a TAC aspect. SBC is recommending that some of the definitions currently found within Rule 321 be relocated into the general definition rule (102).

- **Requirements.** There are several components to these provisions, as shown in the following summaries.

  - **Operating Requirements.** These are listed in SLO Rule 416, Section C, SJV Rule 4662, Sections 5.1.1, 5.2.2, 5.3.1, and 5.4.2, VC Rule 74.6, Section D, VC 74.6, Section C, and SBC PAR 321, Sections D, E, F, M, N, and O. The operating requirements are generally the same for all the air districts, with some minor variations. The SBC PAR 321 includes additional operating requirements not found in the other air district's rules, as listed below:

    1. Operating requirements for batch vapor and in-line vapor cleaning machines to have their idling mode covers and downtime mode covers in place when the equipment is in the respective mode.
    2. Operating requirements for gas-path solvent cleaners.

  - **Equipment Requirements.** These are listed in various sections of the SLO, SJV, SBC, and VC rules. The equipment requirements are generally the same for all the air districts, with some minor variations. The SBC PAR 321 includes additional equipment requirements not found in the other air district's rules. These additional equipment requirements are associated with the same equipment listed in the preceding "operating requirements" discussion.

    The SBC PAR 321 will implement several enhanced control techniques, which become effective one year after the date of the revised rule adoption:

    1. Vapor cleaning machines are to have dimensions such that their freeboard ratio is 1.0 or greater,
    2. Cold cleaning machines, including remote reservoir cold cleaning machines, are to use solvents with an ROC-content of 50 g/l or less,
    3. Vapor cleaning machines employing a solvent with an ROC content of 50 g/l or greater need to have an automatic parts handling system, a superheated vapor zone, a freeboard refrigeration device, and other associated items.

    The SLO Rule 416 does not have similar enhanced control techniques.

    The VC rules have similar requirements on the freeboard ratio, the solvent ROC content (at 25 grams of ROC per liter), and the requirement for an automatic parts handling system. However, the vapor cleaner requirement specifies the use of at least one of these techniques (not both a superheated vapor zone and a refrigerated freeboard chiller, as in the SBC PAR 321).

    The SJV Rule 4662 requires all cleaners subject to the rule to have a freeboard ratio of 1.0 or greater. SJV Rule 4662, Sections5.1.2 requires cold cleaners to use a solvent with an ROC content of 25 g/l or less. Also, SJV Rule 4662, Sections 5.4.10 and 5.5.7 require the use of an automatic parts handling system, a superheated vapor zone, and a freeboard refrigeration device.

  - **Solvent ROC Content Limits.** The SLO Rule 416 does not limit the solvent ROC content. The VC and SJV rules generally limit the solvent ROC content to 25 grams per liter for solvent cleaning machines and solvent cleaning. Both air districts provide exceptions to these limits. In general the SBC is taking the same approach, but with a solvent limit of 50 grams per liter.

  - **Solvent Cleaning Devices and Methods.** The District modeled the proposed Rule 321, Section M.2 provisions on the requirements in SJV Rule 4663, Section 5.2 (Cleaning Methods) and, to a larger degree, on the VC Rule 74.6, Section B.2 (Cleaning Devices and Methods Requirements). However,

SBC staff used most of the VC text verbatim as they had modified their rule to address U.S.EPA concerns. The SLO Rule 416 does not have similar provisions on solvent cleaning.

- **Cleaning of Spray Application Equipment.** PAR 321.M.3 will require the cleaning of spray application equipment to use:

  1. A cleaning solvent with an ROC content of 50 grams per liter or less, or
  2. An enclosed system (or equipment that is proven to the satisfaction of the Control Officer to equally effective as an enclosed system).

  The SLO *degreasing operations* rule does not have specific requirements for the cleaning of application equipment. VC Rule 74.6 requires application equipment cleanup solvents to have 1) an ROC composite partial pressure no greater than 33 millimeters of mercury at 20 degrees Celsius, and 2) an ROC content no greater than 900 grams per liter.

  The application equipment cleaning requirements in SJV Rule 4663, Section 5.2.3, are essentially the same requirements proposed in the SBC revised Rule 321.

- **Compliance Statement Requirement.** The SJV Rule 4663, Section 6.1, and the VC 74.6, Section B.7, require the specification of the solvent's ROC content on the solvent container or a separate product sheet. The SBC PAR 321 and SLO Rule 416 do not have a similar requirement.

- **Emission Control System Requirements.** All of the adjoining air districts have provisions on emission control systems. However, the District's PAR 321.N.1 is the only rule provision to also require that TACs be controlled with an overall efficiency of 85 percent or greater.

  VC Rule 74.6 and SJV Rule 4662 require an overall control efficiency of 85 percent. SJV Rule 4663 requires an overall control efficiency of 85.5 percent or 90 percent collection efficiency with an exhaust less than 50 ppmv of VOC. And the SLO Rule stipulates the control efficiency must be 95 percent (there is no collection efficiency).

- **Alternative Operating and Equipment Requirements for An Airless Solvent Cleaning Machine or an Air-Tight Solvent Cleaning Machine.** The PAR 321 includes an alternative compliance method for airless or air-tight solvent cleaning machines.

  The SLO rule does not include a similar provision. The two VC rules governing solvent cleaning and solvent cleaning machines provide for the use of an alternative cleaning system, provided that the system is approved by the APCO and U.S.EPA and the emission rate from the system are lower than the emission rate from complying with the other rule requirements.

  The SJV Rule 4662, Section 5.6, provisions on the use of air-tight or airless cleaning systems are similar to the SBC PAR 321, Section O, provisions.

- **Test Methods.** The current and PAR 321 contain test methods, as do all of the adjoining air district solvent rules, except for SLO.

- **Operation and Maintenance Plan.** The requirement for an operation and maintenance plan is in the current and PAR 321. Under the SBC rule, these plans need to be developed and implemented when a source is using an emission control device. None of the adjoining air districts have a comparable requirement.

- **Recordkeeping Requirements.** Currently, the SBC Rule 321 recordkeeping provision requires quarterly records for sources having a solvent cleaning machine Permit to Operate. The District proposes to make the recordkeeping frequency monthly and expand the requirements to any person

that uses a solvent cleaning machine or performs solvent cleaning that is subject to Rule 321. The SBC PAR 321 modified recordkeeping provision also includes requirements to:

1. Document the solvents' ROC content,
2. When performing solvent cleaning, keep track of the type of solvent cleaning activity performed (per the rule's Table 1 categories) and the solvent type used for the activity,
3. Specify the type of solvent cleaning machine used,
4. When using an emission control system, record key operating parameters,
5. When using aerosol products and claiming an exemption per Section B.9, maintain daily records on the solvent usage rates on a facility basis, and
6. Maintain monthly records on the solvent usage rates for sources claiming the PAR 321.B.15 exemption from the PAR 321.M.1 ROC limits.

The SLO rule does not include any recordkeeping provisions. The SJV recordkeeping provisions in their two solvent rules (4662 and 4663) are similar to the SBC PAR 321 recordkeeping requirements. However, the SJV Rule 4663 recordkeeping provisions do not include the documentation of aerosol product use because the rule does not include this exemption.

In general, the combined VC recordkeeping provisions from their two solvent rules are less rigorous then those in the PAR 321.

- **Reporting Requirements.** The SBC current and PAR 321 require the submittal of an annual report, but only for sources holding a permit for a solvent cleaning machine or solvent cleaning. None of the adjoining air districts require the submittal of annual reports.

- **Compliance Schedule.** The SJV Rules 4662 and 4663 included some new provisions with an effective date one year from the date of the rule amendment. VC adopted revisions to Rule 74.6 and the new Rule 74.6.1 on November 11, 2003 and made both of the rules effective July 1, 2004. The SLO Rule 416 was adopted June 18, 1979 with an effective date of January 1, 1980.

  In general, the provisions in proposed amended Rule 321 will become effective on the date of rule adoption, with a few exceptions:

  1. The owners or operators of equipment becoming subject to Rule 321 due to a Rule 102, Rule 202, and/or Rule 321 change will have phased compliance periods, as specified in Rule 321, Section T.3.[1] Similarly, any equipment previously subject to a Rule 321 exemption that is lost through the rule revisions will also have similar phased compliance deadlines per PAR 321.T.2.b.[2]

  2. Certain new provisions in Sections H through and including M provide for a one-year compliance deadline.[3]

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[1] For example, existing solvent cleaning employing smaller containers (1 gallon capacity or less) subject to the PAR 202.U.1 permit exemption will need to comply with the Rule 321 provisions within the phased compliance period in Section T.3 (i.e., 180 days from the date of revised rule adoption).
[2] For example, a remote reservoir cleaning machine that had been subject to the Rule 321.B.2 exemption will be required to comply with Rule 321 equipment provisions due to a loss in an exemption. Per PAR 321.T.2.b.3) the deadline to comply with the equipment requirements will be 365 days from the date of revised rule adoption.
[3] Table 1 in Appendix E (page E-3) provides a summary of the provisions with a one-year deadline for compliance.

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Appendix K
Santa Barbara County
Impacts from the Revised Rules

Industry Impacts

The impacts from the revised rule will depend on the type of parts, products, and equipment being cleaned and the cleaning processes being used. In general, the revised Rule 321 will require the use of solvents with an ROC content of 50 grams per liter or less, unless a solvent with a higher ROC content is necessary to achieve a higher degree of cleanliness for a solvent category identified in Rule 321, Section M, Table 1. In which case, there will be a "not to exceed" limit of 900 or 950 grams of ROC per liter or an exemption from the solvent ROC content limit. Sources switching to aqueous solvents or detergents will likely see cost savings.

The following provides information on the impacts from the various rule revisions and data on the sources potentially impacted by the changes.

RULE 102, DEFINITIONS

The addition of the new Rule 102 terms by themselves will not cause impacts. Some of the new terms combined with amendments to Rules 202 and 321 will result in impacts, as discussed under the rule categories shown below.

The PAR 102 amended *reactive organic compound* definition includes an amended list of *exempt compounds*. The use of some of the newly-designated *exempt compounds* in excess of one gallon per year per stationary source will require the submittal of an application for Authority to Construct and Permit to Operate. The following Rule 202 discussion provides more details on sources that will be impacted from the ROC definition change and the new Rule 202.D.10.l.1 and 2 provisions.

RULE 202, EXEMPTIONS TO RULE 201

There may be some permitting activities due to the new Rule 202.D.10.l provisions, which are associated with the Rule 102 revised definition of ROC. Vandenberg Air Force Base (VAFB) staff mentioned that the base is currently using more than one gallon per year of HFE-7100 in aerospace activities. Revised Rule 202.D.10.l.l will clarify that such an operation needs an Authority to Construct and Permit to Operate. There may be additional sources using compounds subject to the new Rule 202.D.10.l.1 or 2 provisions. For example, any company using AsahiKlin AK-225 (HCFC-225ca and HCFC-225cb) in amounts exceeding one gallon per year per source that are not already subject to a District permit will need to submit an application.[a]

The District is unaware of any other sources that will become subject to permitting due to the new Rule 202, Section D.10.l provisions. Aside from the above-referenced VAFB situation and other sources that may be using a compound listed in PAR 202.D.10.l, the proposed revisions to the exemptions for solvent cleaning and solvent cleaning machines are not anticipated to cause any additional permitting activities. Thus, there should be no significant permitting impacts to the regulated industry due to the new Rule 202.D.10.l provisions.

An amendment to provisions in Rule 202.U.1 require unheated nonconveyorized solvent rinsing containers with a capacity of 1.00 gallons or less to comply with the Rule 321 solvent cleaning provisions. Hence, some owners and operators claiming the Rule 202.U.1 exemption will need to comply with the requirements in Rule 321, Sections D, M, and R for the first time.

RULE 321, SOLVENT CLEANING MACHINES AND SOLVENT CLEANING

Compliance with Rule 321 provisions may cause a source to:

[a] Lockheed Martin-Santa Barbara Focal Plane and Raytheon have permits for their vapor SCMs that use AsahiKlin AK-225 (PTO 10282 and 11326, respectively).

a. Revise a *solvent cleaning machine* configuration, operating method, and/or use a substitute solvent;

b. Replace the solvent used in *solvent cleaning* with a lower ROC-content solvent;

c. Follow new or improved solvent handling techniques per the *general operating requirements* section of the rule (Section D);

d. Modify existing *solvent cleaning* techniques to be consistent with the new requirements (i.e., use sanctioned devices and methods);

e. Implement recordkeeping for the first time; and/or

f. Modify their existing recordkeeping procedures (e.g., perform monthly recordkeeping, maintain additional data, perform daily recordkeeping when claiming the "aerosol product" exemption).

The scope of the Rule 321 applicability is being increased to include solvents that contain any *toxic air contaminant* (TAC). In general, solvent cleaning machines and solvent cleaning operations using solvents that contain any TAC will be subject to Rule 321 requirements, irrespective that the solvents do not have any ROC. The TAC aspect is being incorporated via the Rule 321 *solvent* definition, which includes "or any toxic air contaminant" text.

Table 1 shows six compounds that are classified as being both a non-reactive organic compound and a toxic air contaminant. Any person subject to the PAR 321.A applicability provision that is using a Table 1 compound in a concentration greater than 2 percent in a solvent cleaning machine or when performing solvent cleaning will be subject to Rule 321 unless exempt per Rule 321, Section B.[a]

Table 1. COMPOUNDS IDENTIFIED AS BEING BOTH A NON-ROC AND A TAC SOLVENT[b]

COMPOUND	SOLVENT REGULATED BY 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	HIGH OR LOW VOLATILITY SOLVENT
tert-butyl acetate	N	540-88-5	TBAC	H
methylene chloride, dichloromethane	Y	75-09-2	METH or DCM	H
perchloroethylene, tetrachloroethylene	Y	127-18-4	PERC or PERCH	H or L[c]
1,1,2-trichloro-1,2,2-trifluoroethane	N	76-13-1	CFC-113	H
1,1,1-trichloroethane; methyl chloroform	Y	71-55-6	TCA	H
trichlorofluoromethane	N	75-69-4	CFC-11	H

Thus, the aforementioned impacts due to Rule 321 compliance may occur to a source using a solvent that does not contain any ROC that is also classified as a TAC.

To determine the companies and agencies that may be impacted by these rulemaking actions, staff reviewed:

- District records for permitting and exempting solvent users and the District water-based cleaner rebate program,
- Phonebook listings, and

[a] If the TAC is also a halogenated hazardous air pollutant (HAP) solvent used in a SCM, its HAP concentration would need to be five percent by weight or less to be subject to Rule 321. (Current Rule 321, Section B.4.e and PAR 321.B.5 provide exemptions to SCMs using HAP solvents that are subject to 40 CFR, Part 63, Subpart T.)
[b] These are chemicals that the District has identified. There may be additional ones the District is unaware of.
[c] Categorizing the solvent as a high or low volatility solvent is a function of the solvent's in-use temperature.

- Internet search engine listings.

Due to the ubiquitous nature of solvent use and the District permit-exempt status of many of the devices and operations, a comprehensive listing of all sources that may be impacted by the rule revision is not possible. Tables 1 and 2 in Appendix B list the facilities and automobile repair shops that may be impacted by the rule revisions.[a]

The following information describes the anticipated rule impacts to the owners and operators of 1) various solvent cleaning machines, and 2) facilities performing solvent cleaning. This section does not include the *in-line cleaning machines* category because the District is unaware of any current use of these machines in Santa Barbara County.

Batch Cleaning Machines (Sections D, E, G, H, I, and J)

Tables 2 and 3 list facilities that possibly use batch solvent cleaning machines (vapor and cold types).

Table 2. BATCH VAPOR CLEANING MACHINES

Company	FID
Advanced Vision Science	02463
Digital Instruments	03858
Kilovac Corporation	01670
Lockheed Martin (Santa Barbara Focalplane)	09424
Microwave Applications Group	01820
Raytheon - Buildings B1, B2, B3, & B6 (Infrared)	04140
Raytheon - Building B8	03890
Raytheon - Hollister (Electronic Warfare)	01971
Renco Encoders, Incorporated	04574
Special Technologies Laboratory	02758

Vapor cleaning machines not otherwise exempt from the requirements will need to have a minimum freeboard ratio of 1.0 and automatic sump heat shut off devices for various operating conditions. In addition, any such machine that is employed with a solvent having an ROC content in excess of 50 grams per liter will need to have an automated parts handling system, circumferential trough, water separator, freeboard refrigeration device, and a superheated vapor zone.[b] The installation of these devices on a currently permitted solvent cleaning machine will require the submittal of an Authority to Construct modification application.

Staff has not identified any permitted vapor cleaning machines that will need modifications under the proposed amended Rule 321. If a source needs to install a new device to comply with Rule 321, it will be impacted by the Authority to Construct (ATC) and Permit to Operate (PTO) application filing fees (currently $341/application). In addition, the ATC and PTO fees will be assessed (on a reimbursable basis).

Owners and operators of vapor solvent cleaning machines needing to comply with the revised Rule 321 requirements may encounter retrofit costs on the order of those shown below.

[a] Automobile repair shops are facilities that repair engines, transmissions, brakes and other similar components of motor vehicles and should not be confused with automobile body shops. Painting activities at body shops are regulated under Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.
[b] Unless the solvent cleaning machine is equipped with an APCD-approved emission control system or is subject to a Rule 321.B.18 or 20 exemption.

- Extending the freeboard: $2,800[a]
- Automated parts handing system (simple manually actuated hoist): $2,348[b]
- Freeboard refrigeration device: $12,632[b]

Superheated vapor zones systems are relatively common on new solvent cleaning machines, but they may not be available as retrofits.[c] Thus, sources using vapor cleaning machines with solvents above the 50 grams per liter threshold may need to replace their machines to comply with the revised rule requirements. Staff estimates the capital cost of a unit (using isopropyl alcohol-cyclohexane solvent mixture) may be on the order of $159,500 (plus installation costs).[d] In addition, the District estimates the annual solvent cost for such a unit is about $413 per year.

Table 3. BATCH COLD CLEANING MACHINES[e]

Company	FID
Advanced Vision Science	02463
Allergan Corporation	10084
Arguello, Inc., Platforms Harvest, Hermosa, and Hidalgo	08013 - 08015
Bardex Corporation	01152
Celite Corporation	00012
DCOR, LLC., Platform A	08003
DCOR, LLC., Platform B	08004
DCOR, LLC., Platform C	08006
DCOR, LLC., Platform Habitat	08012
DCOR, LLC., Platform Henry	08007
DCOR, LLC., Platform Hillhouse	08005
Digital Instruments	03858
Dupont Displays	10307
Dupont Displays	08709
Essex Electronics, Inc.	01480
ExxonMobil Production Company, Las Flores Canyon	01482
ExxonMobil Production Company, Platform Harmony	08018
ExxonMobil Production Company, Platform Heritage	08019
ExxonMobil Production Company, Platform Hondo	08009
ExxonMobil Production Company, POPCO Plant	03170
Fortistar Methane Group LLC	08676
Helix Medical, Incorporated	04487
Indigo Systems Corporation	09745

[a] Staff used the freeboard extension cost estimate from the SCAQMD Staff Report for Proposed Amended Rule 1122, dated June 6, 1997, with a CPI adjustment ($2,000/unit, 40.0% CPI increase).
[b] Based on estimates in the VCAPCD Rule 74.6 Draft Staff Report dated July 10, 2003 (with a 17.4% CPI increase).
[c] Reference, "Solvent Cleaning (Degreasing) An Assessment of Emission Control Options," November 1992, Center for Emissions Control, Inc., page 32.
[d] Based on data in a Michigan Manufacturing Technology Center document titled, "Background Information - IPA-Cyclohexane Vapor Degreaser," 1999 (with a 37.5% CPI increase).
[e] Includes remote reservoir batch cold cleaning machines.

Company	FID
International Transducer Co.	01634
Karl Storz Imaging, Incorporated	45883
Kilovac Corporation	01670
Lockheed Martin (Santa Barbara Focalplane)	09424
Medtronic PS Medical	04635
National Aeronautics & Space Admin.	06100
Pacific Hydraulic Systems	04617
Pacific Scientific, EKD	08934
Plains Exploration & Production Company, Lompoc Oil and Gas Plant	03095
Plains Exploration & Production Company, Platform Irene	08016
Raytheon	04140
Raytheon	01971
Raytheon	03890
Renco Encoders, Incorporated	04574
Skate One Corp.	03750
Spaceport Systems International	08698
Southern California Gas Company	01734
The Okonite Company	01900
Plains Exploration & Production Company, Platform Irene	08016
The Point Arguello Companies, Platform Hermosa	08014
The Point Arguello Companies, Platform Hidalgo	08015
Vandenberg Air Force Base	00201 (+ Others)

Depending on the items or parts being cleaned, batch cold cleaning machines (including remote reservoir batch cold cleaning machines) may need to be used with a solvent having an ROC content of 50 grams per liter or less. The cleaning of certain items (e.g., electronic components and medical devices) is exempt from the requirement that the solvent ROC content be limited to 50 grams per liter.

Some previously exempt *solvent wash stations* will become subject to the Rule 321 provisions for the first time.[a] These units will need to comply with the general equipment requirements for solvent cleaning machines (Rule 321.G) and the additional equipment requirements for batch cold cleaning machines (Rule 321.I). And, if such a solvent wash station is used with a high volatility solvent, some of the things the owner or operator will need to make sure the equipment is equipped with or complies with include:

1. A cover that is a sliding, rolling, or guillotine type; designed to easily open and close (PAR 321.I.1).
2. A drainage apparatus or device, so the parts are under the cover while draining (PAR 321.I.2),
3. If the *freeboard ratio of 0.75* compliance option is employed (PAR 321.I.4), a maximum solvent fill mark, which complies with the freeboard ratio requirement (Rule 321.I.6), and

[a] "Solvent wash stations" include, but are not limited to, sinks and basins that typically contain unheated solvent used to clean parts and products by immersion and/or rinsing methods (batch cleaning mode). In general, such sinks and basins were subject to the Rule 321.B.2 exemption (capacity ≤ 1 gallon or evaporative surface area < 1 square foot; aggregate of such units < 10 square feet/stationary source). This exemption is deleted in the proposed amended Rule 321. However, a new provision (PAR 321.B.21) may provide limited exemptions for qualifying solvent wash stations.

4. A freeboard ratio of 0.75 (PAR 321.I.4) or alternative compliance requirement (PAR 321.I.5).

Solvent wash stations will need to use a solvent with a 50 grams per liter content (PAR 321.I.5) unless the process is exempt by a provision in PAR 321.B (e.g., PAR 321.B.8 or 21).

In general, one-third of the permitted cold solvent cleaning machines are used in the electronic or medical device manufacturing industries. Thus, these devices will not need to employ low-ROC solvents provided the solvents' ROC content does not exceed 900 grams per liter (per PAR 321.B.8).

The other two-thirds of the permitted batch cold SCMs and the area source (unpermitted) parts and brake washers (e.g., SCMs used by the automotive repair shops) will need to be converted to low-ROC solvents to comply with the revised rule (if they have not already switched over to aqueous or detergent-type cleaning solutions).

The District cost-estimates for replacing existing batch cold solvent cleaning machines with complying machines that use aqueous solvents or detergents are shown below.

Sink-on-a-drum..... $665 – $1,994[a]
Enzyme system ..... $1,329 – $1,994[a]
Immersion washer..... $1,063 – $2,259[a]
Spray cabinet..... $2,658 – $7,974[a]
Ultrasonic system..... $3,987 – $15,948[a]
Heated brake cleaner..... $1,329[b]
Unheated brake cleaner.....$665 [b]
Birdbath brake cleaner .....$930[b]
Stand mounted brake cleaner .....$465[b]

Generally, there are lower operating costs associated with aqueous cleaners. Thus, the equipment initial cost will be offset by lower operating costs.

Gas-Path Solvent Cleaners (Also Called "Corrosion Control Carts") (Sections D, G, and F)

These machines (or ancillary equipment) are used to clean the interiors of gas turbine or jet engines. The District has not identified any facilities that employ these cleaners that will be subject to the rule. Thus, there is no impact expected to this equipment category.

Air-Tight and Airless Solvent Cleaning Machines (Sections D and O)

Staff has identified only one facility with air-tight cleaning machines: Raytheon's Infrared facility (FID 4140). Table 4 lists the Raytheon air-tight solvent cleaning machines that will become subject to Rule 321.

[a] Based on cost figures from the Institute for Research and Technical Assistance's Pollution Prevention Center document titled, "Switching to Water-Based Cleaners for Repair and Maintenance Parts Cleaning," CAL-EPA's Dept. of Toxic Substances Control Office of Pollution Prevention and Technology Development, Document No. 616, dated 1999 (with a CPI increase of 32.9%).
[b] Based on cost figures from the Institute for Research and Technical Assistance's Pollution Prevention Center document titled, "Switching to Water-Based Cleaners for Automotive Brake Cleaning," CAL-EPA's Dept. of Toxic Substances Control Office of Pollution Prevention and Technology Development, Document No. 619a, dated 1999 (with a CPI increase of 32.9%).

Table 4. AIR-TIGHT SOLVENT CLEANING MACHINES THAT WILL BECOME SUBJECT TO RULE 321

Device Identification No.	Description
107323	TAS Automated Solvent Cleaner
108304	SSEC Solvent Cleaning Unit

Raytheon will need to ensure that these air-tight cleaning machines comply with the Rule 321, Section O provisions. There are no known impacts from Rule 321 becoming applicable to these units.

Solvent Cleaning (Section M)

Facilities that may be performing solvent cleaning that will become subject to Rule 321 are listed in Appendix B, Tables 1 and 2.[a]

Depending on the general work surface category, items, products, or parts being cleaned, solvent cleaning will need to be performed with a solvent having an ROC content of 50 grams per liter or less. The proposed revised rule allows the use of solvents with higher ROC content when used in certain solvent cleaning categories (e.g., cleaning of electronic components or medical devices). Also, the revised rule will require that sanctioned cleaning devices and methods be used.

These requirements become effective one year after the date of adoption of the revised rule. The District proposes this compliance deadline to provide the regulated community adequate time to find suitable solvent replacements and/or make the necessary changes to the cleaning devices and methods to achieve compliance with the new provisions in Section M. For example, Helix Medical will be subject to the Section M, Table 1, 900 g/l limits, but the source is currently using a solvent that exceeds the limit.[b] It appears that this source will be impacted by having to switch to a compliant solvent.

Facilities complying with the 50 grams per liter limits (PAR 321.M.1, Table 1) for solvent cleaning should have an overall aggregate savings of about $86,000 per year.[c, d]

The District is unaware of any impacts from the new Section M.2 (cleaning devices and methods) or Section M.3 (use of an enclosed gun washer or a cleaning material containing 50 grams per liter of ROC or less). Most facilities performing surface coating will be exempt from Section M.3 (per Section B.6). However, for cases where the spray gun cleaning is not exempt from Section M.3, the owners or operators may comply by switching to a low-ROC cleaning material.

The cost savings from changing to a cleaning material that contains 50 grams of ROC per liter or less would likely be on the order of $0.75 per pound of ROC emissions reduced.[c] If switching to a low-ROC cleaning material is infeasible, the cost for an enclosed spray gun washer is about $1,900. The enclosed gun washer costs will be offset by reduced labor costs and reduced solvent costs (purchase and disposal).[e]

[a] Additional facilities may exist that perform solvent cleaning that will become subject to Rule 321 that the District is unaware of.
[b] Helix Medical uses cyclohexanone (947 g/l) - FID 4487, DID 107500, process 0003.
[c] Based on a savings figure of "$1,325 per ton of ROC reduced" for other solvent cleaning operations indicated in an EPA document titled, "Control Techniques Guidelines: Industrial Cleaning Solvents," EPA 453/R-06-001, September 2006 (with a CPI increase of 17%).
[d] Also based on estimated 55.76 tons per year of ROC emission reduced for the "handwiping" category.
[e] EPA Proposed Rule, "National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources," 40CFR63, Draft of September 6, 2007.

New and Increased Recordkeeping and Reporting Impacts to the Owners and Operators (Sections R and S)

The District estimates that the average new costs for performing monthly recordkeeping will be about $1,000 per facility per year for facilities becoming subject to Rule 321 for the first time (e.g., the facilities identified in Appendix B, Table 2). Staff estimate the average annual increased recordkeeping costs for the facilities listed in Appendix B, Table 1, will be $700 per facility.

Facilities using aerosol products and claiming the Section B.9 exemption and sources using 55 gallons per year or less and claiming the Section B.15 exemption will need to maintain additional records on the solvent usage rates. The District anticipates that the administrative costs for substantiating these exemption claims will be $500 per facility per year. A stationary source that has several facilities that is keeping records for the PAR 321.B.15 exemption will have higher recordkeeping costs compared to a stationary source with one facility.

There will likely be a slight increase in the administrative costs associated with preparing annual reports due to the change from quarterly to monthly recordkeeping and reporting. This increase only affects permitted facilities and the District estimates it will be on the order of $200 to $300 per facility.

District Impacts

There should be a minimal amount of application processing associated with the revised rules. The District has identified only one source that appears to need an Authority to Construct (ATC) and Permit to Operate (PTO) under the PAR 202.D.10.l provision for use of HFE-7100: Vandenberg Air Force Base. Staff has not identified any sources that will need an ATC or modified PTO due to SCM modifications required to comply with the PAR 321 requirements. Thus, the District is unaware of any pending applications to be submitted for equipment modifications due to the revised Rule 321 requirements.

The District anticipates that the majority of the staffing impacts from this rulemaking action will involve outreach and education efforts and enforcement activities. Inspection staff shall randomly spot-check unpermitted sources subject to the rule to ensure that they are complying with the appropriate provisions. These costs will be integrated into the District general compliance verification program.

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Appendix L
Santa Barbara County
Flowchart Overviews of Key Provisions of Proposed Amended Rule 202 and Rule 321

Table 1. TABLE OF CONTENTS FOR FLOWCHARTS

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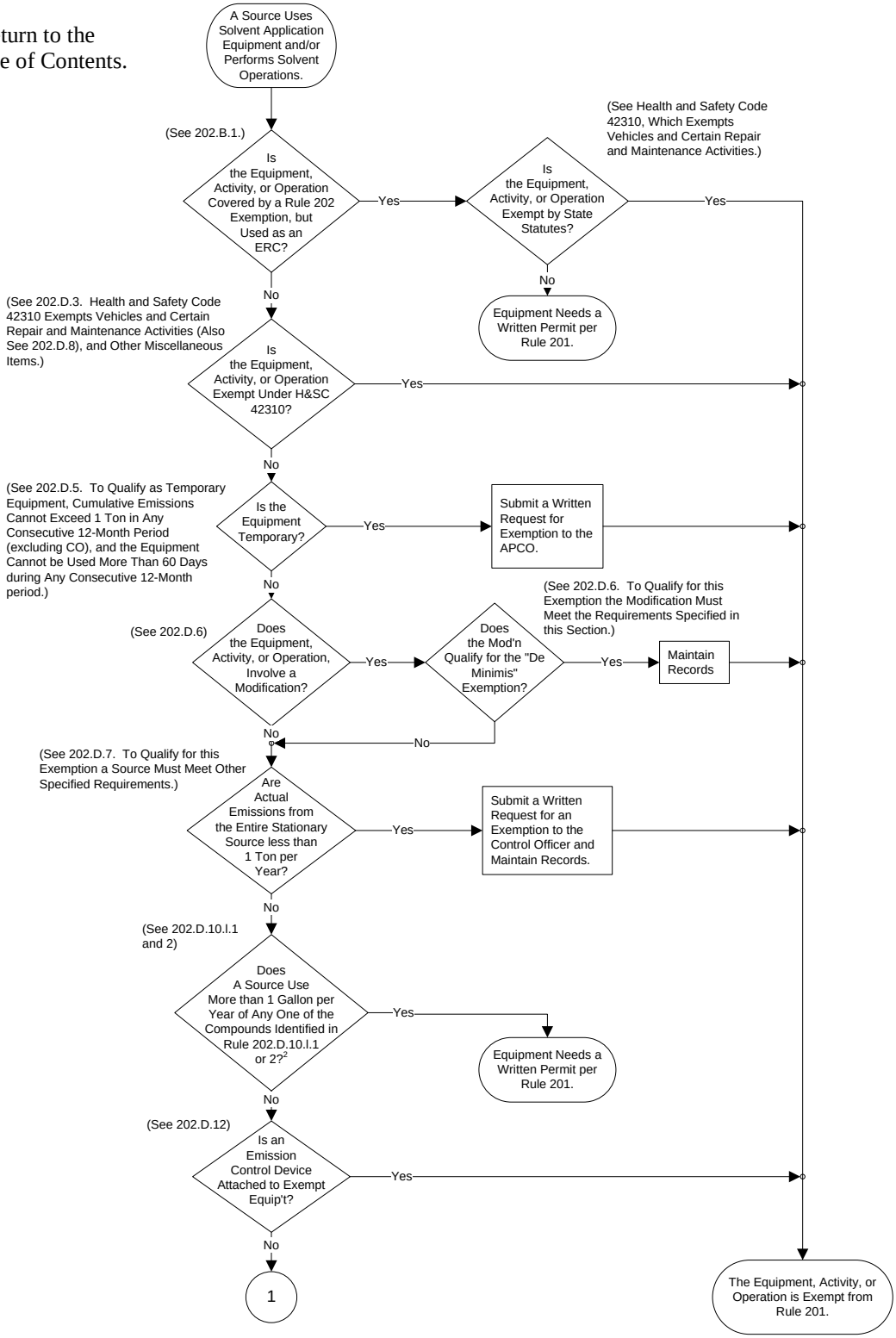

Figure 1. Rule 202 permit exemptions for solvent cleaning machines and solvent cleaning.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Rule 202.D.10.I.1 includes the following compounds: dimethyl carbonate, methyl formate, HCFC-225ca, HCFC-225cb, HFC-43-10mee, HFC-245fa, HFC-365mfc, HFE-7100 ($(CF_3)_2CFCF_2OCH_3$), and HFE-7100 ($C_4F_9OC_2H_5$). And Rule 202.D.10.I.2 addresses the use of tertiary-butyl acetate.

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Flowchart Table of Contents.

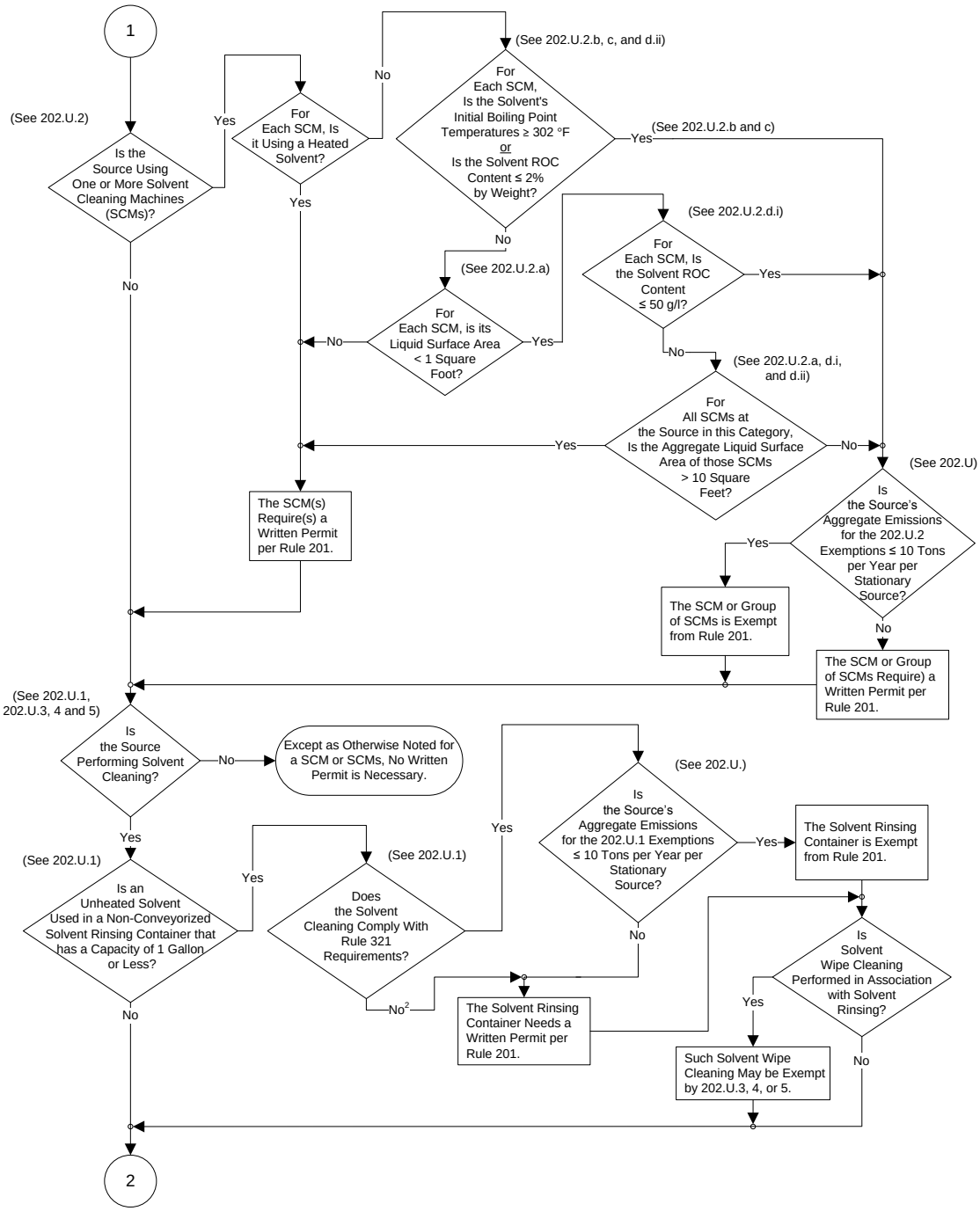

Figure 1. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. If the owner or operator revises the method of operation to conform to Rule 321 provisions and the APCO concurs that the source has achieved compliance with the Rule 321 requirements, the solvent cleaning will no longer be subject to permitting. Situations may arise where a Rule 202.U.1 exemption is not available because the solvent cleaning does not comply with Rule 321, but is brought into compliance through a modification, conditional abatement order, variance, permit condition, or other means. In which case, the owner or operator may request that the District review and determine if a permit or permit exemption is warranted under the current circumstances where solvent cleaning has been brought into compliance and will remain in compliance with Rule 321 requirements.

Click here to return to the
Flowchart Table of Contents.

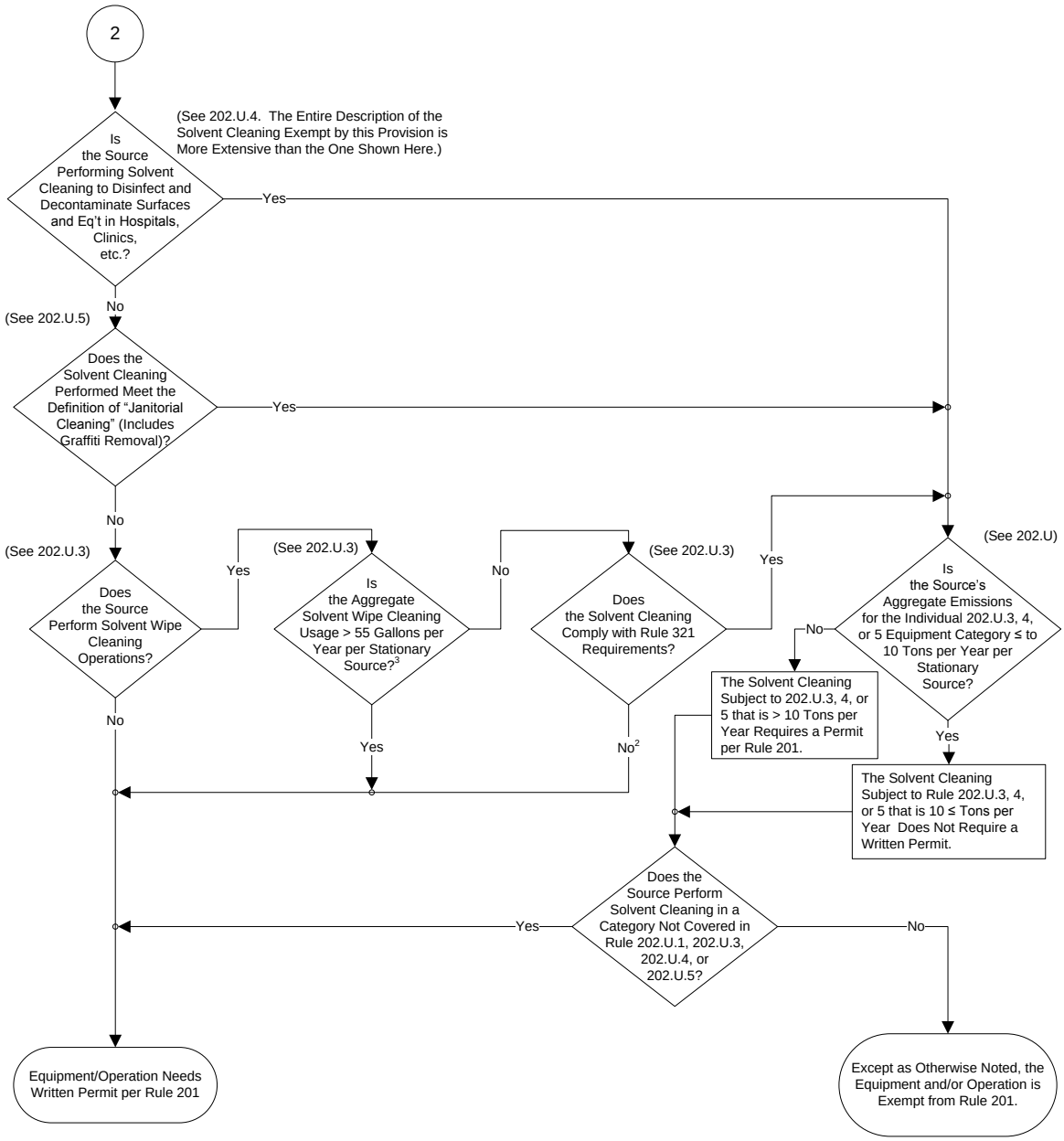

Figure 1. (cont.)[1]

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1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. If the owner or operator revises the method of operation to conform to Rule 321 provisions and the APCO concurs that the source has achieved compliance with the Rule 321 requirements, the solvent cleaning will no longer be subject to permitting. Situations may arise where a Rule 202.U.3 exemption is not available because the solvent cleaning does not comply with Rule 321, but is brought into compliance through a modification, conditional abatement order, variance, permit condition, or other means. In which case, the owner or operator may request that the District review and determine if a permit or permit exemption is warranted under the current circumstances where solvent cleaning has been brought into compliance and will remain in compliance with Rule 321 requirements.

3. Solvents meeting the requirements in 202.U.2.b or c or that have an ROC content ≤ 50 grams per liter do not contribute to the 55 gallons per year per stationary source permitting threshold aggregate figure.

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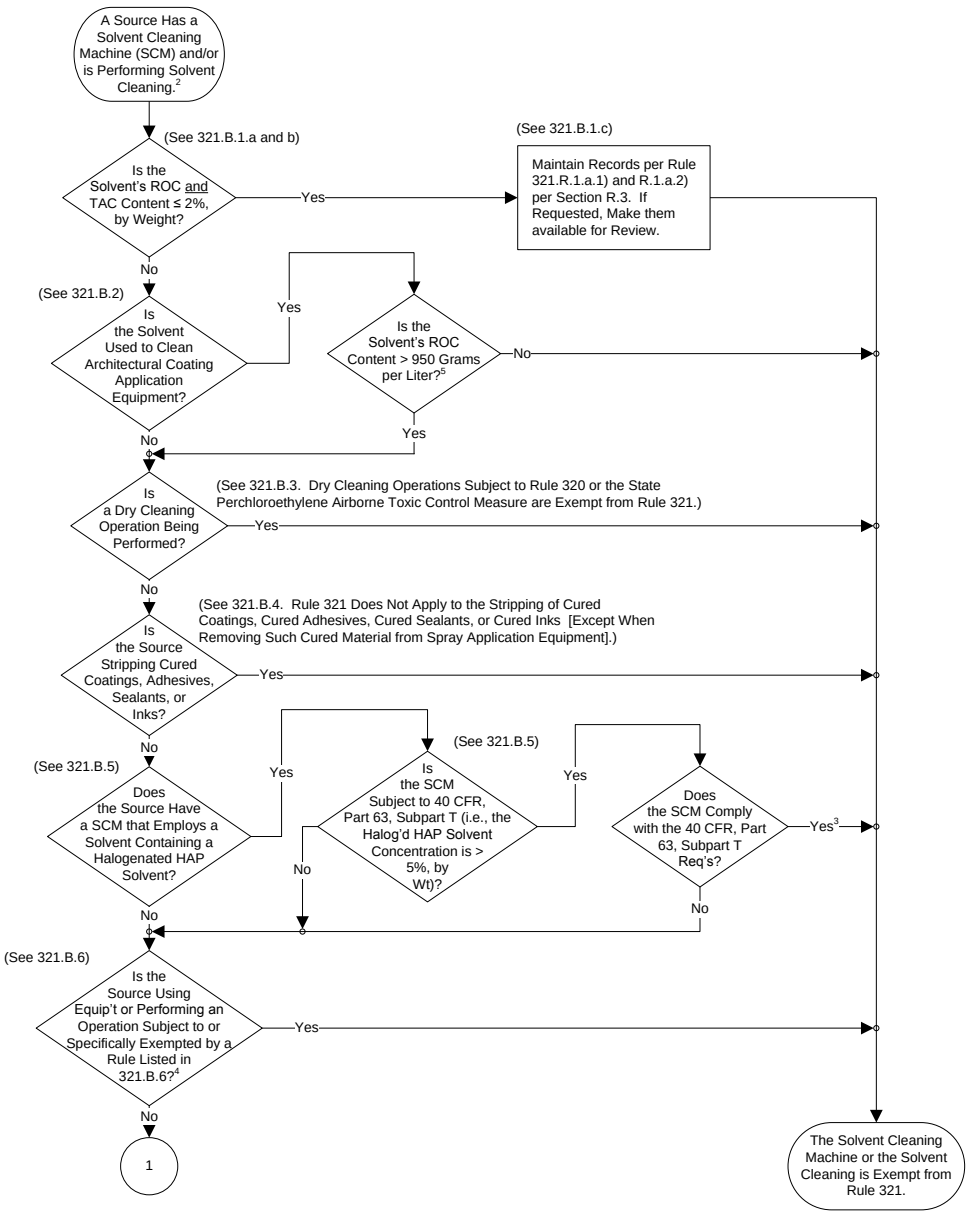

Figure 2. Rule 321, Section B, Exemptions for solvent cleaning machines and solvent cleaning.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Section A, Applicability, indicates that the rule applies to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning outside of a solvent cleaning machine during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources.

3. The Section B.5 provision prevails over the Section B.1 exemption. Thus, a SCM subject to and complying with 40 CFR, Part 63, Subpart T, is exempt irrespective that the unit uses a cleaning agent that contains more than 2 percent solvent that is a toxic air contaminant.

4. The rules listed in 321.B.6 include:

Rule 325, Crude Oil Production and Separation.
Rule 326, Storage of Reactive Organic Compound Liquids.
Rule 330, Surface Coating of Metal Parts and Products.
Rule 337, Surface Coating of Aircraft or Aerospace Vehicle Parts and Products.
Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.
Rule 343, Petroleum Storage Tank Degassing.
Rule 344, Petroleum Sumps, Pits and Well Cellars.
Rule 349, Polyester Resin Operations.
Rule 351, Surface Coating of Wood Products.
Rule 353, Adhesives and Sealants.
Rule 354, Graphic Arts.

5. Additional information on eligibility for this exemption is presented in Figure 12, Page L-27, footnote 3.

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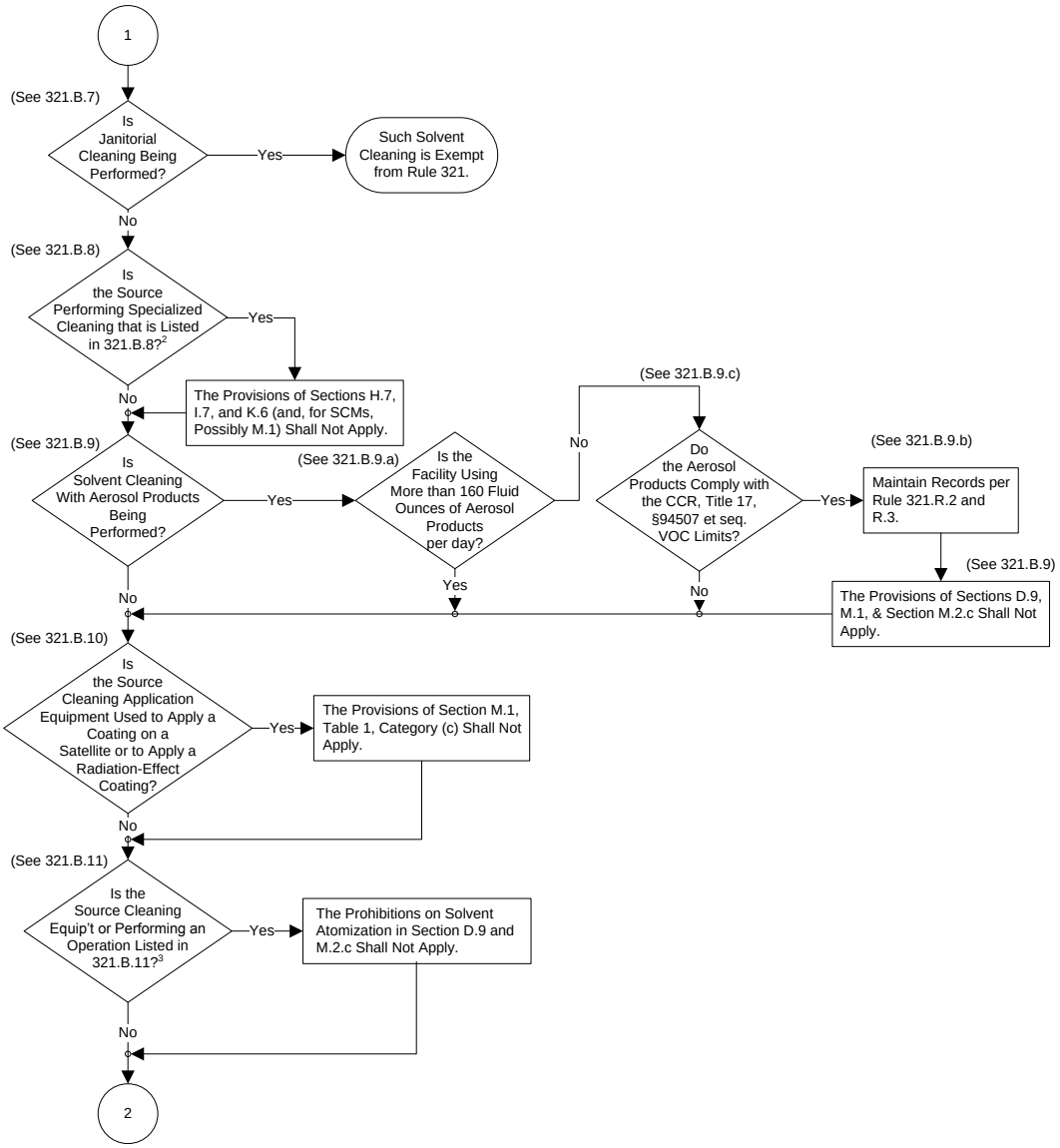

Figure 2. (cont.)[1]

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1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Rule 321.B.8 provides exemptions from the 321.H.7, 321.I.7, 321.K.6, and 321.M.1 provisions for the:

   a. Cleaning of solar cells, laser hardware, scientific instruments, high-precision optics, telescopes, microscopes, avionic equipment, and aerospace and military fluid systems; and
   b. Cleaning in laboratory tests and analyses, including quality assurance and quality control applications, or bench scale or short-term (less than 2 years) research and development projects; and
   c. Cleaning of cotton swabs to remove cottonseed oil before cleaning of high-precision optics.
   d. In addition, the 321.H.7, 321.I.7, and 321.K.6 provisions do not apply to SCMs employed with solvents having 900 grams of reactive organic compound per liter of material or less used in the manufacturing, repairing, or maintenance of electrical apparatus components, electronic components, satellites, satellite components, aerospace vehicles, aerospace vehicle components, aerospace vehicle payloads, aerospace vehicle payload components, medical devices, or silicone manufacturing.

3. Rule 321.B.11 provides exemptions from the 321.D.9 and 321.M.2.c prohibitions on solvent atomization for:

   - Cleaning of the nozzle tips of automated spray equipment systems, except for robotic systems.
   - Cleaning with hand-held spray bottles, squirt bottles, and other closed containers having a capacity of one liter or less.
   - Cleaning of gas turbines or jet engines using a gas-path solvent cleaner.

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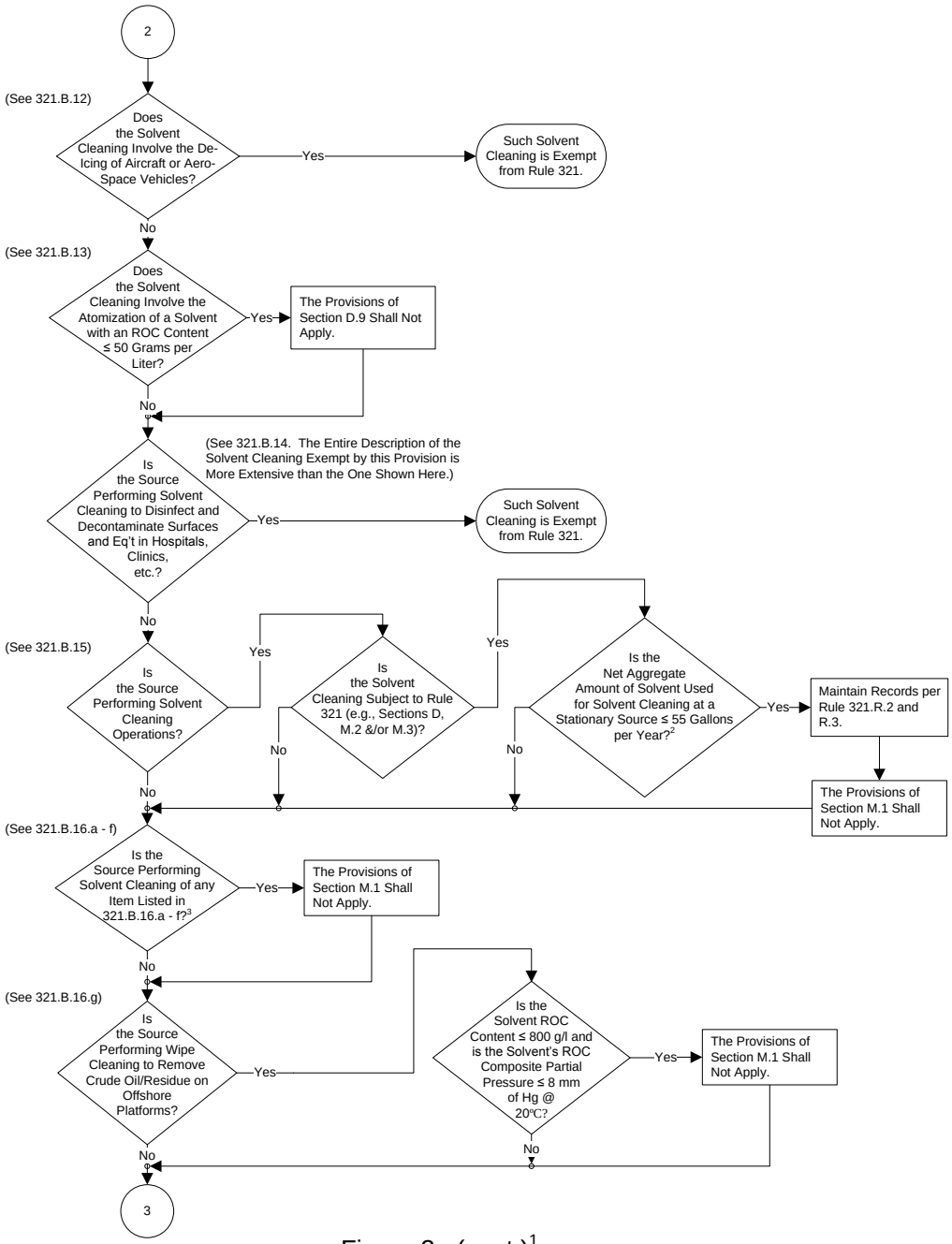

Figure 2. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Solvents with a reactive organic compound content of 50 grams per liter of material or less do not count towards the exemption nonapplicability threshold limit.

3. 321.B.16.a – f include the cleaning of:

- ultraviolet lamps used to cure ultraviolet inks coatings, adhesives, or resins.
- mold release compounds from molds.
- aerospace assembly and subassembly surfaces that are exposed to strong oxidizers or reducers such as nitrogen tetroxiode, liquid oxygen, or hydrazine.
- paper gaskets.
- clutch assemblies where rubber is bonded to metal by means of an adhesive.
- hydraulic actuating fluid from filters and filter housings.

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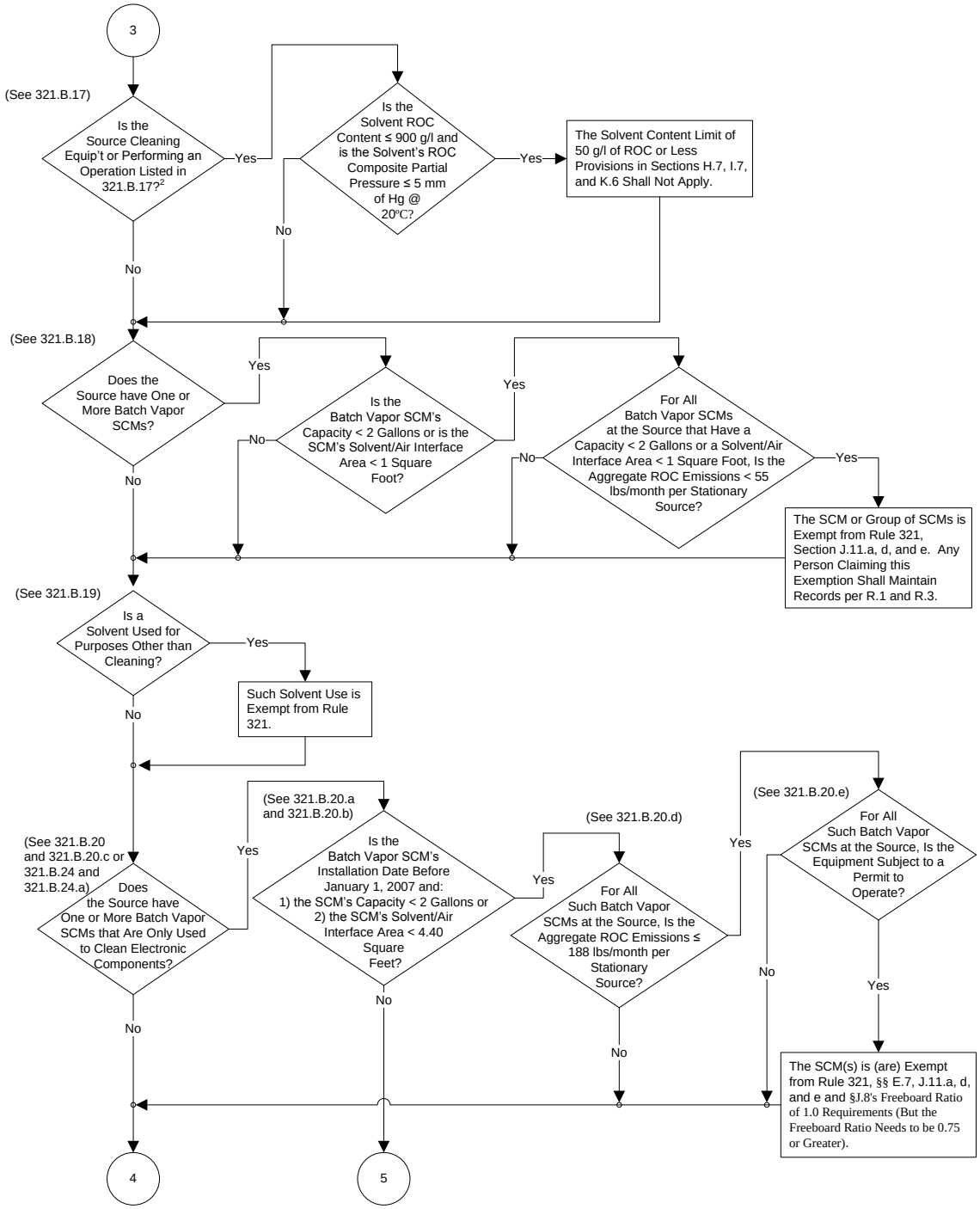

Figure 2. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The activities identified in 321.B.17 include:

a. Cleaning associated with the manufacturing of nuts and bolts designed for automotive racing applications.
b. Cleaning of precision-lapped mechanical seals in pumps that handle liquefied gasses.

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Flowchart Table of Contents.

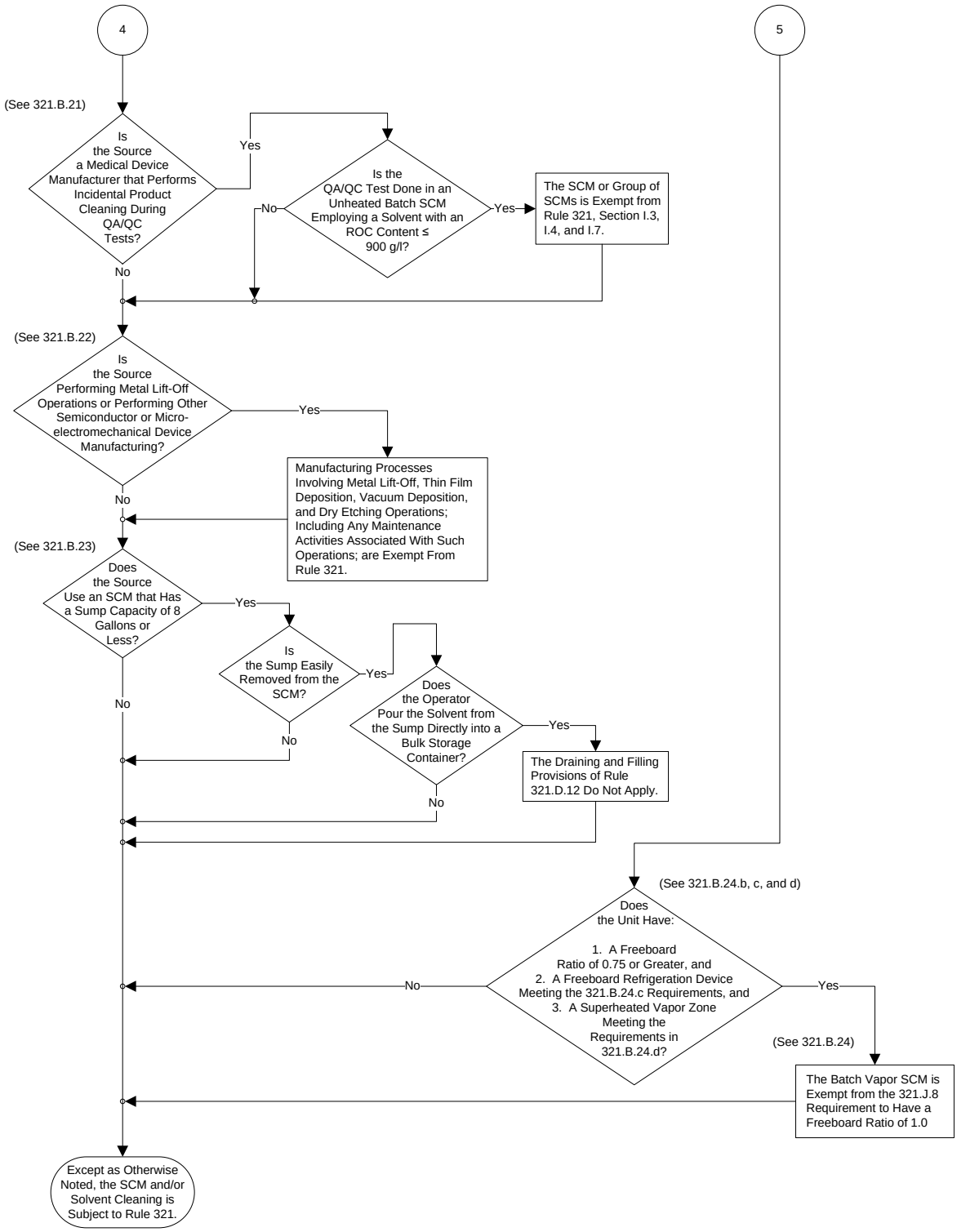

Figure 2. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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Flowchart Table of Contents.

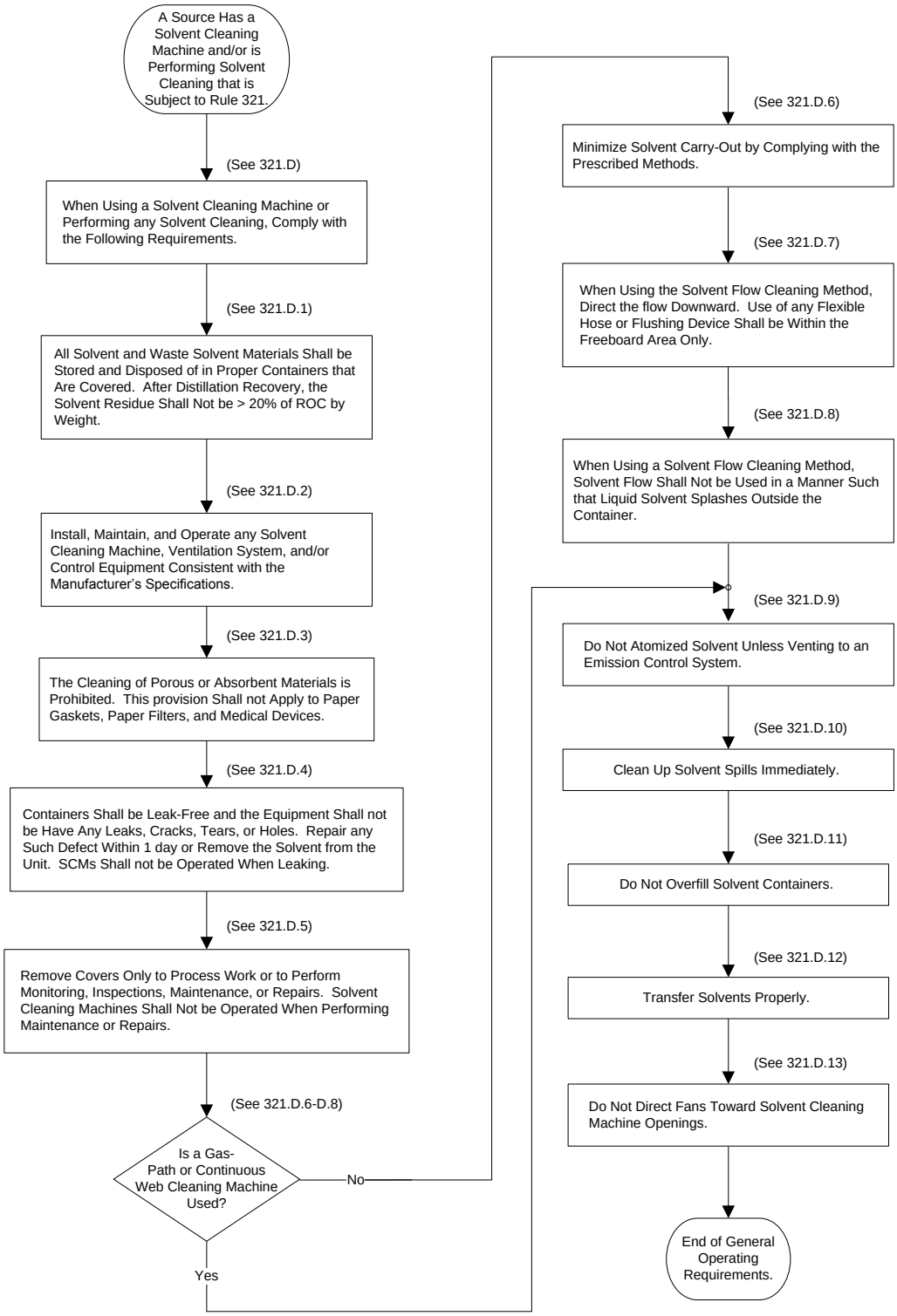

Figure 3. Rule 321, Section D, General operating requirements.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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Flowchart Table of Contents.

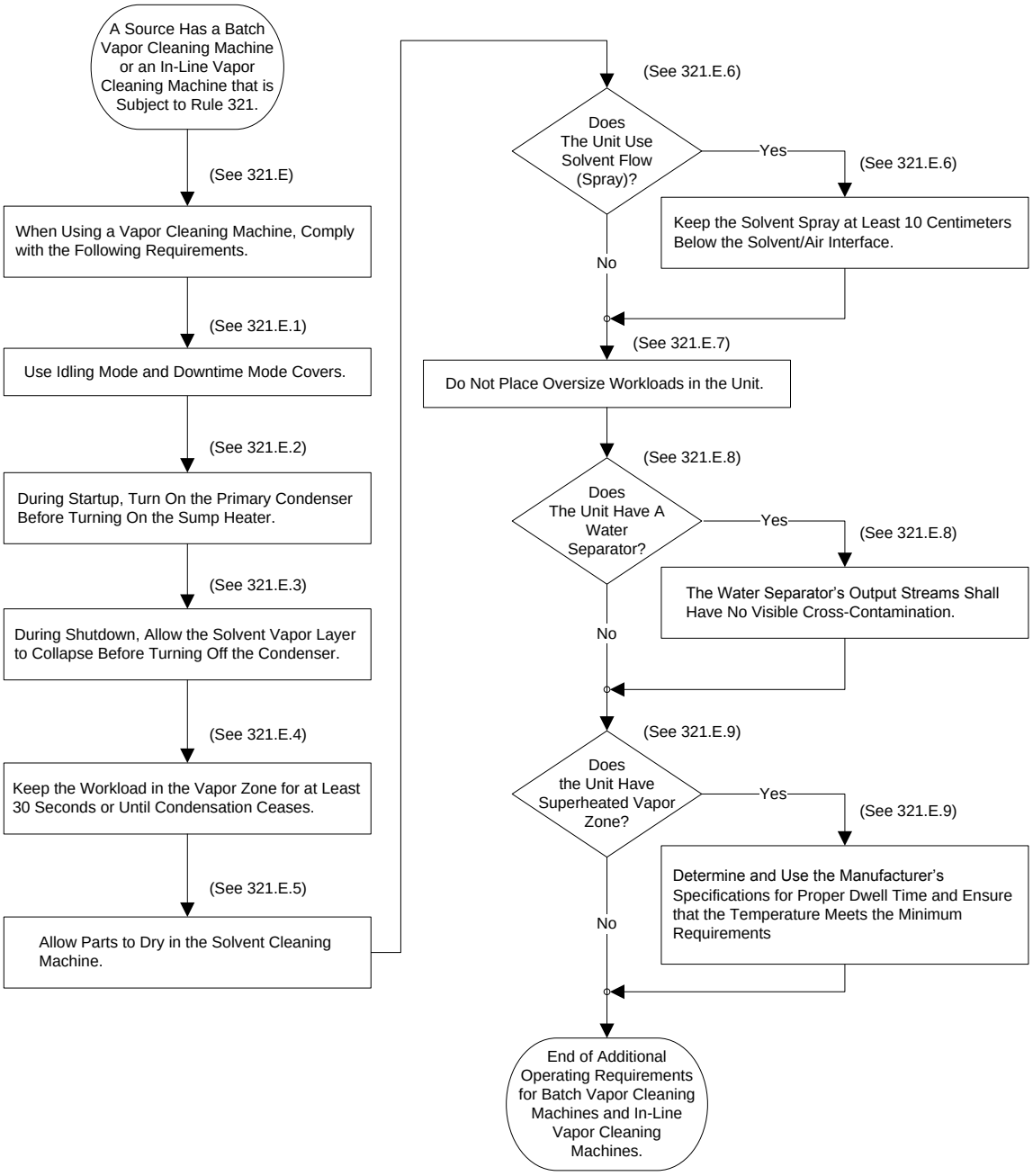

Figure 4. Rule 321, Section E, Additional operating requirements for batch vapor cleaning machines and in-line vapor cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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Flowchart Table of Contents.

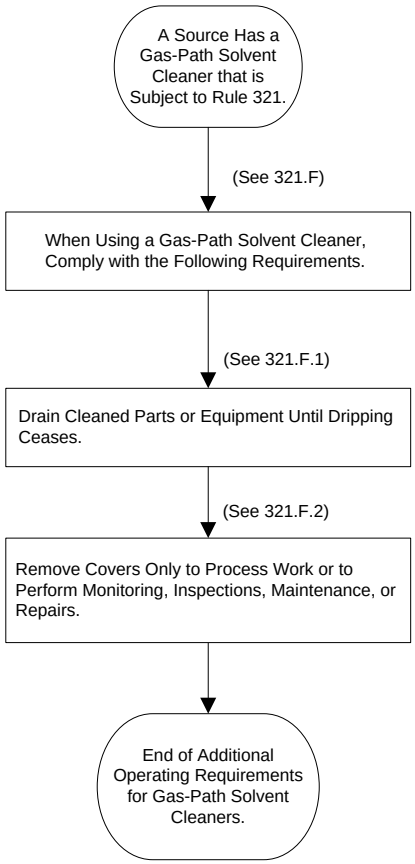

Figure 5. Rule 321, Section F, Additional operating requirements for gas-path solvent cleaners.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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Flowchart Table of Contents.

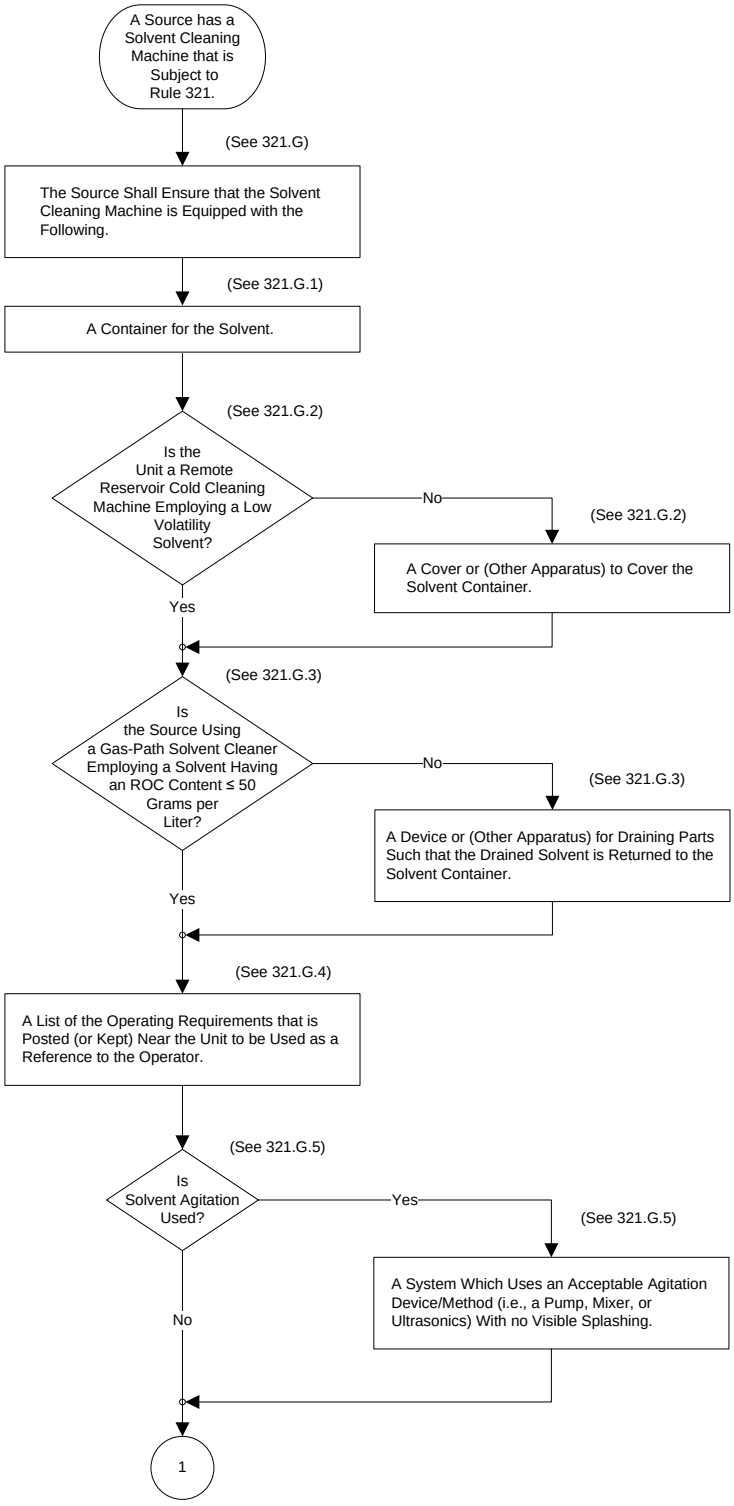

Figure 6. Rule 321, Section G, General equipment requirements for solvent cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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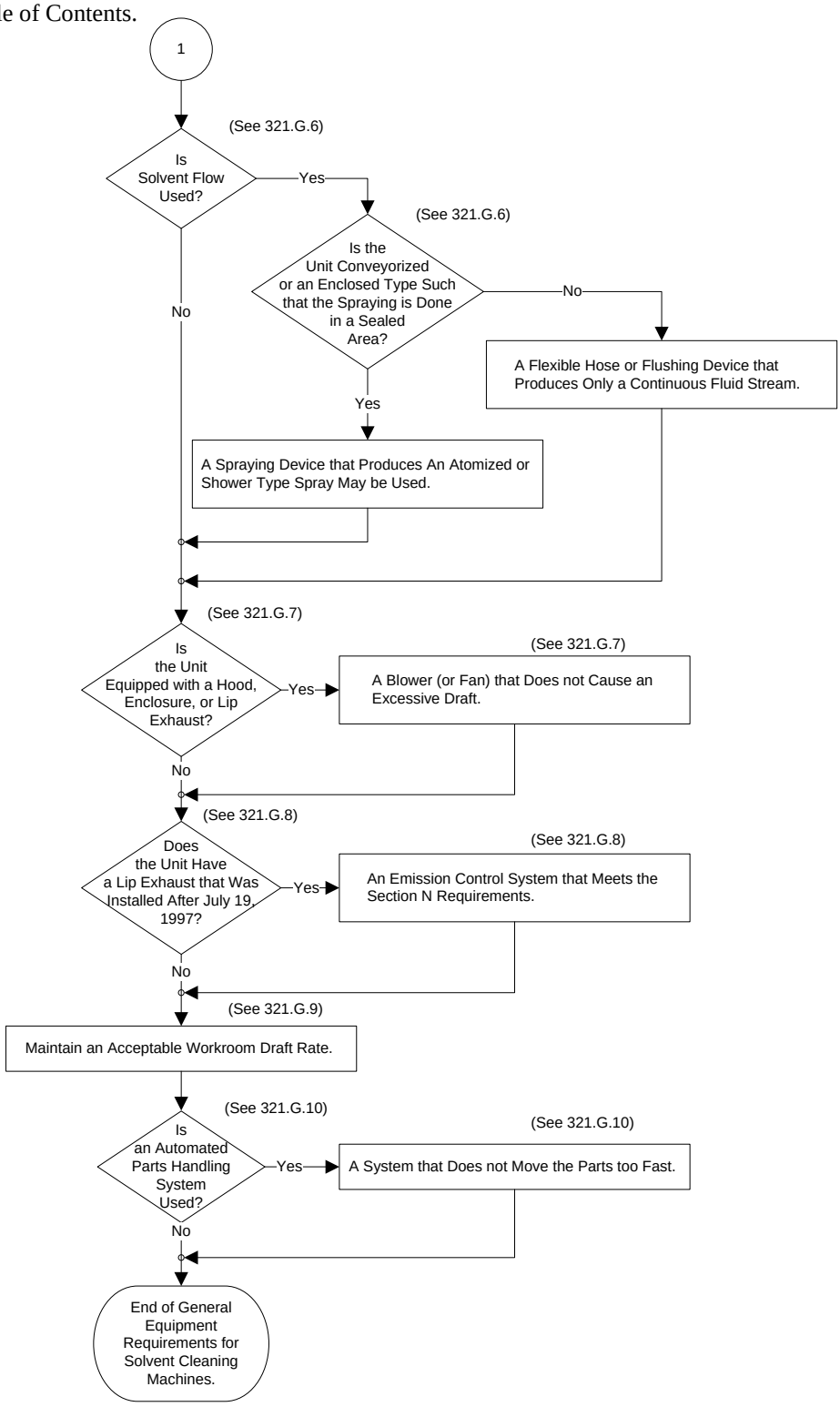

Figure 6. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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Flowchart Table of Contents.

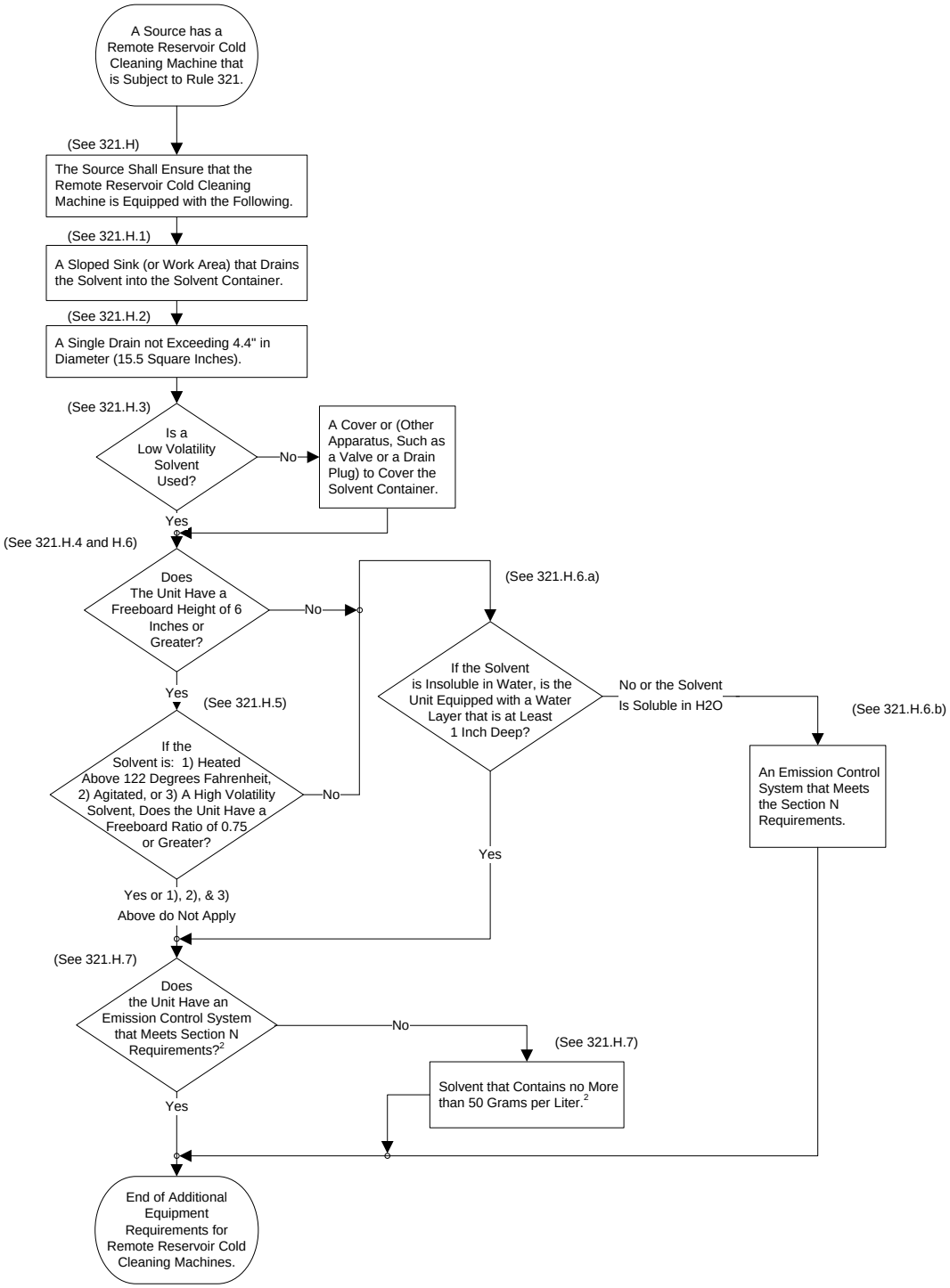

Figure 7. Rule 321, Section H, Additional equipment requirements for remote reservoir cold cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

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Flowchart Table of Contents.

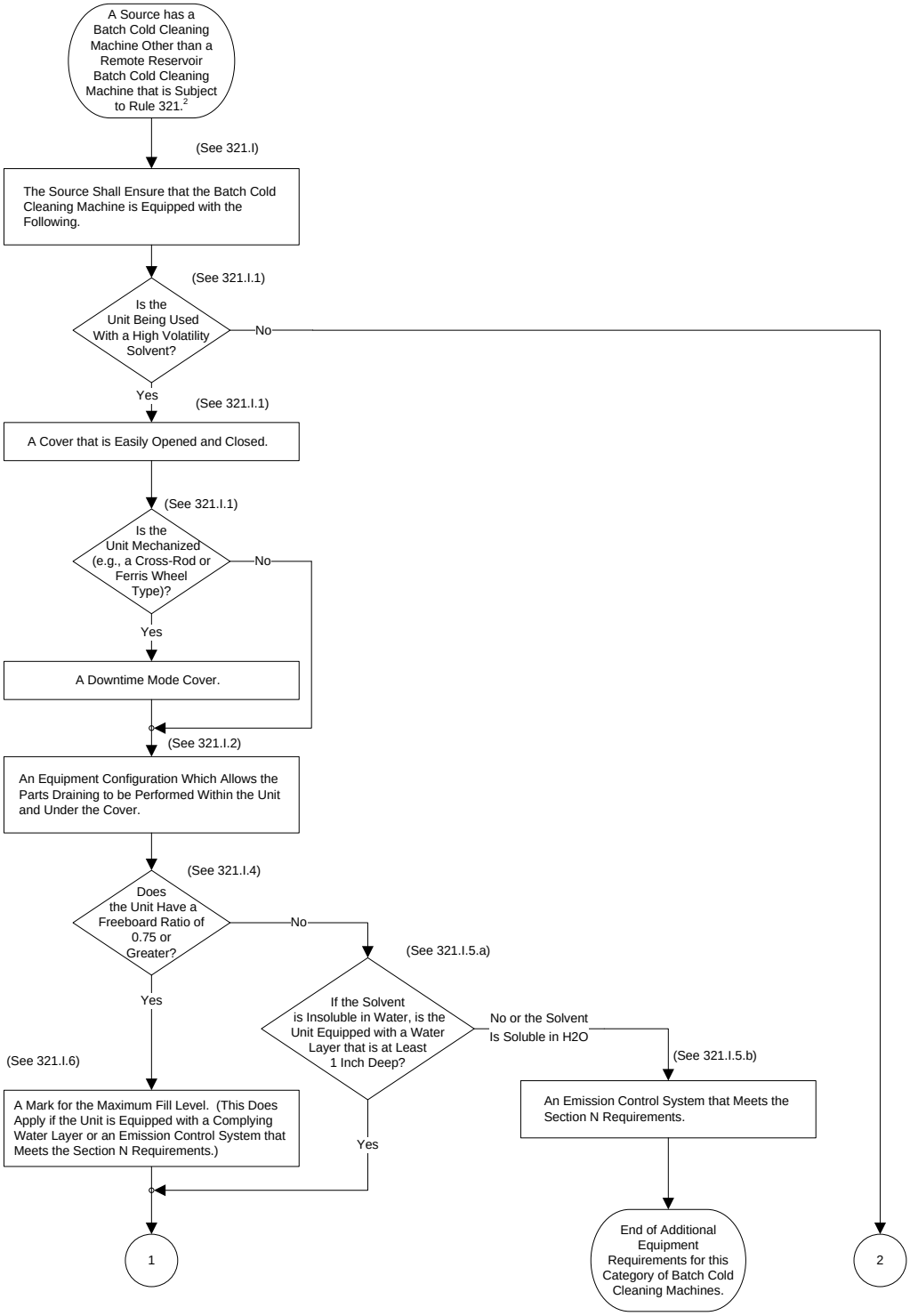

Figure 8. Rule 321, Section I, Additional equipment requirements for batch cold cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.
2. A remote reservoir cold cleaning machine that uses an enclosed container that is accessible for dipping or soaking parts is also considered to be a batch cleaning machine and shall comply with the Section I requirements.

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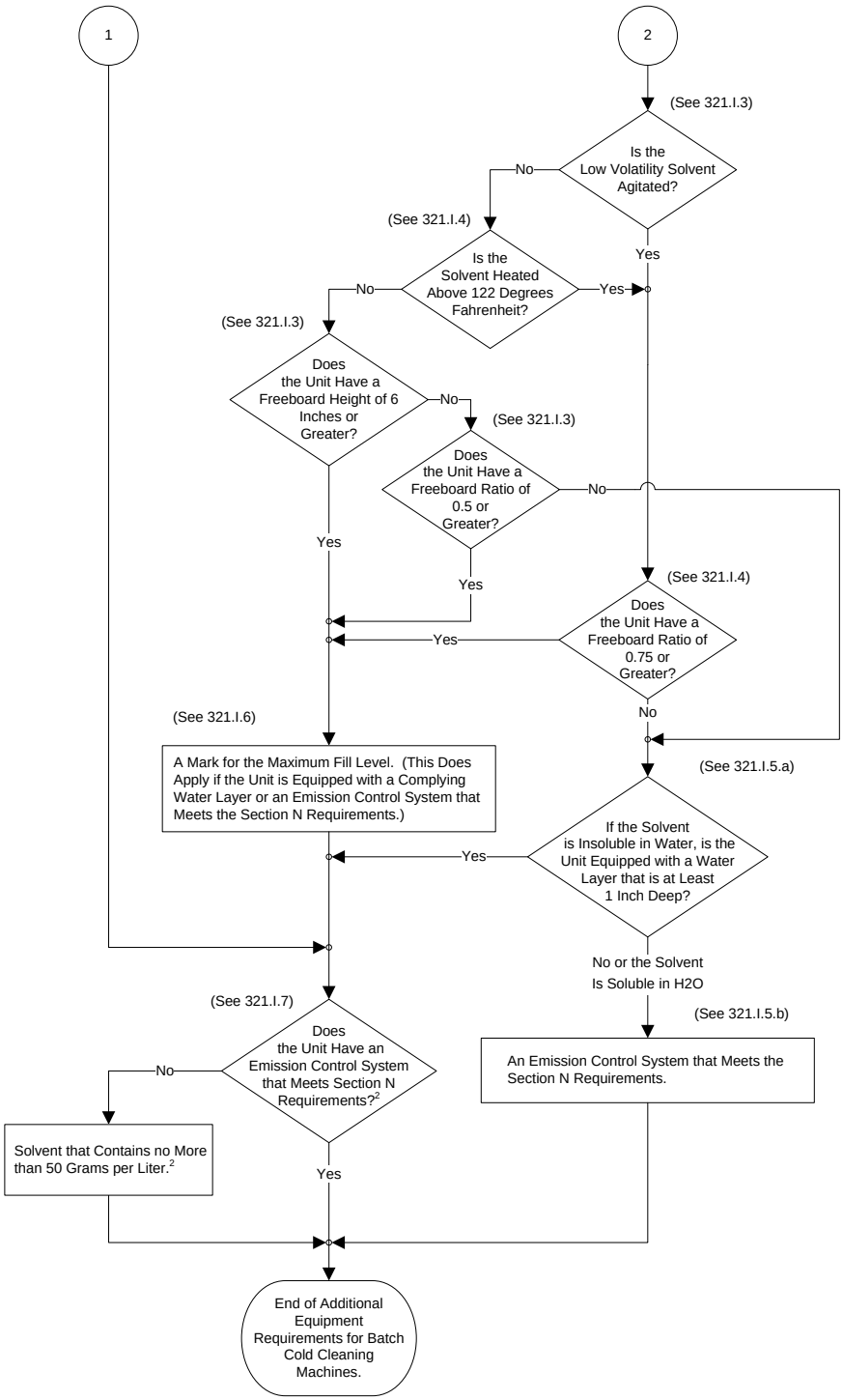

Figure 8. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

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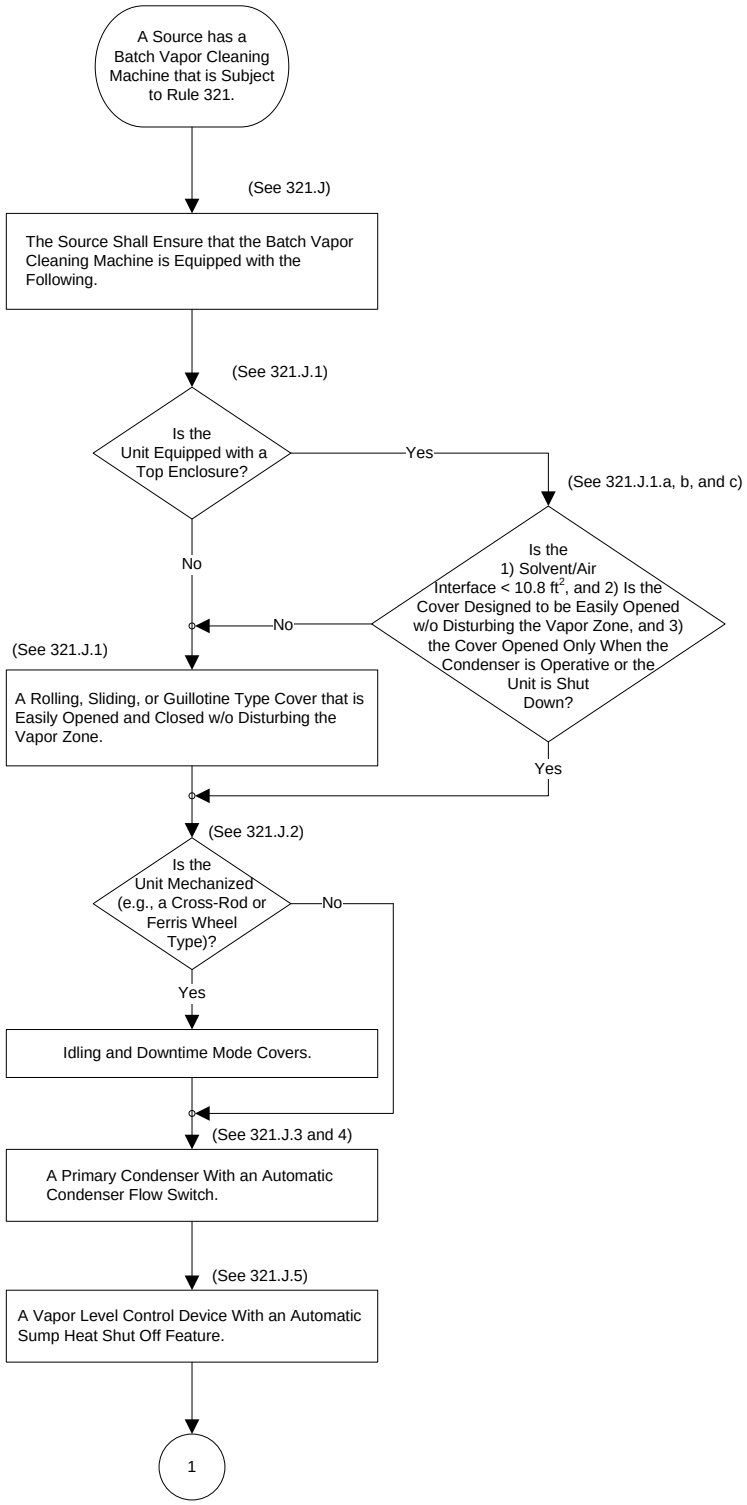

Figure 9. Rule 321, Section J, Additional equipment requirements for batch vapor cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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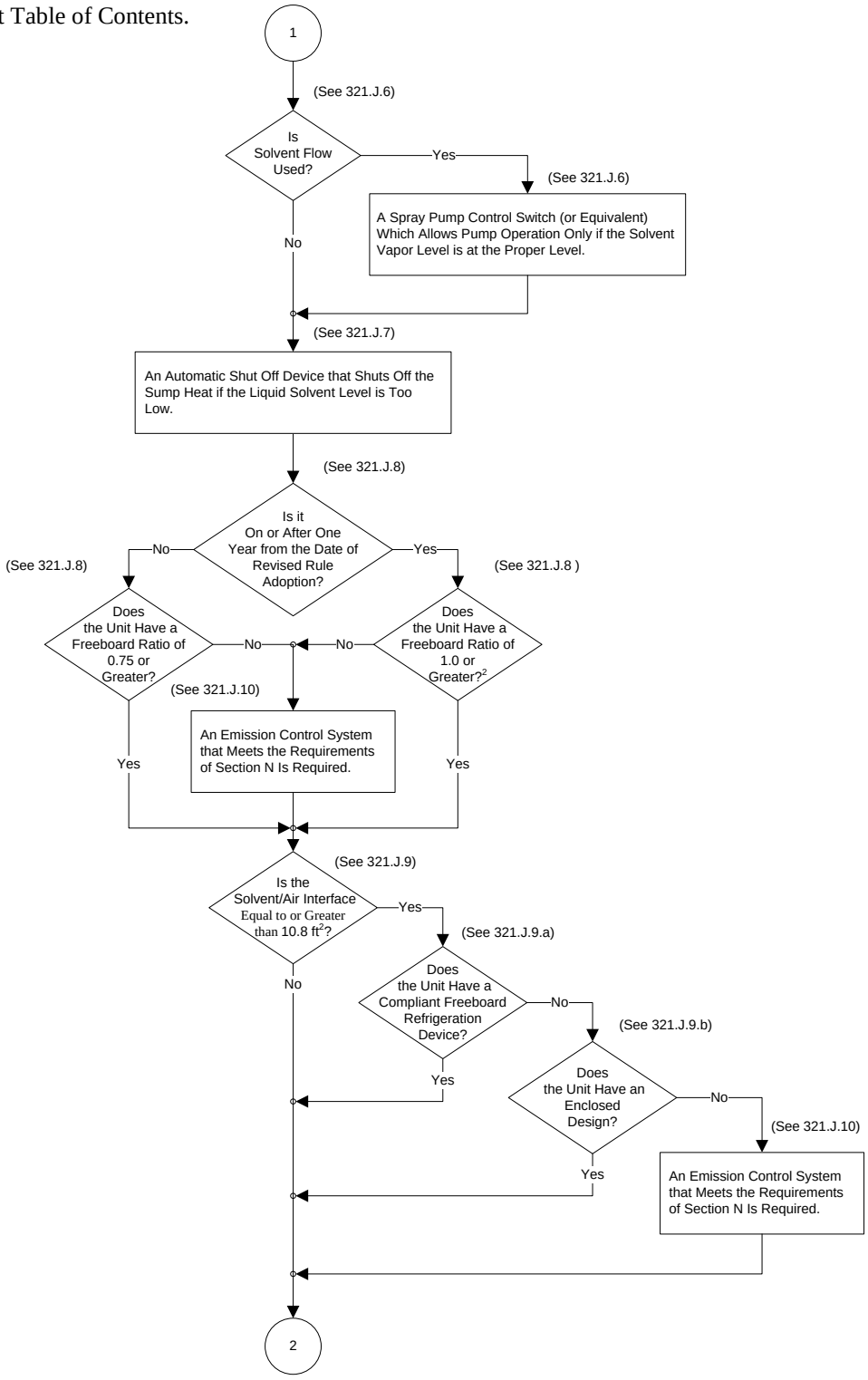

Figure 9. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

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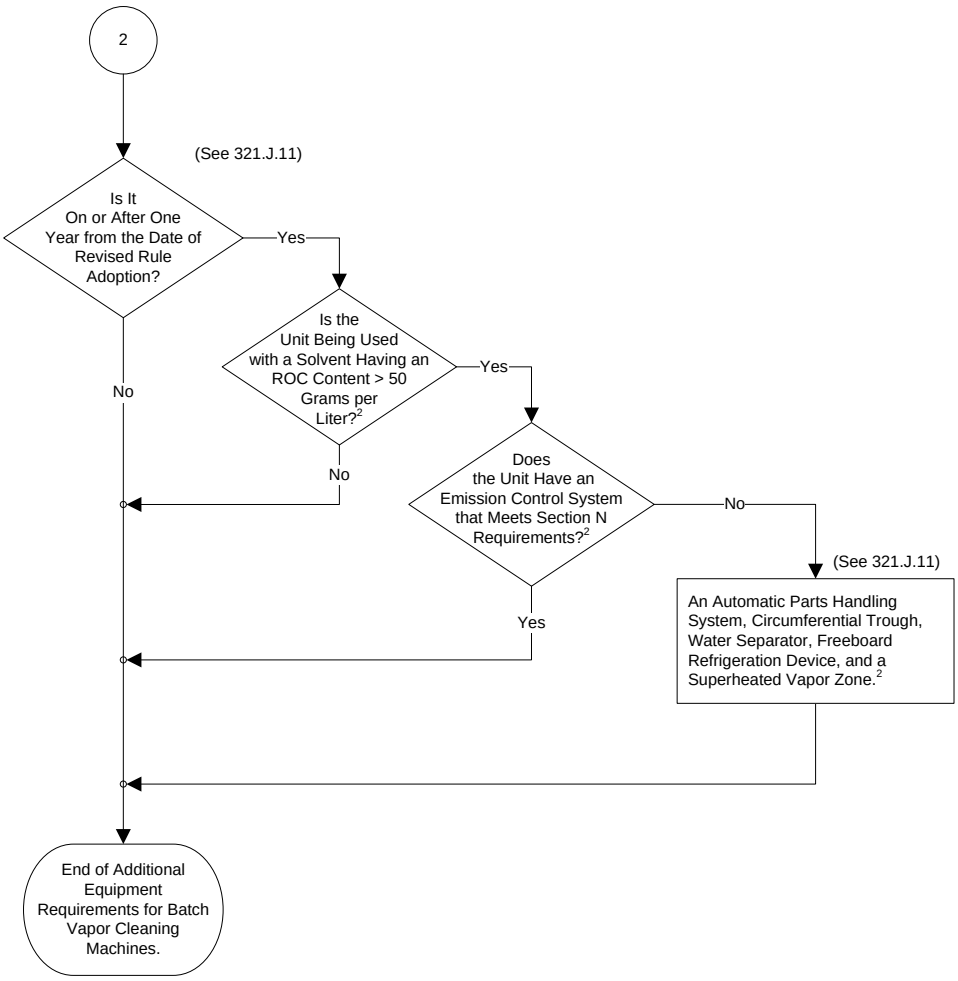

Figure 9. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

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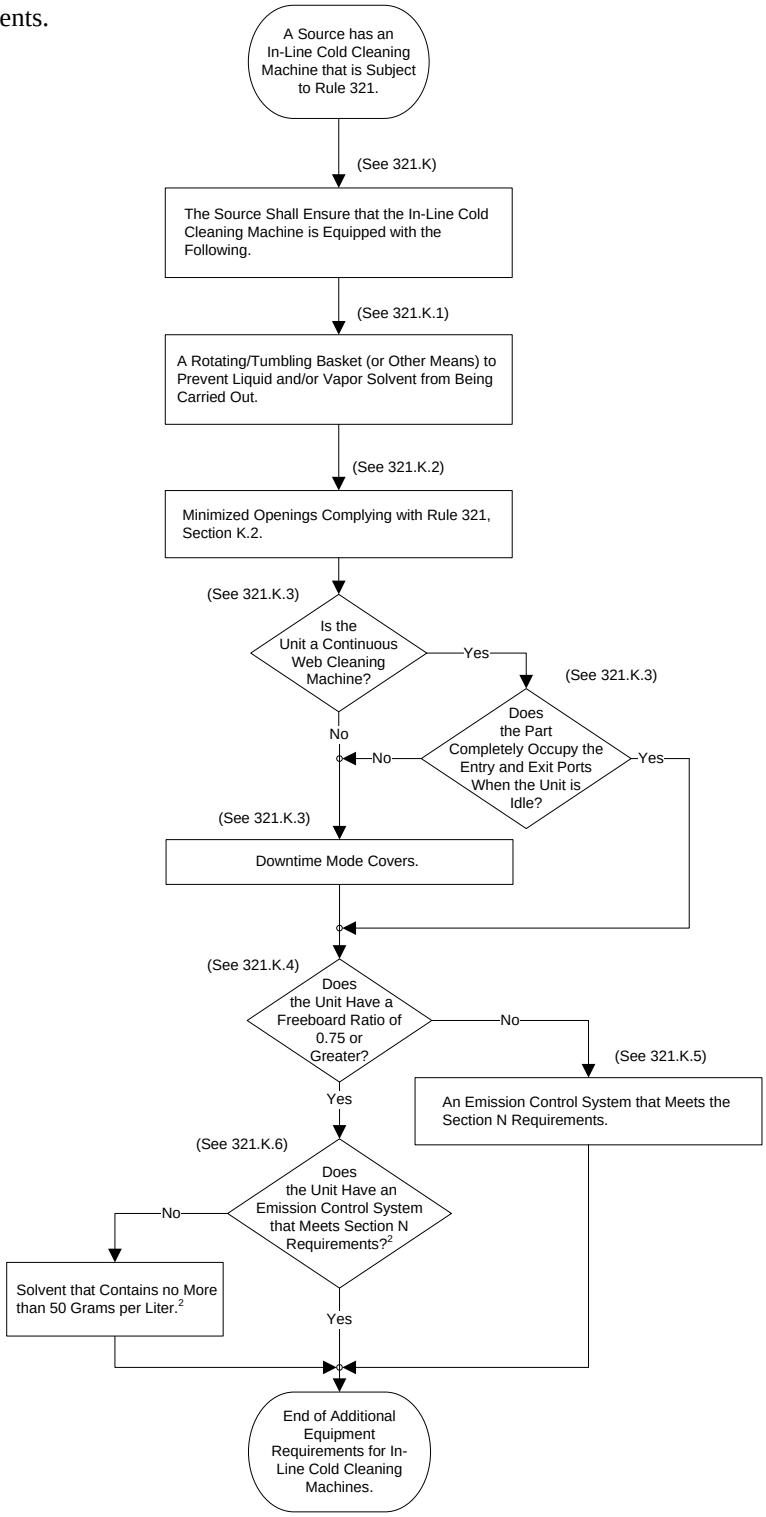

Figure 10. Rule 321, Section K, Additional equipment requirements for in-line cold cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

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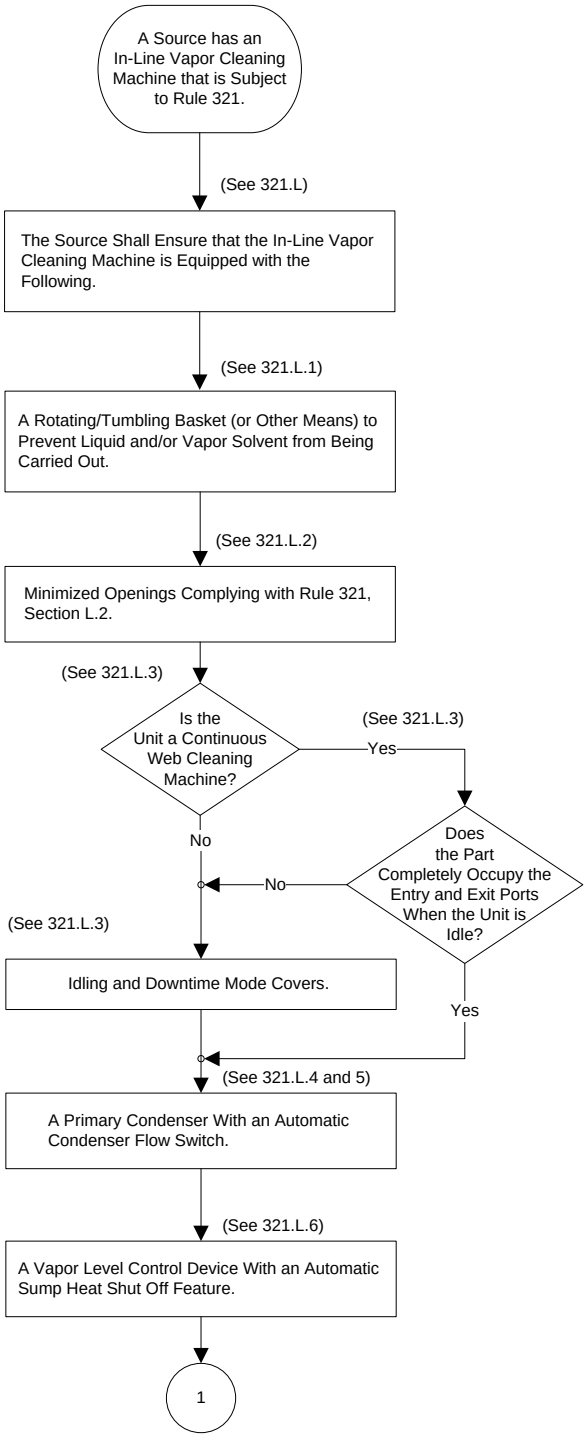

Figure 11. Rule 321, Section L, Additional equipment requirements for in-line vapor cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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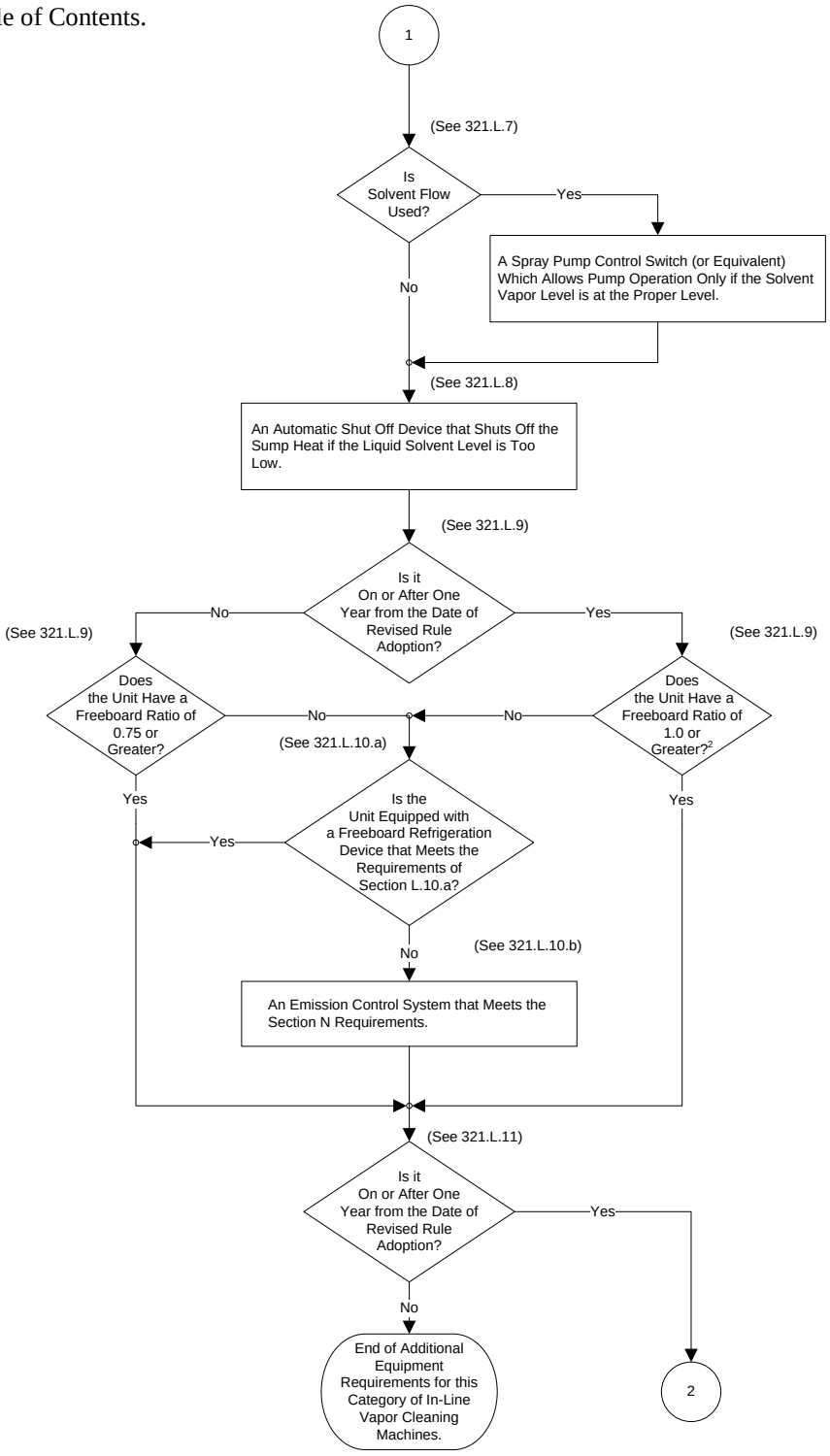

Figure 11. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

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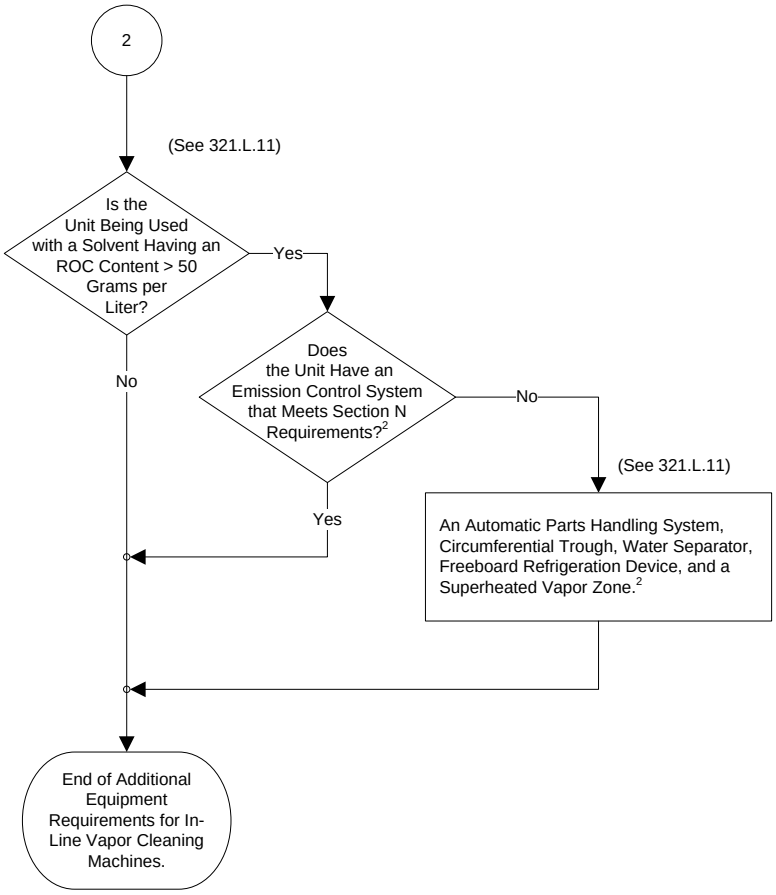

Figure 11. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

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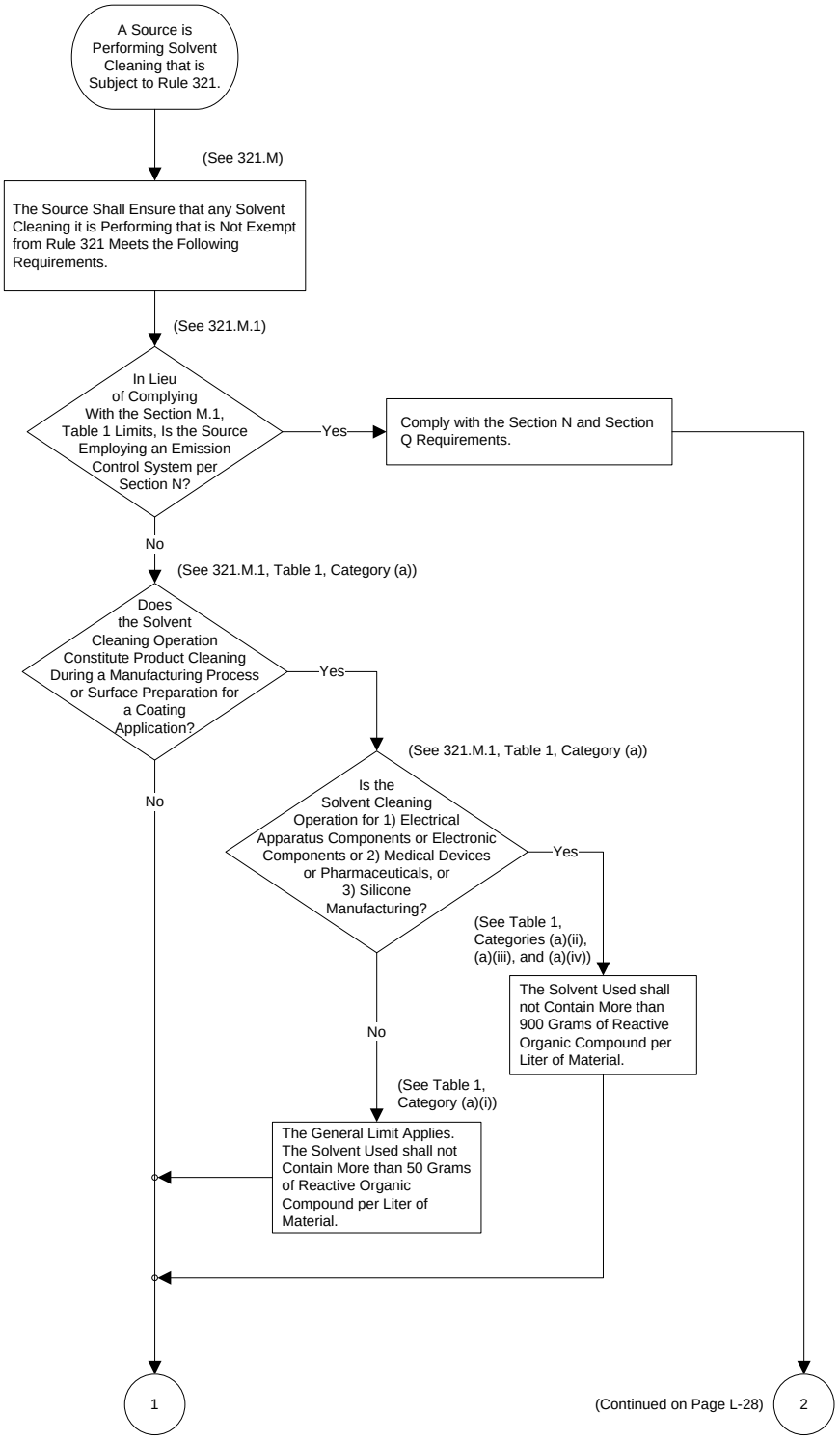

Figure 12. Rule 321, Section M, Requirements – solvent cleaning.[1, 2]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The Section M provisions become effective one year from the date of the revised rule adoption.

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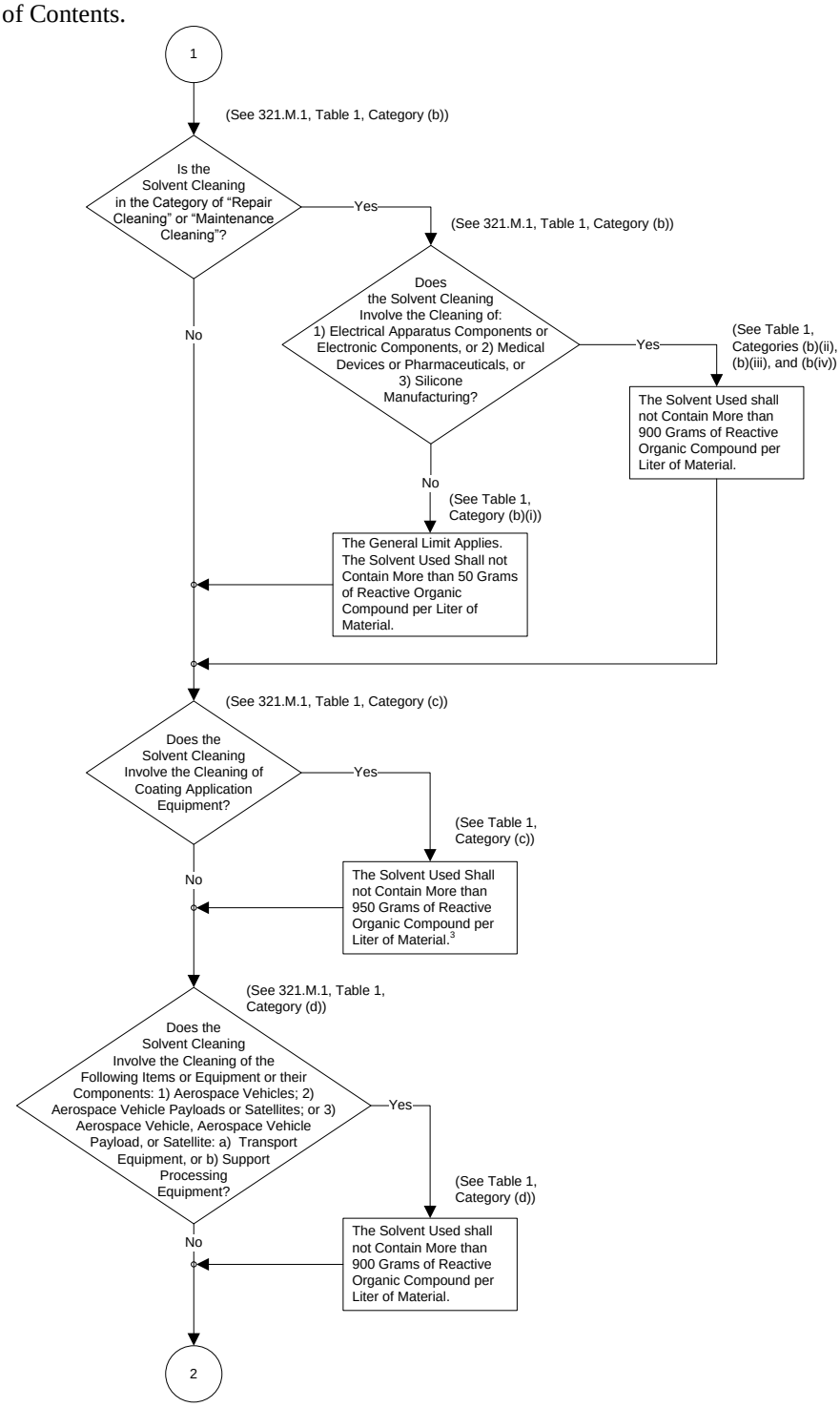

Figure 12. (cont.)[1, 2]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The Section M provisions become effective one year from the date of the revised rule adoption.

3. If the coatings application equipment is used to apply architectural coatings, use of a solvent with a 950 g/l or less ROC content makes such solvent cleaning eligible for the Rule 321.B.2 exemption.

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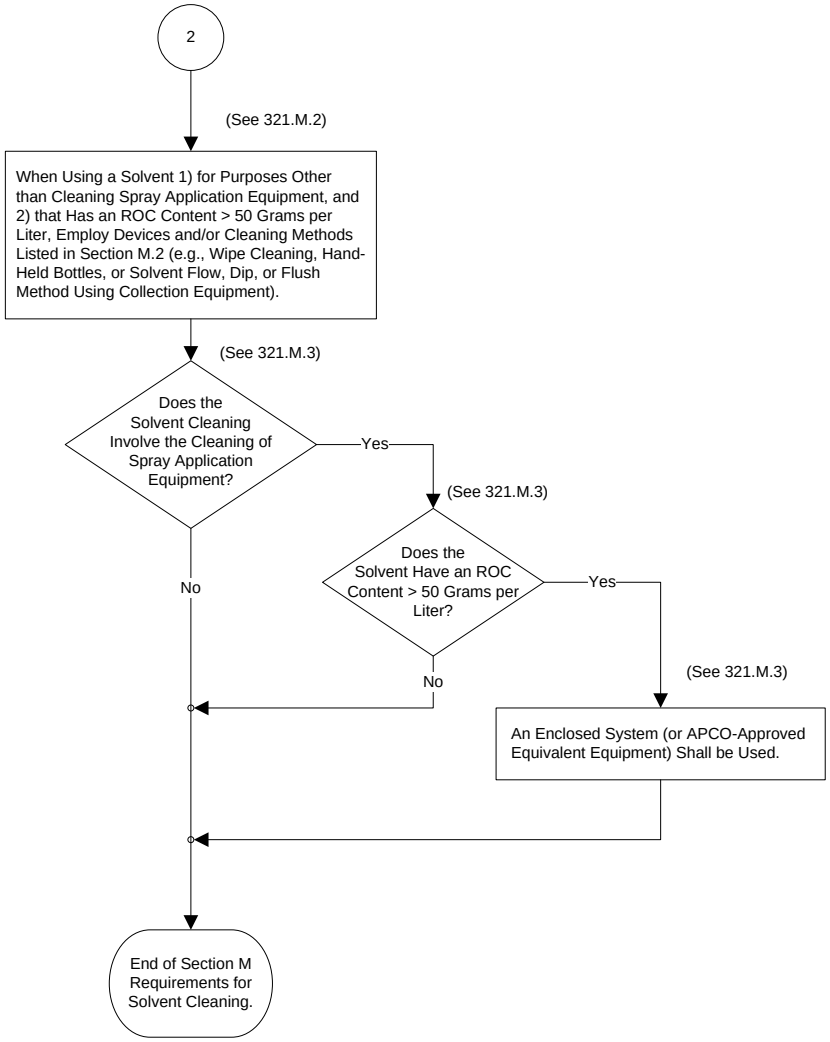

Figure 12. (cont.)[1, 2]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The Section M provisions become effective one year from the date of the revised rule adoption.

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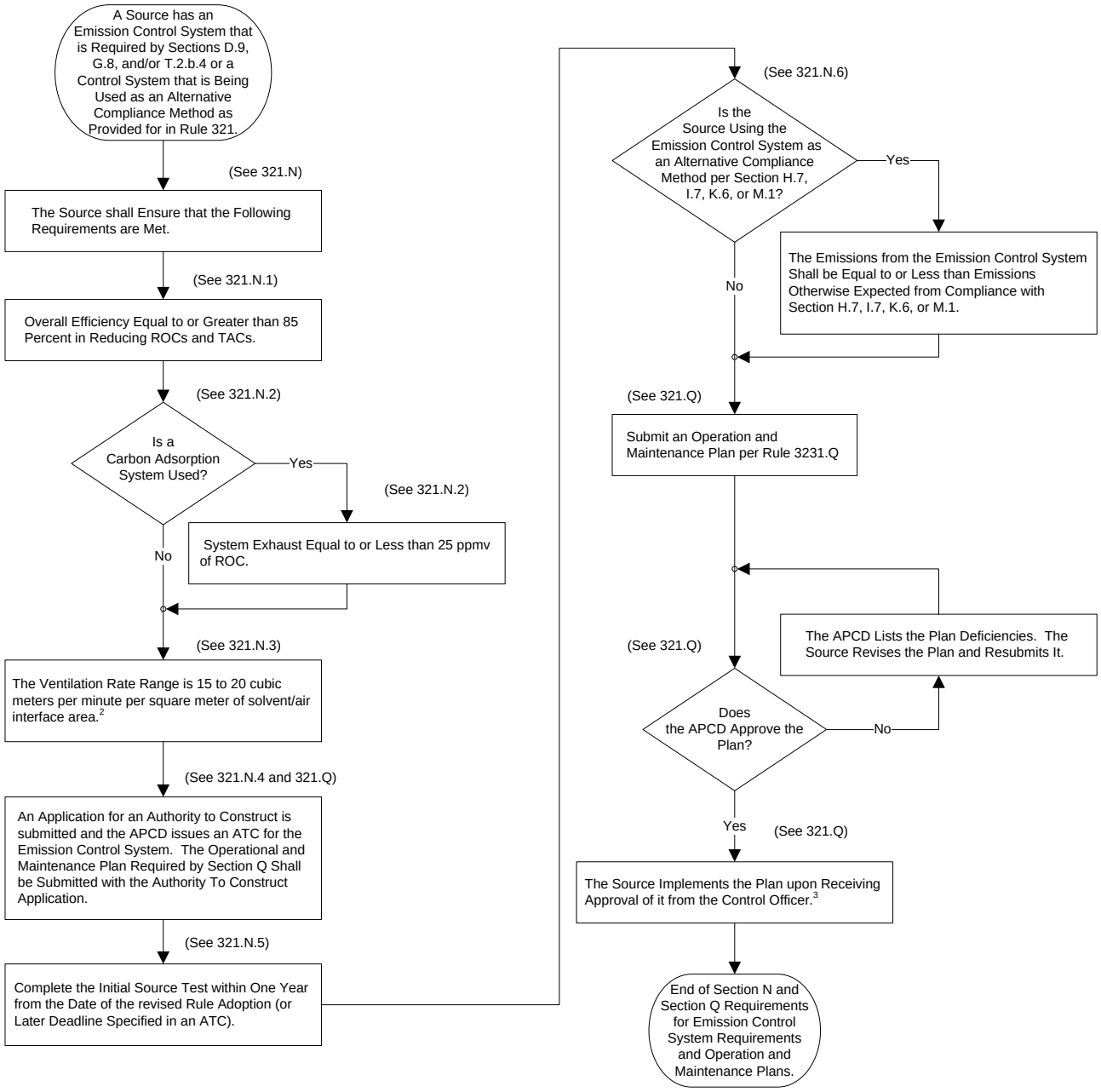

Figure 13. Rule 321, Section N, Emission control system requirements, and Section Q, Operation and maintenance plan.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Unless otherwise required to meet a National Institute for Occupational Safety and Health Standard.

3. The records required by the Operational and Maintenance Plan are to comply with the requirements in Sections R.1.c and R.3.

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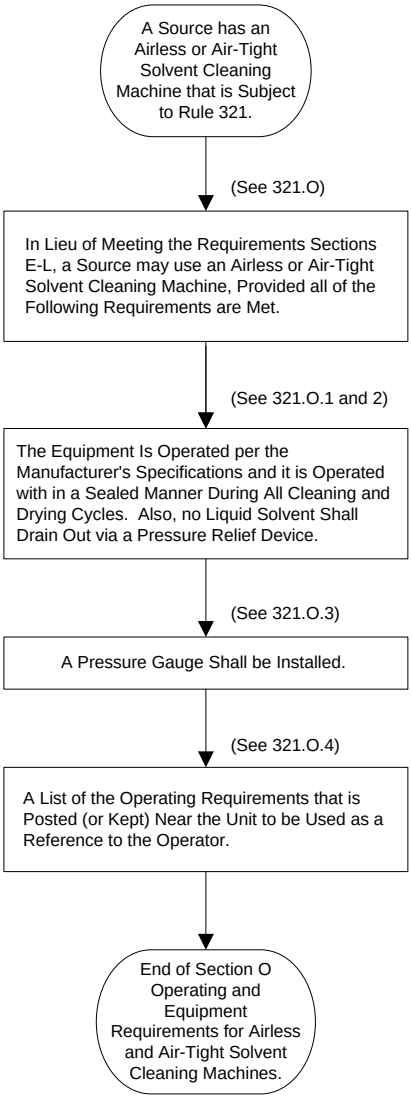

Figure 14. Rule 321, Section O, Alternative operating and equipment requirements for an airless solvent cleaning machine or an air-tight solvent cleaning machine.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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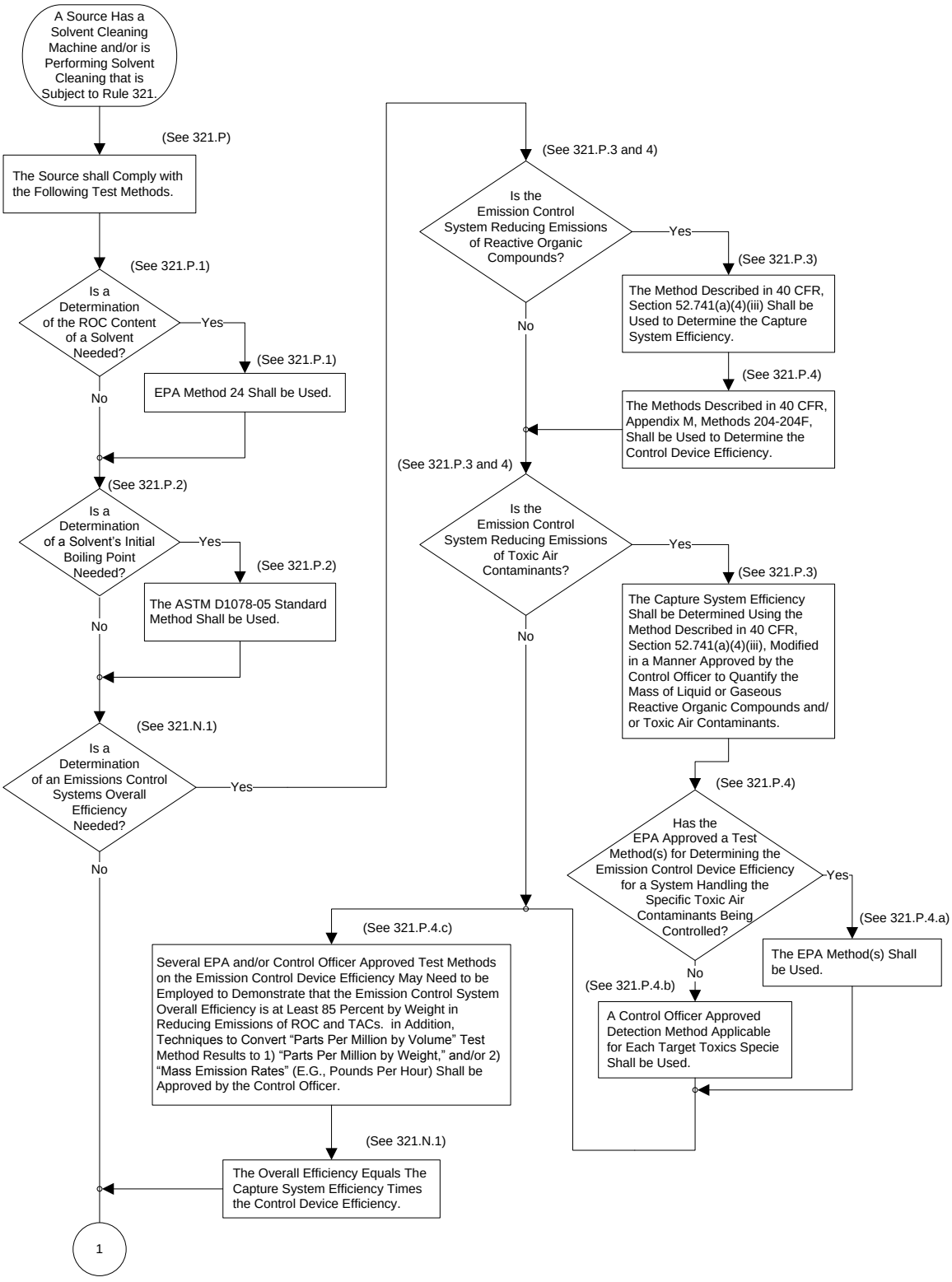

Figure 15. Rule 321, Section P, Test methods.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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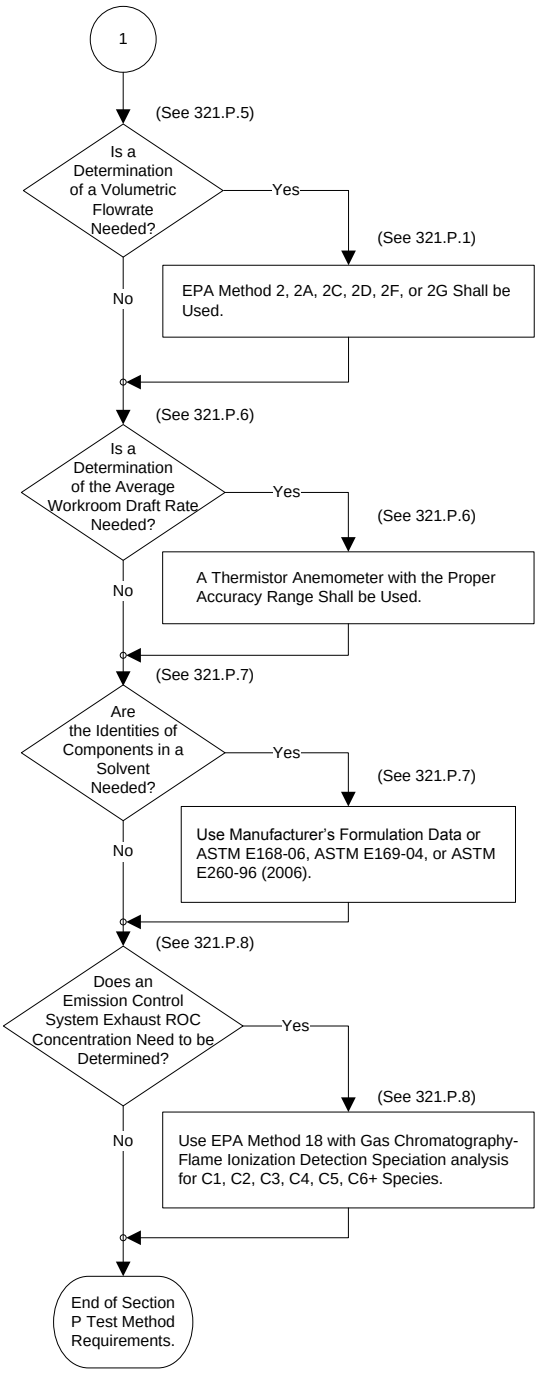

Figure 15. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

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Flowchart Table of Contents.

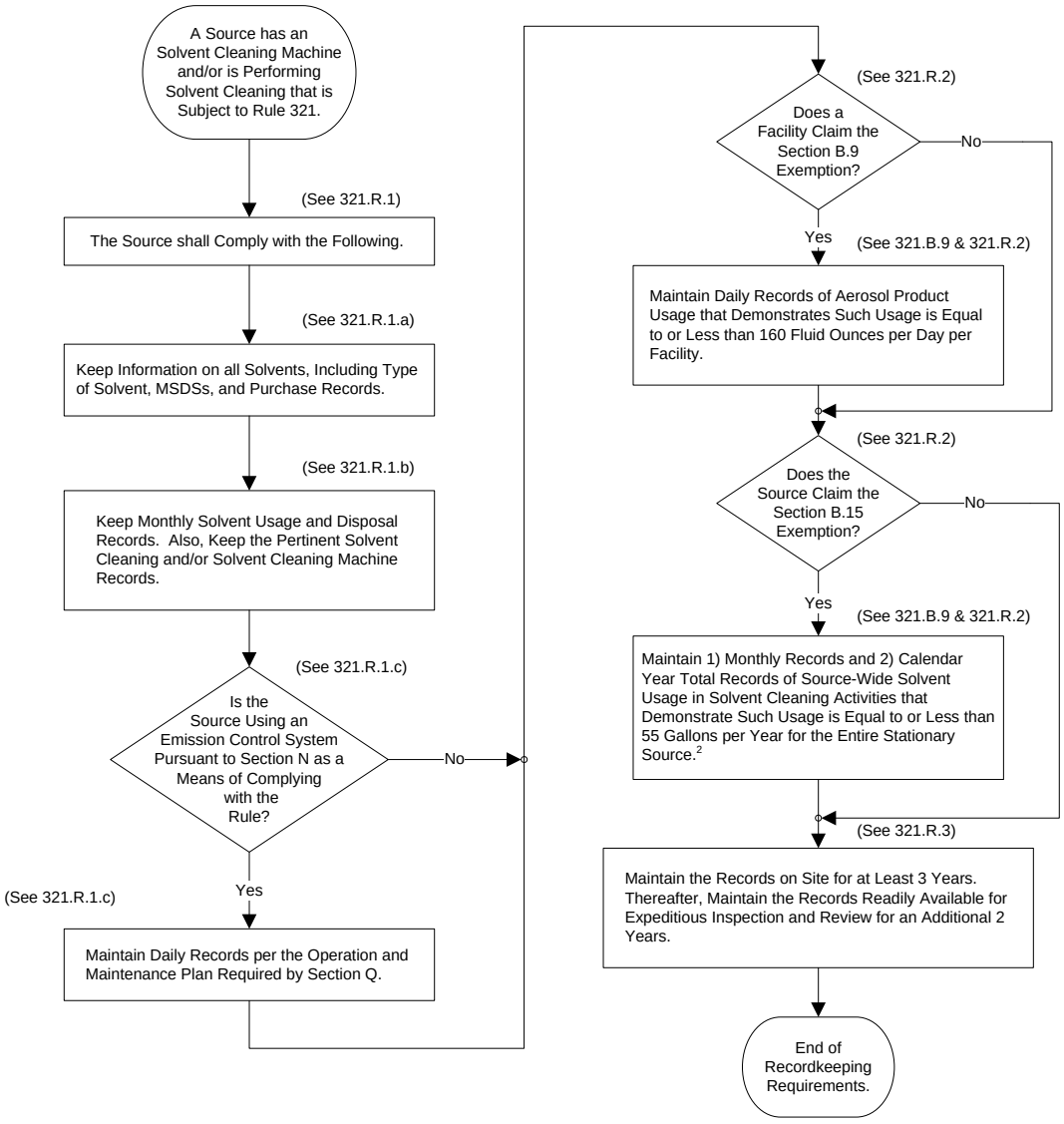

Figure 16. Rule 321, Section R, Recordkeeping requirements.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Solvents with an ROC content of 50 grams per liter or less do not count toward the 55 gallons per year aggregate limit.

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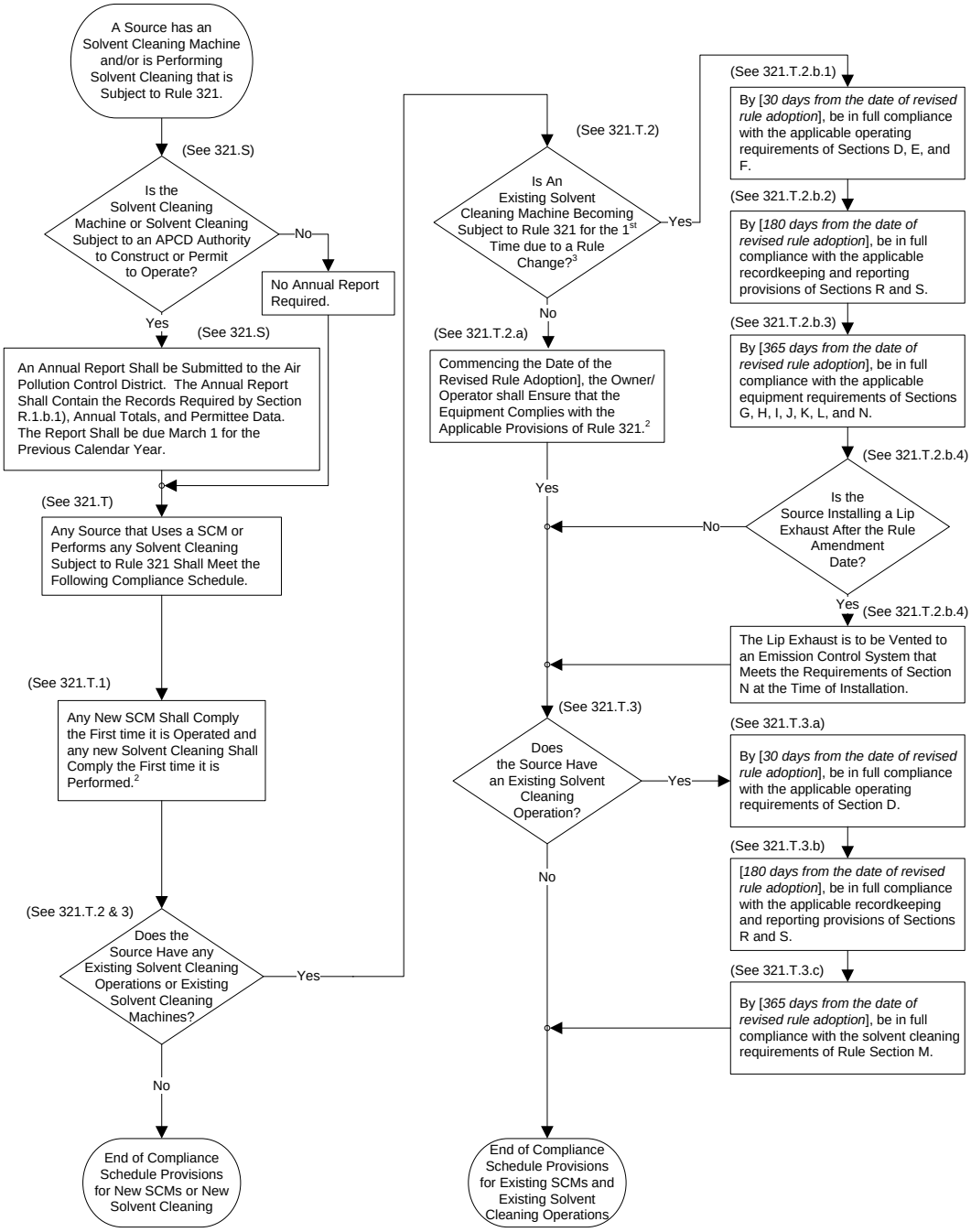

Figure 17. Rule 321, Section S, Reporting requirements, and Section T, Compliance schedule.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of one year from the date of revised rule adoption.

3. Some solvent cleaning machines have been exempt from the September 18, 1997 amended Rule 321, but will lose the exemption by the adoption of the proposed amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and/or Rule 321 (Solvent Cleaning and Solvent Cleaning Machines).

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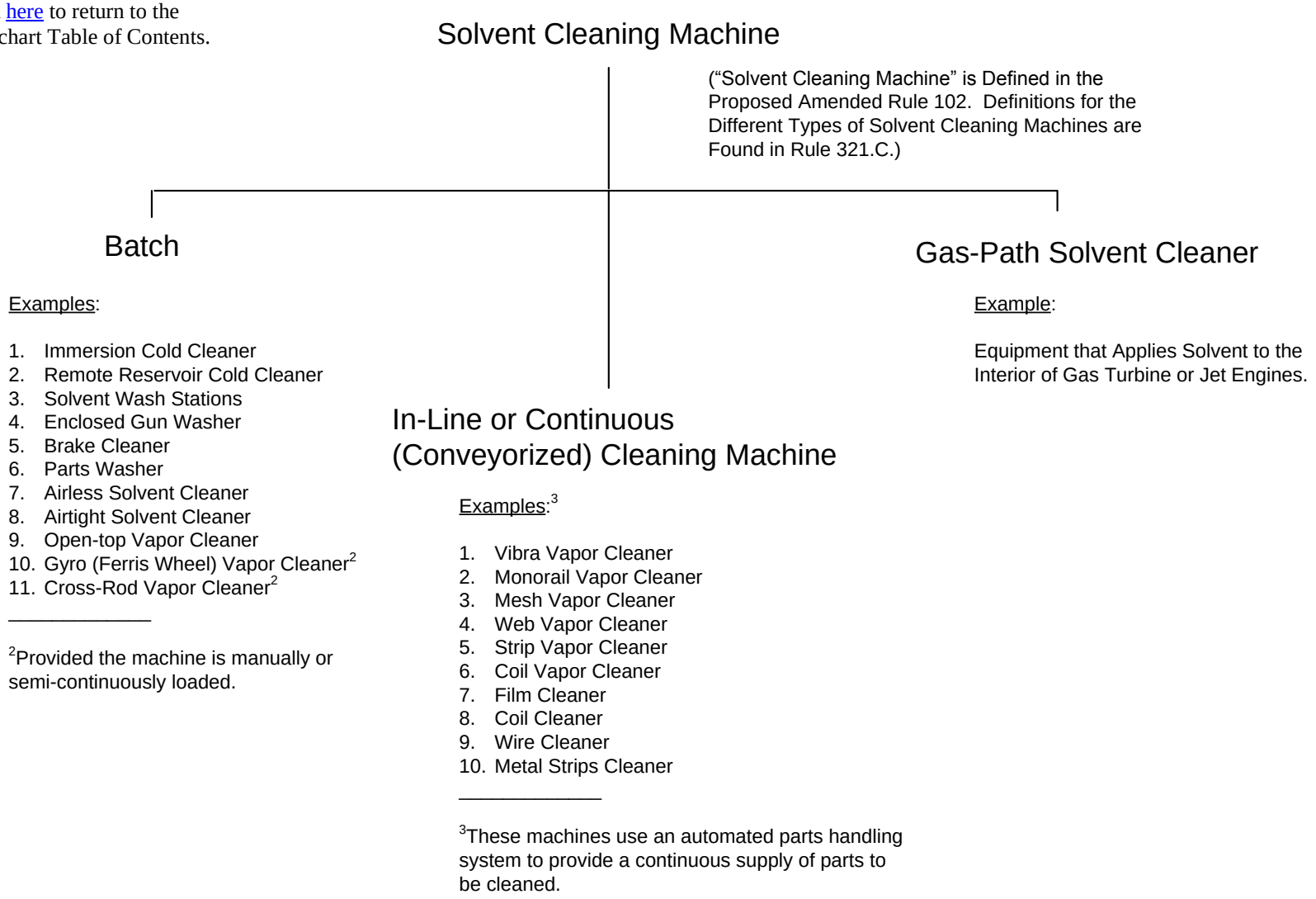

Figure 18. Overview of the solvent cleaning machine categories.[1]

1. This flowchart is presented on an informational basis to assist the reader in understanding the Rule 321 solvent cleaning machine categories. If there is any conflict between the flowchart and the rule, rule text takes precedent.

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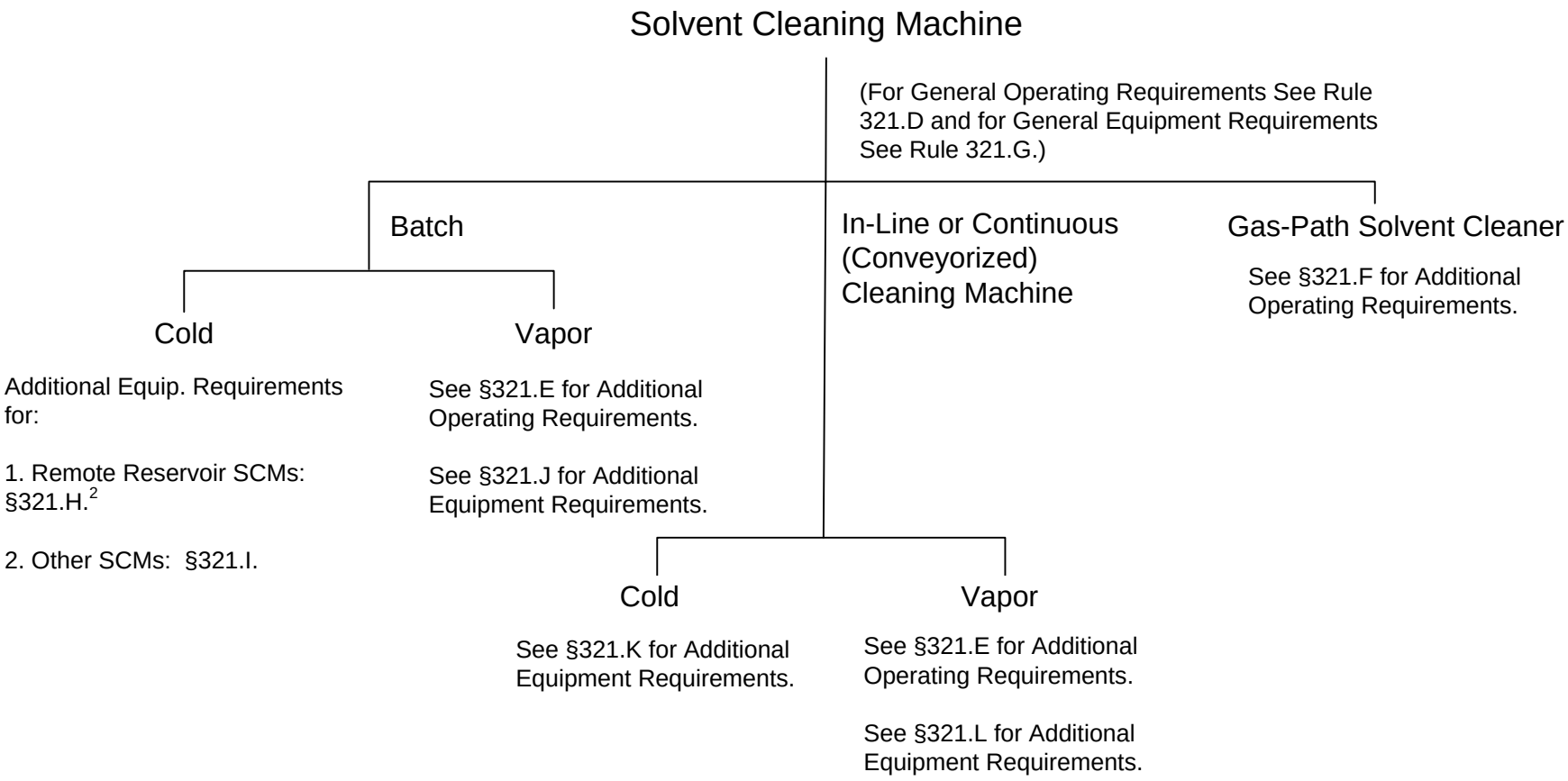

Figure 19, Overview of the Rule 321 equipment and operating requirement sections for the different types of solvent cleaning machines.[1]

1. This flowchart is presented on an informational basis to assist the reader in understanding the Rule 321 equipment and operating requirements. If there is any conflict between the flowchart and the rule, rule text takes precedent.
2. A remote reservoir cold cleaning machine that uses an enclosed container that is accessible for dipping or soaking parts is also considered to be a batch cleaning machine and shall comply with the Section I requirements.

Click here to return to the list of Appendices in the Background Paper.

Appendix M
Santa Barbara County
List of Toxic Air Contaminants[a]

COMPOUND	LISTED IN THE AB 2588 EMISSION INVENTORY CRITERIA & GUIDELINES DOCUMENT, APPENDIX A-I[b]	LISTED IN 17 CCR SECTION 93000[c]	LISTED IN 17 CCR SECTION 93001[c,d]
Acetaldehyde	X		X
Acetamide	X		X
Acetonitrile	X		X
Acetophenone; Methyl phenyl ketone	X		X
2-Acetylaminofluorene [PAH-Derivative, POM]; N-fluoren-2-yl acetamide	X		X
Acrolein	X		X
Acrylamide	X		X
Acrylic acid	X		X
Acrylonitrile; Vinyl cyanide	X		X
Allyl chloride; 3-Chloropropene	X		X
Aluminum	X		
Aluminum oxide (fibrous forms)	X		
2-Aminoanthraquinone [PAH-Derivative, POM]	X		
4-Aminobiphenyl [POM]	X		X
Amitrole	X		
Ammonia	X		
Ammonium nitrate	X		
Ammonium sulfate	X		
Aniline	X		X
o-Anisidine	X		X
Anthracene [PAH, POM]	X		
Antimony	X		
Antimony compounds			X
Antimony compounds including but not limited to: Antimony trioxide	X		
Arsenic	X		
Arsenic compounds			X
Arsenic compounds (inorganic) including but not limited to: Arsine	X		

[a] This table includes pollutants determined by the State Board to be a toxic air contaminant per Health and Safety Code sections 39655 and 39657. Any pollutants added to 1) the California Code of Regulations, Title 17, Sections 93000 and 93001, or 2) the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* are also considered to be a toxic air contaminant by the Santa Barbara County Air Pollution Control District.
[b] The AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines Regulation (Guidelines) provides direction and criteria to facilities on how to compile and submit air toxics emission data required by the "Hot Spots" Program. Appendix A-1 lists substances that must have the amount reported.
[c] "CCR" stands for California Code of Regulations. Sections 91300 and 91301 are found in Title 17, Division 3, Chapter 1, Subchapter 7.
[d] Also identified as an EPA Hazardous Air Pollutant, promulgated under the provisions of the Clean Air Act Section 112(b).

COMPOUND	IN AB 2588	IN §93000	IN §93001
Arsenic compounds (other than inorganic)	X		
Arsenic, Inorganic, see Inorganic Arsenic		X	
Arsine	X		
Asbestos			X
Asbestos [asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), tremolite, actinolite, and anthophyllite]		X	
Asbestos, see Mineral fibers (other than man-made)	X		
Barium	X		
Barium chromate	X		
Barium compounds	X		
Benz[a]anthracene [PAH, POM]	X		
Benzene	X	X	X
Benzidine (and its salts) [POM]	X		
Benzidine; 4-4'-diaminobiphenyl			X
Benzidine-based dyes [POM] including but not limited to: Direct Black 38 [PAH-Derivative, POM] Direct Blue 6 [PAH-Derivative, POM] Direct Brown 95 (technical grade) [POM]	X		
Benzo[a]pyrene [PAH, POM]	X		
Benzo[b]fluoranthene [PAH, POM], see PAH	X		
Benzofuran	X		
Benzoic trichloride; Benzotrichloride	X		
Benzo[j]fluoranthene [PAH, POM]	X		
Benzo[k]fluoranthene [PAH, POM]	X		
Benzotrichloride			X
Benzoyl chloride	X		
Benzoyl peroxide; dibenzoyl peroxide	X		
Benzyl chloride, alpha-chlorotoluene	X		X
Beryllium, and beryllium compounds	X		
Beryllium compounds			X
Biphenyl [POM]; diphenyl; phenylbenzene	X		X
Bis(2-chloroethyl) ether; DCEE, see Dichloroethyl ether	X		
Bis(chloromethyl) ether, see bis-Chloromethyl ether	X		X
Bis(2-ethylhexyl)adipate	X		
Bis(2-ethylhexyl)phthalate (DEHP)			X
Bromine	X		
Bromine compounds (inorganic) including but not limited to: Bromine pentafluoride Hydrogen bromide Potassium bromate	X		
Bromine pentafluoride	X		
Bromoform; tribromomethane	X		X
1,3-Butadiene	X	X	X
2-Butanone, see Methyl ethyl ketone (MEK)	X		X
tert-Butyl acetate; tertiary-butyl acetate; t-Butyl acetate; tBAc	X		
Butyl acrylate	X		
n-Butyl alcohol; 1-butanol	X		
sec-Butyl alcohol	X		
tert-Butyl alcohol	X		
Butyl benzyl phthalate	X		
Cadmium compounds	X		X
Cadmium (metallic cadmium and cadmium compounds)		X	

COMPOUND	IN AB 2588	IN §93000	IN §93001
Calcium cyanamide	X		X
Caprolactam	X		X
Captafol	X		
Captan	X		X
Carbaryl [PAH-Derivative, POM]; 1-naphthyl N-methylcarbamate	X		X
Carbon black extracts	X		
Carbon disulfide	X		X
Carbon tetrachloride; Tetrachloromethane	X	X	X
Carbonyl sulfide	X		X
Carrageenan (degraded)	X		
Catechol; pyrocatecho	X		X
Chloramben	X		X
Chlordane; 1,2,44,5,6,7,8-octochloro-3a,4,7,7a-tetrahydro-4,7-methanoindane	X		X
Chlorinated dibenzodioxins; dioxins; see Polychlorinated dibenzo-p-dioxins) [POM]	X		
Chlorinated paraffins (average chain length, C12; approximately 60% chlorine by weight)	X		
Chlorine	X		X
Chlorine dioxide	X		
Chloroacetic acid	X		X
2-Chloroacetophenone	X		X
p-Chloroaniline	X		
Chlorobenzene; monochlorobenzene			X
Chlorobenzenes including but not limited to: Chlorobenzene Dichlorobenzenes (mixed isomers) including: 1,2-Dichlorobenzene 1,3-Dichlorobenzene p-Dichlorobenzene; 1,4-Dichlorobenzene; 1,4-Dichlorobenzene (p) 1,2,4-Trichlorobenzene	X		X
Chlorobenzilate [POM]; Ethyl-4,4'-dichlorobenzilate	X		X
Chlorodifluoromethane; Fluorocarbon 22	X		
Chloroform; trichloromethane	X	X	X
bis-Chloromethyl ether	X		X
Chloromethyl methyl ether			X
Chloromethyl methyl ether (technical grade)	X		
Chlorophenols including but not limited to: 2-Chlorophenol 2,4-Dichlorophenol Pentachlorophenol Tetrachlorophenols including but not limited to: 2,3,4,6-Tetrachlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	X		
4-Chloro-o-phenylenediamine	X		
Chloropicrin; trichloronitromethane	X		
Chloroprene; 2-chloro-1,3-butadiene	X		X
p-Chloro-o-toluidine	X		
Chromium	X		
Chromium compounds			X
Chromium compounds (other than hexavalent)	X		
Chromium, Hexavalent, see Hexavalent chromium (CR VI))		X	

COMPOUND	IN AB 2588	IN §93000	IN §93001
Chromium, hexavalent (and compounds) including but not limited to: Barium Calcium chromate Chromium trioxide Lead chromate Sodium dichromate Strontium chromate	X		
Chrysene [PAH, POM]	X		
Cobalt compounds			X
Cobalt	X		
Cobalt compounds	X		
Coke oven emissions	X		X
Copper and copper compounds	X		
Creosotes	X		
p-Cresidine	X		
m-Cresol	X		X
o-Cresol	X		X
p-Cresol	X		X
Cresols (mixtures of); Cresylic acid; including: m-Cresol o-Cresol p-Cresol	X		
Cresols/Cresylic acid (isomers and mixture)			X
Crotonaldehyde	X		
Cumene; isopropylbenzene	X		X
Cumene hydroperoxide	X		
Cupferron	X		
Cyanide compounds			X
Cyanide compounds including but not limited to: Hydrocyanic acid	X		
Cyclohexane	X		
Cyclohexanol	X		
Cycloheximide	X		
2,4-D, salts and esters			X
DDE, see Dichlorodiphenyldichloroethylene			X
Decabromodiphenyl oxide [POM], see Polybrominated diphenyl ethers	X		
Dialkylnitrosamines including but not limited to: N-Nitrosodi-n-butylamine N-Nitrosodiethanolamine N-Nitrosodiethylamine N-Nitrosodimethylamine N-Nitrosodi-n-propylamine N-Nitrosomethylethylamine	X		
2,4-Diaminoanisole	X		
2,4-Diaminotoluene; 2,4-Toluenediamine; 2,4-Toluene diamine	X		X
Diaminotoluenes (mixed isomers) including but not limited to: 2,4-Diaminotoluene; 2,4-Toluenediamine	X		X
Diazomethane	X		X
Dibenz[a,h]acridine [POM]	X		
Dibenz[a,j]acridine [POM]	X		
Dibenz[a,h]anthracene [PAH, POM], see PAH	X		
7H-Dibenzo[c,g]carbazole [PAH, POM], see PAH	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
Dibenzo[a,e]pyrene [PAH, POM], see PAH	X		
Dibenzo[a,h]pyrene [PAH, POM], see PAH	X		
Dibenzo[a,i]pyrene [PAH, POM], see PAH	X		
Dibenzo[a,l]pyrene [PAH, POM], see PAH	X		
Dibenzo-p-dioxins and Dibenzofurans chlorinated in the 2,3,7 and 8 positions and containing 4,5,6 or 7 chlorine atoms		X	
Dibenzofurans (chlorinated), see Polychlorinated dibenzofurans [POM]	X		
Dibenzofuran [POM]	X		
Dibenzofurans			X
1,2-Dibromo-3-chloropropane; DBCP	X		X
2,3-Dibromo-1-propanol	X		
Dibutyl phthalate; Dibutylphthalate	X		X
p-Dichlorobenzene; 1,4-dichlorobenzene; 1,4-Dichlorobenzene (P)			X
p-Dichlorobenzene; 1,4-Dichlorobenzene; see Chlorobenzenes	X		
1,4-Dichlorobenzene; p-Dichlorobenzene			X
3,3'-Dichlorobenzidine; 4,4'-diamino-3,3'-dichlorobiphenyl	X		X
Dichlorodiphenyldichloroethylene [POM], DDE	X		X
1,1-Dichloroethane; Ethylidene dichloride	X		
Dichloroethyl ether; bis(2-chloroethyl) ether; DCEE	X		X
Dichlorophenoxyacetic acid, salts and esters	X		
1,2-Dichloropropane, see Propylene dichloride	X		
1,3-Dichloropropene	X		X
Dichlorvos; DDVP; 2,2-dichlorovinyl dimethyl phospate	X		X
Dicofol [POM]	X		
Diesel engine exhaust	X		
Diesel engine exhaust, particulate matter (see particulate emissions from diesel-fueled engines too)	X	X	
Diesel engine exhaust, total organic gas	X		
Diesel fuel (marine)	X		
Diethanolamine	X		X
Di(2-ethylhexyl) phthalate; DEHP, see Di-sec-octyl phthalate	X		
Diethylhexylphthalate; DEHP, see Di-sec-octyl phthalate	X		
Diethyl sulfate	X		X
3,3'-Dimethoxybenzidine [POM]	X		X
4-Dimethylaminoazobenzene [POM]; Dimethyl aminoazobenzene	X		X
N,N-Dimethylaniline; dimethylaniline	X		X
7,12-Dimethylbenz[a]anthracene [PAH-Derivative, [POM]	X		
3,3'-Dimethylbenzidine [POM]; o-Tolidine; 3,3'-Dimethyl benzidine	X		X
Dimethyl carbamoyl chloride	X		X
Dimethyl formamide	X		
Dimethylformamide; DMF			X
1,1-Dimethylhydrazine	X		X
Dimethyl phthalate	X		X
Dimethyl sulfate; methyl sulfate	X		X
3,3'-Dimethyoxybenzidine			X
4,6-Dinitro-o-cresol (and salts)	X		X
2,4-Dinitrophenol	X		X
1,6-Dinitropyrene [PAH-Derivative, POM]	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
1,8-Dinitropyrene [PAH-Derivative, POM]	X		
2,4-Dinitrotoluene	X		X
Dinitrotoluenes (mixed isomers) including but not limited to: 2,4-Dinitrotoluene 2,6-Dinitrotoluene	X		
1,4 Dioxane; 1,4-Diethyleneoxide	X		X
Dioxins (Chlorinated dibenzodioxins) (see Polychlorinated dibenzo-p-dioxins) [POM]	X		
Diphenylhydantoin [POM]	X		
1,2-Diphenylhydrazine [POM]; Hydrazobenzene	X		X
Dipropylene glycol	X		
Dipropylene glycol methyl ether	X		
Di-sec-octyl phthalate; bis(2-ethylhexyl) phthalate; diethylhexylphthalate	X		
Environmental Tobacco Smoke	X	X	
Epichlorohydrin, 1-chloro-2,3 epoxypropane	X		X
Epoxy resins	X		
1,2-Epoxybutane	X		X
Ethyl acrylate	X		X
Ethylbenzene	X		X
Ethyl carbamate; Urethane			X
Ethyl chloride; chloroethane	X		X
Ethyl-4,4'-dichlorobenzilate (see Chlorobenzilate)	X		
Ethylene	X		
Ethylene dibromide; 1,2 dibromoehane	X	X	X
Ethylene dichloride; 1,2,-dichlroethane	X	X	X
Ethylene glycol	X		X
Ethylene glycol diethyl ether, 1,2 dicthoxyethane	X		
Ethylene glycol dimethyl ether; 1,2-dimethoxyethane, G'-yme	X		
Ethylene glycol monobutyl ether	X		
Ethylene glycol monoethyl ether, see 2-Ethoxyethanol	X		
Ethylene glycol monomethyl ether, see 2-Methoxyethanol	X		
Ethylene glycol monoethyl ether acetate	X		
Ethylene glycol monomethyl ether acetate	X		
Ethylene glycol monopropyl ether	X		
Ethyleneimine; Aziridine	X		X
Ethylene oxide	X	X	X
Ethylene thiourea	X		X
Ethylidene dichloride; 1,1-Dichloroethane)			X
Fine mineral fibers			X
Fluorides and compounds including but not limited to: Hydrogen fluoride	X		
Fluorocarbons (brominated)	X		
Fluorocarbons (chlorinated) including but not limited to: Chlorinated fluorocarbon; CFC-113; 1,1,2-Trichloro-1,2,2-trifluoroethane Chlorodifluoromethane; Fluorocarbon 22 Dichlorofluoromethane; Fluorocarbon 12 Dichlorofluoromethane; Fluorocarbon 21 Trichlorofluoromethane; Fluorocarbon 11	X		
Formaldehyde	X	X	X
Furan	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
Gasoline engine exhaust including but not limited to: Gasoline engine exhaust (condensates & extracts) Gasoline engine exhaust, particulate matter Gasoline engine exhaust, total organic gas	X		
Gasoline Vapors	X		
Glutaraldehyde	X		
Glycol ethers			X
Glycol ethers and their acetates including but not limited to: Diethylene glycol Diethylene glycol dimethyl ether Diethylene glycol monobutyl ether Diethylene glycol monoethyl ether Diethylene glycol monomethyl ether Dipropylene glycol Dipropylene glycol monomethyl ether Ethylene glycol diethyl ether Ethylene glycol dimethyl ether Ethylene glycol monobutyl ether Ethylene glycol monoethyl ether Ethylene glycol monoethyl ether acetate; PGMEA Ethylene glycol monomethyl ether Ethylene glycol monomethyl ether acetate Ethylene glycol monopropyl ether Propylene glycol monomethyl ether Propylene glycol monomethyl ether acetate Triethylene glycol dimethyl ether	X		
Heptachlor; 1,4,5,6,7,8,8-hepta-chloro-3a,4,7,7a tetrahydro 4,7 methanoindene	X		X
1,2,3,4,6,7,8-Heptachlorodibenzofuran see Polychlorinated dibenzofurans	X		
1,2,3,4,7,8,9-Heptachlorodibenzofuran see Polychlorinated dibenzofurans	X		
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin see Polychlorinated dibenzo-p-dioxins	X		
Hexachlorobenzene	X		X
Hexachlorobutadiene	X		X
Hexachlorocyclohexanes (mixed or technical grade) including but not limited to: alpha-Hexachlorocyclohexane beta-Hexachlorocyclohexane Lindane; gamma-Hexachlorocyclohexane	X		
Hexachlorocyclopentadiene	X		X
1,2,3,4,7,8-Hexachlorodibenzofuran see Polychlorinated dibenzofurans	X		
1,2,3,6,7,8-Hexachlorodibenzofuran see Polychlorinated dibenzofurans	X		
1,2,3,7,8,9-Hexachlorodibenzofuran see Polychlorinated dibenzofurans	X		
2,3,4,6,7,8-Hexachlorodibenzofuran see Polychlorinated dibenzofurans	X		
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin see Polychlorinated dibenzo-p-dioxins	X		
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin see Polychlorinated dibenzo-p-dioxins	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin see Polychlorinated dibenzo-p-dioxins	X		
Hexachloroethane; perchloroethane	X		X
Hexamethylene diisocyanate; HDI; Hexamethylene-1,6-diisocyanate			X
Hexamethylphosphoramide	X		X
Hexane	X		X
Hexavalent chromium (CR (VI))	X	X	
Hydrazine	X		X
Hydrobromic acid, see Hydrogen bromide	X		
Hydrochloric acid, see Hydrogen chloride	X		
Hydrocyanic acid (see Cyanide compounds)	X		
Hydrofluoric acid, see Hydrogen Fluoride	X		
Hydrogen bromide	X		
Hydrogen chloride; Muriatic acid; Hydrochloric acid	X		X
Hydrogen cyanide	X		
Hydrogen fluoride; Hydrofluoric acid			X
Hydrogen sulfide	X		
Hydroquinone; 1,4-benezendiol	X		X
Indeno[1,2,3-cd]pyrene [PAH, POM]	X		
Inorganic Arsenic		X	
Inorganic lead, see Lead compounds (inorganic)	X		
Inorganic lead		X	
Iron pentacarbonyl	X		
Isocyanates including but not limited to: Hexamethylene-1,6-diisocyanate Methylene diphenyl diisocyanate [POM]; MDI Methyl isocyanate Toluene-2,4-diisocyanate (see Toluene diisocyanates) Toluene-2,6-diisocyanate (see Toluene diisocyanates)	X		
Isophorone	X		
Isophorone; 3,5,5-trimethyl-2-cyclohexen-1-one			X
Isoprene, except from vegetative emission sources	X		
Isopropanol, see Isopropyl alcohol	X		
Isopropyl alcohol; isopropanol	X		
4,4'-Isopropylidenediphenol	X		
Lead	X		
Lead compounds (inorganic) including but not limited to: Lead acetate Lead chromate (see Chromium, hexavalent) Lead phosphate Lead subacetate	X		
Lead compounds (other than inorganic)	X		
Lead compounds			X
Lindane (mixed or technical grade); gamma-Hexachlorocyclohexane, see Hexachlorocyclohexanes	X		
Lindane (all isomers)			X
Maleic anhydride; cis-butenedioic anhydride	X		X
Manganese	X		
Manganese compounds	X		X
Mercury	X		
Mercury compounds			X
Mercury compounds including but not limited to: Mercuric chloride Methyl mercury; Dimethylmercury	X		
Methanol, see Methyl alcohol	X		X

COMPOUND	IN AB 2588	IN §93000	IN §93001
Methoxychlor [POM]	X		
Methoxychlor; 1,1,1-trichloro-2-2-bis(p-methoxyphenyl)ethane			X
Methyl alcohol; methanol	X		X
2-Methylaziridine; 2-Methyl aziridine; 1,2-Propyleneimine	X		
Methyl bromide; Bromomethane	X		X
Methyl chloride; Chloromethane	X		X
Methyl chloroform; 1,1,1 trichloroethane	X		X
3-Methylcholanthrene [PAH-Derivative, POM]	X		
5-Methylchrysene [PAH-Derivative, POM]	X		
4,4'-Methylene bis(2-chloroaniline) [POM]; MOCA	X		X
Methylene chloride; dichloromethane	X	X	X
4,4'-Methylenedianiline (and its dichloride) [POM]	X		
4,4'-Methylenedianiline; MDA; 4,4'-Methylene dianiline			X
Methylene diphenyl diisocyanate; MDI	X		X
Methyl ethyl ketone; MEK; 2-butanone; ethyl methyl ketone	X		X
Methyl hydrazine	X		X
Methyl iodide; Iodomethane	X		X
Methyl isobutyl ketone; Hexone; MIBK	X		X
Methyl isocyanate	X		X
2-Methyllactonitrile; Acetone cyanohydrin	X		
Methyl methacrylate; methyl 2 methyl 2 propenoate	X		X
2-Methylpyridine	X		
Methyl tert-butyl ether; MTBE; Methyl t-butyl ether	X		X
Michler's ketone [POM]	X		
Mineral fibers (fine, manmade)	X		
Mineral fibers (fine, manmade) (fine mineral fibers which are manmade and are airborne particles of a respirable size greater than 5 microns in length, less than or equal to 3.5 microns in diameter, with a length to diameter ratio of 3:1) including but not limited to: Ceramic fibers Glasswool fibers Rockwool fibers Slagwool fibers.	X		
Mineral fibers (other than manmade) including but not limited to: Asbestos Erionite Talc containing asbestiform fibers	X		
Molybdenum trioxide	X		
Naphthalene [PAH, POM]	X		X
Nickel	X		
Nickel (metallic nickel and inorganic nickel compounds)		X	
Nickel carbonyl; NI (CO)4	X		
Nickel compounds			X
Nickel compounds including but not limited to: Nickel acetate Nickel carbonate Nickel carbonyl Nickel hydroxide Nickelocene Nickel oxide Nickel subsulfide	X		
Nickel oxide	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
Nickel refinery dust from the pyrometallurgical process	X		
Nitric acid	X		
Nitrilotriacetic acid	X		
Nitrobenzene	X		X
4-Nitrobiphenyl [POM]	X		X
6-Nitrochrysene [PAH-Derivative, POM]	X		
2-Nitrofluorene [PAH-Derivative, POM]	X		
Nitrogen mustard N-oxide	X		
4-Nitrophenol	X		X
2-Nitropropane	X		X
1-Nitropyrene [PAH-Derivative, POM]	X		
N-Nitrosodi-n-butylamine, see Dialkylnitrosamines	X		
N-Nitrosodi-n-propylamine, see Dialkylnitrosamines	X		
N-Nitrosodiethylamine	X		
N-Nitroso-n-methylurea			X
N-Nitrosodimethylamine			X
N-Nitrosodimethylamine, see Dialkylnitrosamines	X		
p-Nitrosodiphenylamine [POM]	X		
N-Nitroso-N-methylurea	X		
N-Nitrosomorpholine	X		X
N-Nitrosopiperidine	X		
N-Nitrosopyrrolidine	X		
1,2,3,4,6,7,8,9-Octachlorodibenzofuran [POM] see Polychlorinated dibenzofurans	X		
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin [POM] see Polychlorinated dibenzo-p-dioxins	X		
Oleum, see Sulfuric acid and oleum	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
PAHs (Polycyclic aromatic hydrocarbons) [POM] including but not limited to: PAHs, total, w/o individ. components reported [PAH, POM] PAHs, total, with individ. components also reported [PAH, POM] Acenaphthene [PAH, POM] Acenaphthylene [PAH, POM] Anthracene [PAH, POM] Benz[a]anthracene [PAH, POM] Benzo[a]pyrene [PAH, POM] Benzo[b]fluoranthene [PAH, POM] Benzo[e]pyrene [PAH, POM] Benzo[g,h,i]perylene [PAH, POM] Benzo[j]fluoranthene [PAH, POM] Benzo[k]fluoranthene [PAH, POM] Chrysene [PAH, POM] Dibenz[a,h]anthracene [PAH, POM] Dibenzo[a,e]pyrene [PAH, POM] Dibenzo[a,h]pyrene [PAH, POM] Dibenzo[a,i]pyrene [PAH, POM] Dibenzo[a,l]pyrene [PAH, POM] Fluoranthene [PAH, POM] Fluorene [PAH, POM] Indeno[1,2,3-cd]pyrene [PAH, POM] 2-Methyl naphthalene [PAH, POM] Naphthalene [PAH, POM] Perylene [PAH, POM] Phenanthrene [PAH, POM] Pyrene [PAH, POM]	X		
PAH-Derivatives (Polycyclic aromatic hydrocarbon derivatives) [POM] including but not limited to those substances listed in appendix A with the bracketed designation [PAH-Derivative, POM])	X		
Parathion; o,o-diethyl o-(p-nitrophenyl) phosphorothioate	X		X
Particulate Emissions from Diesel-Fueled Engines	X	X	
1,2,3,7,8-Pentachlorodibenzofuran see Polychlorinated dibenzofurans	X		
2,3,4,7,8-Pentachlorodibenzofuran see Polychlorinated dibenzofurans	X		
1,2,3,7,8-Pentachlorodibenzo-p-dioxin see Polychlorinated dibenzo-p-dioxins	X		
Pentachloronitrobenzene; Quintobenzene	X		X
Pentachlorophenol; PCP			X
Peracetic acid	X		
Perchloroethylene; Tetrachloroethylene; Tetrachloroethene	X	X	X
Phenol	X		X
p-Phenylenediamine			X
p-Phenylenediamine	X		
2-Phenylphenol [POM]	X		
Phosgene; carbonyl chloride, COCl2	X		X
Phosphine; PH3			X
Phosphorus	X		X

COMPOUND	IN AB 2588	IN §93000	IN §93001
Phosphorus compounds: Phosphine Phosphoric acid Phosphorus oxychloride Phosphorus pentachloride Phosphorus pentoxide Phosphorus trichloride Tributyl phosphate Triethyl phosphine Trimethyl phosphate Triorthocresyl phosphate [POM] Triphenyl phosphate [POM] Triphenyl phosphite [POM]	X		
Phthalic anhydride	X		X
Polychlorinated biphenyls (Aroclors)			X
Polychlorinated biphenyls (PCBs) [POM] including but not limited to: 3,3',4,4'-Tetrachlorobiphenyl (PCB 77) 3,4,4',5-Tetrachlorobiphenyl (PCB 81) 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105) 2,3,4,4',5-Pentachlorobiphenyl (PCB 114) 2,3',4,4',5-Pentachlorobiphenyl (PCB 118) 2,3',4,4',5'-Pentachlorobiphenyl (PCB 123) 3,3',4,4',5-Pentachlorobiphenyl (PCB 126) 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156) 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157) 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167) 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169) 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	X		
Polychlorinated dibenzo-p-dioxins; PCDDs or Dioxins [POM] including but not limited to: Dioxins, total, w/o individ. isomers reported; PCDDs [POM] Dioxins, total, with individ. isomers also reported; PCDDs [POM] 2,3,7,8-Tetrachlorodibenzo-p-dioxin; TCDD [POM] 1,2,3,7,8-Pentachlorodibenzo-p-dioxin [POM] 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin [POM] 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin [POM] 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin [POM] 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin [POM] 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin [POM] Total Tetrachlorodibenzo-p-dioxin [POM] Total Pentachlorodibenzo-p-dioxin [POM] Total Hexachlorodibenzo-p-dioxin [POM] Total Heptachlorodibenzo-p-dioxin [POM]	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
Polychlorinated dibenzofurans; PCDFs or Dibenzofurans [POM] including but not limited to: Dibenzofurans (Polychlorinated dibenzofurans); PCDFs [POM] 2,3,7,8-Tetrachlorodibenzofuran [POM] 1,2,3,7,8-Pentachlorodibenzofuran [POM] 2,3,4,7,8-Pentachlorodibenzofuran [POM] 1,2,3,4,7,8-Hexachlorodibenzofuran [POM] 1,2,3,6,7,8-Hexachlorodibenzofuran [POM] 1,2,3,7,8,9-Hexachlorodibenzofuran [POM] 2,3,4,6,7,8-Hexachlorodibenzofuran [POM] 1,2,3,4,6,7,8-Heptachlorodibenzofuran [POM] 1,2,3,4,7,8,9-Heptachlorodibenzofuran [POM] 1,2,3,4,6,7,8,9-Octachlorodibenzofuran [POM] Total Tetrachlorodibenzofuran [POM] Total Pentachlorodibenzofuran [POM] Total Hexachlorodibenzofuran [POM] Total Heptachlorodibenzofuran [POM]	X		
Polycyclic Organic Matter			X
POM; Polycyclic organic matter, including but not limited to those substances listed in Appendix A with the bracketed designation of [POM], [PAH, POM], or [PAH-Derivative, POM])	X		
Potassium bromate	X		
1,3-Propane sultone	X		X
beta-Propiolactone	X		X
Propionaldehyde	X		X
Propoxur; 2-isopropoxyphenyl N-methyl carbamate; Baygon	X		X
Propylene	X		
Propylene dichloride; 1,2-dichloropropane	X		X
Propylene oxide; 1,2-epoxy-propane	X		X
1,2-Propyleneimine; 2-Methyl aziridine; 2-Methylaziridine	X		X
Pyridine	X		
Quinoline	X		X
Quinone	X		X
Radionuclides (including radon)			X
Radionuclides including but not limited to: Iodine-131 Radon and its decay products	X		
Reserpine [POM]	X		
Residual (heavy) fuel oils	X		
Selenium	X		
Selenium compounds including but not limited to: Hydrogen selenide Selenium sulfide	X		
Selenium compounds, as Se			X
Silica, crystalline	X		
Silver	X		
Silver compounds	X		
Sodium hydroxide, caustic soda	X		
Styrene	X		X
Styrene oxide	X		X
Sulfuric acid and oleum	X		
Sulfuric acid	X		
Terephthalic acid	X		

COMPOUND	IN AB 2588	IN §93000	IN §93001
2,3,7,8-Tetrachlorodibenzofuran see Polychlorinated dibenzofurans	X		
2,3,7,8-Tetrachlorodibenzo-p-dioxin see Polychlorinated dibenzo-p-dioxins	X		X
1,1,2,2-Tetrachloroethane; acetylene tetrachloride	X		X
Tetrachloroethylene, see Perchloroethylene		X	X
Thallium	X		
Thallium compounds	X		
Thioacetamide	X		
Thiourea	X		
Titanium tetrachloride	X		X
Toluene; toluol	X		X
Toluene-2,4-diisocyanate; TDI; 2,4-Toluene diisocyanate	X		X
Toluene-2,6-diisocyanate	X		
2,4-Toluenediamine; 2,4-Toluene diamine; see 2,4-Diaminotoluene and Diaminotoluene	X		X
2,4-Toluenediamine, see Diaminotoluene	X		
Toluene diisocyanates including but not limited to: Toluene-2,4-diisocyanate Toluene-2,6-diisocyanate	X		
o-Toluidine; o-methylaniline	X		X
Toxaphene; Polychlorinated camphenes	X		
Toxaphene; Chlorinated camphene			X
Tributyl phosphate	X		
1,2,4-Trichlorobenzene			X
1,1,1-Trichloroethane, see Methyl chloroform	X		X
1,1,2-Trichloroethane; vinyl trichloride	X		X
Trichloroethylene; trichloroethene	X	X	X
Trichlorofluoromethane; Fluorocarbon 11	X		
2,4,5-Trichlorophenol	X		X
2,4,6-Trichlorophenol (see Chlorophenols)	X		X
1,2,3-Trichloropropane	X		
Triethylamine	X		X
Triethylene glycol dimethyl ether; Triglyme	X		
Trifluralin	X		X
1,2,4-Trimethylbenzene	X		
Trimethylbenzenes including but not limited to: 1,2,4-Trimethylbenzene	X		
2,2,4-Trimethylpentane	X		X
Triorthocresyl phosphate [POM]	X		
Triphenyl phosphate [POM], TPP	X		
Urethane; Ethyl carbamate	X		
Vanadium (fume or dust)	X		
Vanadium Pentoxide	X		
Vinyl acetate	X		X
Vinyl bromide; bromoethylene	X		X
Vinyl chloride; Chloroethene	X	X	X
4-Vinylcyclohexene	X		
Vinyl fluoride	X		
Vinylidene chloride; 1,1-dichloroethylene	X		X
Wood preservatives (containing arsenic and chromate)	X		
Xylenes (isomers and mixture)			X

COMPOUND	IN AB 2588	IN §93000	IN §93001
Xylenes (mixed xylenes) including: m-Xylene o-Xylene p-Xylene	X		
m-Xylenes			X
o-Xylenes			X
p-Xylenes			X
Zinc	X		
Zinc compounds including but not limited to: Zinc oxide	X		

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Appendix N
Santa Barbara County
Solvent Information Table[a]

ITEM	CHEMICAL OR PRODUCT (vapor pressure for select chemicals and products)	MOLECULAR FORMULA OR CHEMICAL FAMILY	ROC	ROC Content, grams per liter (lbs/gal)	SUBJECT TO 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	TAC[b]	IBP[c] (°F)	HIGH OR LOW VOLATILITY SOLVENT[d]
1	acetic acid (11.3 mm of Hg @ 20º C)	$C_2H_4O_2$	Y	1,048 (8.75)	N	64-19-7		N	244	H
2	acetone	C_3H_6O	N	0 (0)	N	67-64-1		N	132	H
3	acetonitrile	C_2H_3N	Y	785 (6.56)	N	75-05-8	MeCN	Y	179	H
4	AsahiKlin AK- 225R	$C_3HCl_2F_5$ & $C_3HCl_2F_5$ [HCFC-225ca] & HCFC-225cb]	N[e]	0 (0)	N	422-56-0 39.6-49.5% & 507-55-1 49.5-59.4%	AK-225	N	129	H

[a] The Santa Barbara County Air Pollution Control District (District) solvent information table is provided for informational purposes only and in no way endorses any of the products. Data shown in the table may have changed due to product reformulation. Interested parties should check with the product manufacturers and/or suppliers for the most current data. The South Coast Air Quality Management District (SCAQMD) maintains a list of certified Clean Air Solvent (CAS) Products and Companies (http://www.aqmd.gov/rules/cas/prolist.html). Other companies may also market zero- or low-ROC solvents that may not be listed on the SCAQMD website.

[b] A "Y" (yes) indication means the chemical or product is a toxic air contaminant (TAC), as determined by the State Board per Health and Safety Code sections 39655 and 39657. Any pollutants added to 1) the California Code of Regulations, Title 17, Sections 93000 and 93001, or 2) the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* are also considered to be a toxic air contaminant by the District.

[c] IBP stands for "initial boiling point."

[d] For solvent cleaning machine requirements, a "high volatility solvent" is any solvent with an IBP temperature:

1. ≤ 248 ºF or
2. > 248 ºF, but the in-use temperature is not ≤ 212 ºF below the IBP temperature.

Likewise, a "low volatility solvent" is any solvent with an IBP temperature > 248 ºF and that has an in-use temperature that is ≤ 212 ºF below the IBP temperature.

[e] This product is made up of materials listed in the proposed amended Rule (PAR) 102 definition of reactive organic compound as exempt compounds (non-ROC). Thus for the purpose of Rule 321, it will be treated as an exempt solvent (i.e., containing no ROCs). Per PAR 202.D.10.l, use of more than 1 gallon per year per stationary source requires an Authority to Construct and Permit to Operate. Some Asahi Glass Company AsahiKlin AK-225 solvents contain ROCs (e.g., AsahiKlin AK-225AES, AsahiKlin AK-225ATE).

ITEM	CHEMICAL OR PRODUCT (vapor pressure for select chemicals and products)	MOLECULAR FORMULA OR CHEMICAL FAMILY	ROC	ROC Content, grams per liter (lbs/gal)	SUBJECT TO 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	TAC[b]	IBP[c] (°F)	HIGH OR LOW VOLATILITY SOLVENT[d]
5	benzene	C_6H_6	Y	878 (7.33)	N	71-43-2		Y	176	H
6	benzonitrile	C_6H_5CN	Y	999 (8.34)	N	100-47-0		N	370	L (if not heated)
7	2-butoxyethanol	$C_6H_{14}O_2$	Y	899 (7.51)	N	111-76-2	BuOX, BG	N	340	L (if not heated)
8	n-butyl acetate, butyl ethanoate	$C_6H_{12}O_2$	Y	879 (7.34)	N	123-86-4		N	259	H
9	tert-butyl acetate (40 mm of Hg @ 25° C)	$C_6H_{12}O_2$	Y & N[f]	0 (0)	N	540-88-5	tBAc	Y	208	H
10	n-butyl alcohol, 1-butanol, n-butanol	$C_4H_{10}O$	Y	809 (6.76)	N	71-36-3		Y	244	H
11	tert-butyl alcohol	$C_4H_{10}O$	Y	785 (6.56)	N	75-65-0		Y	180	H
12	carbon tetrachloride	CCl_4	Y	1,583 (13.21)	Y	56-23-5	CT	Y	170	H
13	chlorobenzene	C_6H_5Cl	Y	1,109 (9.26)	N	108-90-7		Y	268	H
14	1-chlorobutane	C_4H_9Cl	Y	879 (7.34)	N	109-69-3		N	174	H
15	chloroform, trichloromethane	$CHCl_3$	Y	1,479 (12.34)	Y	67-66-3		Y	142	H
16	cyclohexane	C_6H_{12}	Y	778 (6.50)	N	110-82-7		Y	177	H
17	cyclohexanone	$C_6H_{10}O$	Y	947 (7.90)	N	108-94-1		N	312	H
18	decamethylcyclopentasiloxane	$C_{10}H_{30}O_5Si_5$	N	0 (0)	N	541-02-6	DMCPS, D-5	N	410	L (if not heated)
19	1,2-dichlorobenzene, ortho-dichlorobenzene	$C_6H_4Cl_2$	Y	1,299 (10.84)	N	95-50-1		Y	177	H
20	1,1-dichloroethylene, vinylidene chloride	$C_2H_2Cl_2$	Y	1,217 (10.16)	N	75-35-4	1,1-dce	Y	89	H
21	1,2-dichloroethylene, ethylene dichloride	$C_2H_4Cl_2$	Y	1,252 (10.45)	N	107-06-2	EDC	Y	182	H

[f] Consistent with 40CFR 51.100, tert-butyl acetate shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds. Under proposed amended Rule 202, Section D.10.l.2, use of more than 1 gallon per year per stationary source of this compound requires an Authority to Construct and Permit to Operate. Santa Barbara County APCD

ITEM	CHEMICAL OR PRODUCT (vapor pressure for select chemicals and products)	MOLECULAR FORMULA OR CHEMICAL FAMILY	ROC	ROC Content, grams per liter (lbs/gal)	SUBJECT TO 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	TAC[b]	IBP[c] (°F)	HIGH OR LOW VOLATILITY SOLVENT[d]
22	1,1-dichloro-1-fluoroethane	$C_2H_3Cl_2F$	N	0 (0)	N	1717-00-6	HCFC-141b	N	90	H
23	3,3-dichloro-1,1,1,2,2-pentafluoropropane	$C_3HCl_2F_5$	N[g]	0 (0)	N	422-56-0	HCFC-225ca	N	Unavailable	Unavailable
24	1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	$C_3HCl_2F_5$	N[g]	0 (0)	N	507-55-1	HCFC-225cb	N	Unavailable	Unavailable
25	diethyl ether, ethyl ether	$C_4H_{10}O$	Y	713 (5.95)	N	60-29-7		N	94	H
26	diethylene glycol	$C_4H_{10}O_3$	Y	1,117 (9.32)	N	111-46-6		Y	473	L (if not heated)
27	diethylene glycol dimethyl ether, diglyme	$C_6H_{14}O_3$	Y	944 (7.88)	N	111-96-6		Y	324	L (if not heated)
28	dimethoxyethane, glyme, ethylene glycol dimethyl ether, dimethyl cellosolve	$C_4H_{10}O_2$	Y	867 (7.24)	N	110-71-4	DME	Y	185	H
29	dimethyl carbonate	$C_3H_6O_3$	N	0 (0.00)	N	616-38-6	DMC	N	194	H
30	n,n-dimethyl-formamide, dimethyl formamide	C_3H_7NO	Y	943 (7.87)	N	68-12-2	DMF	Y	307	H or L[h]
31	dimethyl sulfoxide	C_2H_6OS	Y	1,091 (9.11)	N	67-68-5	DMSO	N	372	L (if not heated)
32	n,n-dimethylacetamide, dimethylacetamide	C_4H_9NO	Y	939 (7.84)	N	127-19-5	DMac, DMA	N	327	L (if not heated)
33	1,4 dioxane	$C_4H_8O_2$	Y	1,032 (8.62)	N	123-91-1		Y	214	H
34	ethanol, ethyl alcohol	C_2H_6O	Y	788 (6.58)	N	64-17-5		N	173	H
35	ethyl acetate	$C_4H_8O_2$	Y	893 (7.46)	N	141-78-6		N	171	H
36	ethylene glycol (0.06 mm Hg @ 20°C)	$C_2H_6O_2$	Y	789 (6.59)	N	107-21-1		Y	383	L (if not heated)
37	formic acid	CH_2O_2	Y	1,209 (10.09)		64-18-6		N	212	H

[g] Consistent with 40CFR 51.100, this compound is not considered to be a reactive organic compound. However, under PAR 202, Section D.10.l, use of more than 1 gallon per year per stationary source of this compound requires an Authority to Construct and Permit to Operate.
[h] The solvent may be a high or a low volatility solvent depending on the solvent's in-use temperature.

ITEM	CHEMICAL OR PRODUCT (vapor pressure for select chemicals and products)	MOLECULAR FORMULA OR CHEMICAL FAMILY	ROC	ROC Content, grams per liter (lbs/gal)	SUBJECT TO 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	TAC[b]	IBP[c] (°F)	HIGH OR LOW VOLATILITY SOLVENT[d]
38	glycerin	$C_3H_8O_3$	Y	1,260 (10.52)	N	56-81-5		N	554	L (if not heated)
39	heptane	C_7H_{16}	Y	684 (5.70)	N	142-82-5		N	209	H
40	hexane	C_6H_{14}	Y	660 (5.50)	N	110-54-3	HEX	Y	156	H
41	isobutanol, isobutyl alcohol, 2-methylpropyl alcohol	$C_4H_{10}O$	Y	801 (6.69)	N	78-83-1		N	226	H
42	isoparaffinic hydrocarbons, Isopar G	Hydroheated heavy naphtha (petroleum)	Y	749 (6.25)	N	64742-48-9		N	333	L (if not heated)
43	isopropyl alcohol, isopropanol, 2-propanol	C_3H_8O or C_3H_7OH	Y	785 (6.55)	N	67-63-0	IPA	Y	180	H
44	isopropyl alcohol 70%	70% C_3H_8O or C_3H_7OH and 30% H_2O mixture	Y	549 (4.58)	N	67-63-0	IPA 70%	Y	180	H
45	kerosene	Aliphatic petroleum hydrocarbons	Y	799 (6.67)	N	8008-20-6		N	347	L (if not heated)
46	d-limonene	$C_{10}H_{16}$	Y	839 (7.01)	N	5989-27-5		N	352	L (if not heated)
47	methanol, methyl alcohol	CH_4O	Y	799 (6.67)	N	67-56-1		Y	148	H
48	1-methoxy-2-acetoxypropane; propylene glycol monomethyl ether acetate; PGMEA (3.7 mm of Hg @ 20° C)	$C_6H_{12}O_3$	Y	969 (8.09)	N	108-65-6	PGMEA	Y	295	H
49	2-methoxyethanol, ethylene glycol monomethyl ether, methyl cellosolve	$C_3H_8O_2$	Y	964 (8.05)	N	109-86-4	EGME	Y	255	H
50	methyl acetate	$C_3H_6O_2$	N	0 (0)	N	79-20-9		N	134	H
51	methyl t-butyl ether, tert-butyl methyl ether	$C_5H_{12}O$	Y	741 (6.18)	N	1634-04-4	MTBE	Y	131	H

ITEM	CHEMICAL OR PRODUCT (vapor pressure for select chemicals and products)	MOLECULAR FORMULA OR CHEMICAL FAMILY	ROC	ROC Content, grams per liter (lbs/gal)	SUBJECT TO 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	TAC[b]	IBP[c] (°F)	HIGH OR LOW VOLATILITY SOLVENT[d]
52	methyl ethyl ketone, 2-butanone	C_4H_8O	Y	809 (6.76)	N	78-93-3	MEK	Y	176	H
53	methyl formate; formic acid methyl ester, methyl methanoate (476 mm of Hg at 20° C)	$HCOOCH_3$	N[i]	0 (0)	N	107-31-3		N	90	H
54	methyl isobutyl ketone	$C_6H_{12}O$	Y	799 (6.67)	N	108-10-1	MIBK	Y	243	H
55	methyl nonafluoroisobutyl ether and methyl nonafluorobutyl ether (mix)	$(CF_3)_2CFCF_2OCH_3$ & $C_4F_9OCH_3$	N[i]	0	0	163702-08-7 & 163702-07-6	HFE-7100 (2 Isomers)	N	142	H
56	n-methyl-2-pyrrolidone (NMP), n-methylpyrrolidone (<1 mm of Hg @ 20° C)	C_5H_9NO	Y	1,027 (8.57)	N	872-50-4	NMP	N	396	L (if not heated)
57	methylene chloride, dichloromethane	CH_2Cl_2	N	0 (0)	Y	75-09-2	METH or DCM	Y	102	H
58	mineral spirits 66/3 (< 1 mm of Hg @ 20º C)	C9-C13 Alkanes and Cycloalkanes	Y	779 (6.51)	N	64742-47-8		N	318	L (if not heated)
59	naphtha: solvent, medium aliphatic solvent naphtha (petroleum) (< 5 mm of Hg @ 20º C)[j]	Mixture of n- and iso-paraffins, aromatic hydrocarbons, and naphthenes	Y	784 (6.55)	N	64742-88-7		N	266	H
60	nitromethane	CH_3NO_2	Y	1,137 (9.49)	N	75-52-5		N	212	H
61	parachlorobenzotrifluoride	$C_7H_4ClF_3$	N	0 (0)	N	98-56-6	PCBTF	N	282	H
62	pentane	C_5H_{12}	Y	626 (5.22)	N	109-66-0		N	97	H
63	perchloroethylene, tetrachloroethylene	C_2Cl_4	N	0 (0)	Y	127-18-4	PERC or PERCH	Y	250	H
64	1-propanol, n-propanol, m-propyl alcohol	C_3H_8O	Y	802 (6.70)	N	71-23-8		N	207	H

[i] Consistent with 40CFR 51.100, this compound is not considered to be a reactive organic compound. However, under PAR 202, Section D.10.l, use of more than 1 gallon per year per stationary source of this compound requires an Authority to Construct and Permit to Operate.
[j] This solvent could be confused with VM&P Naphtha – CAS 8032-32-4.

ITEM	CHEMICAL OR PRODUCT (vapor pressure for select chemicals and products)	MOLECULAR FORMULA OR CHEMICAL FAMILY	ROC	ROC Content, grams per liter (lbs/gal)	SUBJECT TO 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	TAC[b]	IBP[c] (°F)	HIGH OR LOW VOLATILITY SOLVENT[d]
65	n-propyl bromide; 1-bromopropane; 1-propyl bromide (112mm of Hg at 20° C)	C_3H_7Br	Y	1,352 (11.28)	N	106-94-5	nPB	N	160	H
66	propylene carbonate	$C_4H_6O_3$	N	1,204 (10.05)	N	108-32-7		N	464	L (if not heated)
67	pyridine	C_5H_5N	Y	981 (8.19)	N	110-86-1		N	239	H
68	Safety Kleen 105 (0.4 mm of Hg at 20° C)	99 to 100 percent distillates (petroleum), hydrotreated light	Y	784 (6.55)	N	64742-47-8 (~99%) & 127-18-4		Un-known	310	H or L[k]
69	Stoddard solvent	>65% C10 or higher hydrocarbons	Y	789 (6.59)	N	8052-41-3		Un-known	313	H or L[l]
70	styrene, styrene monomer, vinyl benzene	C_8H_8	Y	909 (7.60)	N	100-42-5		Y	293	H or L[l]
71	tetrahydrofuran	C_4H_8O	Y	885 (7.39)	N	109-99-9	THF	N	151	H
72	toluene (21.86 mm of Hg @ 20° C)	C_7H_8	Y	866 (7.23)	N	108-88-3		Y	231	H
73	1,1,2-trichloro-1,2,2-trifluoroethane	$CCl_2F\text{-}CClF_2$	N	0 (0)	N	76-13-1	CFC-113	Y	117	H
74	1,1,1-trichloroethane; methyl chloroform	CH_3CCl_3	N	0 (0)	Y	71-55-6	TCA	Y	165	H
75	trichloroethylene; 1,1,2-trichloroethene; 1,2,2-trichloroethylene	C_2HCl_3	Y	1,459 (12.18)	Y	79-01-6	TCE	Y	189	H
76	trichlorofluoromethane	CCl_3F	N	0 (0)	N	75-69-4	CFC-11	Y	75	H
77	turpentine	$C_{10}H_{16}$ (approximate formula); turpentine has a minimum alpha-pinene content of 40 percent by weight	Y	859 (7.17)	N	8006-64-2		Un-known	302	H or L[l]

[k] The solvent may be a high or a low volatility solvent depending on the solvent's in-use temperature.

ITEM	CHEMICAL OR PRODUCT (vapor pressure for select chemicals and products)	MOLECULAR FORMULA OR CHEMICAL FAMILY	ROC	ROC Content, grams per liter (lbs/gal)	SUBJECT TO 40CFR, PART 63, SUBPART T	CAS No.	ABBREVIATED OR POLLUTANT CODE	TAC[b]	IBP[c] (°F)	HIGH OR LOW VOLATILITY SOLVENT[d]
78	VM&P naphtha, petroleum ether, petroleum naphtha (14 mm of Hg @ 20° C)[l]	Aliphatic petroleum hydrocarbons (may also contain aliphatic petroleum distillate (CAS 64742-89-8))	Y	758 (6.32)	N	8032-32-4		Un-known	244	H
79	X-Caliber {< 65% n-methyl-2-pyrrolidone [NMP] and ≥ 35% d-limonene}	Mixture of C_5H_9NO and $C_{10}H_{16}$	Y	919 (7.67)	N	872-50-4 and 5989-27-5		N	370	L (if not heated)
80	*m*-xylene	C_8H_{10}	Y	867 (7.24)	N	108-38-3		Y	282	H or L[m]
81	*o*-xylene	C_8H_{10}	Y	896 (7.48)	N	95-47-6		Y	291	H or L[m]
82	*p*-xylene	C_8H_{10}	Y	860 (7.18)	N	106-42-3		Y	281	H or L[m]
83	xylenes	C_8H_{10} ($C_6H_4C_2H_6$)	Y	863 (7.21)	N	1330-20-7	XYLS	Y	281	H or L[m]

Click here to return to the list of Appendices in the Background Paper.

[l] This solvent could be confused with naphtha: solvent - CAS 64742-88-7.
[m] The solvent may be a high or a low volatility solvent depending on the solvent's in-use temperature.

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Appendix O
Santa Barbara County
Proposed Amended Rules without Strikeout and Underlined Formatting

RULE 102. DEFINITIONS. (Adopted 10/18/1971, revised 1/12/1976, readopted 10/23/1978, revised 7/11/1989, 7/10/1990, 7/30/1991, 7/18/1996, 4/17/1997, 1/21/1999, 5/20/1999, 6/19/2003, 1/20/2005, 6/19/2008, ~~and~~ 1/15/2009), and [*date of revised rule adoption*])

These definitions apply to the entire rulebook. Definitions specific to a given rule are defined in that rule or in the first rule of the relevant regulation. Except as otherwise specifically provided in these Rules where the context otherwise indicates, words used in these Rules are used in exactly the same sense as the same words are used in Division 26 of the Health and Safety Code.

[. . .]

"Application Equipment" means a device or equipment used to apply solvent, sealant, adhesive, coating, ink, or polyester resin materials.

[. . .]

"Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.

[. . .]

"Cured Adhesive, Cured Coating, or Cured Ink" means an adhesive, coating, or ink that is dry to the touch.
[. . .]

"Degreaser" has the same meaning as **"Solvent Cleaning Machine."**

[. . .]

"Flexographic Printing" means any printing method in which the image area is raised relative to the non-image area and utilizes flexible rubber or other elastomeric plate and rapid drying liquid inks.

[. . .]

"Janitorial Cleaning" means the cleaning of building or facility components including, but not limited to, floors, ceilings, walls, windows, doors, stairs, bathrooms, furnishings, and exterior surfaces of office equipment; excluding the cleaning of work areas associated with:

1. research and development, manufacturing, and repair activities; and

2. laboratory tests and analyses (including quality assurance and quality control activities) and bench scale projects.

[. . .]

"Organic Solvents" means organic materials, including diluents and thinners which are liquid at standard conditions and which are used as, dissolvers, viscosity reducers or cleaning agents, except that such materials which exhibit a boiling point, as measured using ASTM D 1078-05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International, higher than 220°F at 0.5 millimeter mercury absolute pressure or having an equivalent vapor pressure shall not be considered to be organic solvents unless exposed to temperatures exceeding 220°F.

[. . .]

"Photochemically Reactive Solvent" means any organic solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of organic solvent;

1. combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones, having an olefinic or cyclolefinic type of unsaturation: 5 percent, or
2. combination of aromatic compounds with 8 or more carbon atoms to the molecule, except ethylbenzene: 8 percent, or
3. combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the above groups of organic compounds, it shall be considered as a member of the most reactive chemical group, i.e., that group having the least allowable percent of the total volume of organic solvents.

[. . .]

"Reactive Organic Compound" means any compound containing at least one (1) atom of carbon, except for the following exempt compounds:

1. acetone
2. ammonium carbonate
3. carbon dioxide
4. carbon monoxide
5. carbonic acid
6. dimethyl carbonate
7. ethane
8. metallic carbides or carbonates
9. methane
10. methyl acetate
12. methyl chloroform (1,1,1-trichloroethane)
12. methyl formate; $HCOOCH_3$
13. cyclic, branched, or linear completely methylated siloxane compounds
14. methylene chloride
15. parachlorobenzotrifluoride
16. perchloroethylene (tetrachloroethylene)
17. the following four classes of perfluorocarbon (PFC) compounds:
    a. cyclic, branched, or linear, completely fluorinated alkanes,
    b. cyclic, branched, or linear, completely fluorinated ethers with no unsaturations,
    c. cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations, and
    d. sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.
18. propylene carbonate
19. tertiary-butyl acetate; $C_6H_{12}O_2$ (1,1-dimethylethyl ester)

    Tertiary-butyl acetate (also known as t-butyl acetate or tBAc) shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds.

20. CFC-11 (trichlorofluoromethane)
21. CFC-12 (dichlorodifluoromethane)

22. CFC-113 (1,1,2-trichloro-1,2,2-trifluoroethane)
23. CFC-114 (1,2-dichloro 1,1,2,2-tetrafluoroethane)
24. CFC-115 (chloropentafluoroethane)
25. HCFC-22 (chlorodifluoromethane)
26. HCFC-31 (chlorofluoromethane)
27. HCFC-123 (1,1,1-trifluoro 2,2-dichloroethane)
28. HCFC-123a (1,2-dichloro-1,1,2-trifluoroethane)
29. HCFC-124 (2-chloro-1,1,1,2-tetrafluoroethane)
30. HCFC-141b (1,1-dichloro 1-fluoroethane)
31. HCFC-142b (1-chloro-1,1 difluoroethane)
32. HCFC-151a (1-chloro-1-fluoroethane)
33. HCFC-225ca (3,3-dichloro-1,1,1,2,2-pentafluoropropane)
34. HCFC-225cb (1,3-dichloro-1,1,2,2,3-pentafluoropropane)
35. HFC-23 (trifluoromethane)
36. HFC-32 (difluoromethane)
37. HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane)
38. HFC-125 (pentafluoroethane)
39. HFC-134 (1,1,2,2-tetrafluoroethane)
40. HFC-134a (1,1,1,2-tetrafluoroethane)
41. HFC-143a (1,1,1-trifluoroethane)
42. HFC-152a (1,1-difluoroethane)
43. HFC-161 (ethylfluoride)
44. HFC-236ea (1,1,1,2,3,3-hexafluoropropane)
45. HFC-236fa (1,1,1,3,3,3-hexafluoropropane)
46. HFC-245ca (1,1,2,2,3-pentafluoropropane)
47. HFC-245ea (1,1,2,3,3-pentafluoropropane)
48. HFC-245eb (1,1,1,2,3-pentafluoropropane)
49. HFC-245fa (1,1,1,3,3-pentafluoropropane)
50. HFC-365mfc (1,1,1,3,3-pentafluorobutane)
51. HFE-7100; $(CF_3)_2CFCF_2OCH_3$; (2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane) or $C_4F_9OCH_3$; (1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane)
52. HFE-7200; $(CF_3)_2CFCF_2OC_2H_5$; (2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane) or $C_4F_9OC_2H_5$; (1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane)

Rule 202.D.10.l.1 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of any one of the following exempt compounds: dimethyl carbonate, methyl formate, HCFC-225ca, HCFC-225cb, HFC-43-10mee, HFC-245fa, HFC-365mfc, or HFE-7100 [$(CF_3)_2CFCF_2OCH_3$ or $C_4F_9OC_2H_5$]. Rule 202.D.10.l.2 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of tertiary-butyl acetate. The one gallon per year per stationary source limit is a per compound limit for each compound in aggregate for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

[. . .]

"Rotogravure Printing" means any printing process where the image area is etched or engraved relative to the surface of the image cylinder. Ink is transferred from minute etched wells on a plate cylinder to a substrate, which is supported by an impression roller, with excess ink removed by a doctor blade. The substrate is fed through the printing press in continuous rolls.

[. . .]

"Solvent" means "Organic Solvent."

"Solvent Cleaning" means any activity, operation, or process (including, but not limited to, surface preparation, cleanup, or wipe cleaning) performed outside of a solvent cleaning machine, that uses solvent to remove uncured adhesives, uncured coatings, uncured inks, uncured polyester resin material, uncured sealant, or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment, and general work areas. Cleaning spray equipment used for the application of coating, adhesive, ink, polyester resin material, or sealant is also considered to be solvent cleaning irrespective of the spray material being cured.

"Solvent Cleaning Machine" means any device or piece of equipment that uses solvent liquid or vapor to remove soils, moisture, or other contaminants from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch cold, batch vapor, in-line cold, in-line vapor, remote reservoir, and gas-path solvent cleaners, as defined in Rule 321. Buckets, pails, and beakers with capacities of 3.785 liters (1.00 gallon) or less are not considered solvent cleaning machines. However, the use of such a container or similar containers (e.g., hand-held spray bottles) with a liquid solvent for cleaning is considered to be solvent cleaning. Any device or piece of equipment used exclusively for stripping shall not be considered to be a solvent cleaning machine.

[. . .]

"Stripping" means the use of solvent to remove materials such as cured adhesives, cured inks, cured sealants, cured or dried paints, cured or dried paint residues, or temporary protective coatings.

"Surface Preparation" means the removal of contaminants such as dust, soil, oil, grease, moisture, etc., prior to application of an adhesive, coating, ink, polyester resin material, or sealant.

[. . .]

"Toxic Air Contaminant" means "Toxic air contaminant" as defined in Health and Safety Code Section 39655.

[. . .]

"Wipe Cleaning" means a solvent cleaning activity performed by hand rubbing an absorbent material such as a rag, paper, sponge, brush, or cotton swab containing solvent.

[. . .]

RULE 202. EXEMPTIONS TO RULE 201. (Adopted 10/18/1971, revised 5/1/1972 and 6/27/1977, readopted 10/23/1978, revised 12/7/1987, 1/11/1988, 1/17/1989, 7/10/1990, 7/30/1991, 11/05/1991, 3/10/1992, 5/10/1994, 6/28/1994, 4/17/1997, 3/17/2005, 1/17/2008, 6/19/2008, and [*date of revised rule adoption*])

[. . .]

D. General Provisions [. . .]

5. Temporary Equipment

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

7. Stationary Source Permit Exemption

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

10. Notwithstanding any exemption defined in this rule, no new or modified stationary source that has the potential to emit air contaminants in excess of the amounts specified shall be exempt from permit requirements:

[. . .]

k. 40 tons per year municipal waste combustor acid gases.

l. In addition, notwithstanding any exemption defined in this rule, no stationary source that has the potential to emit any air contaminants in excess of the amounts specified shall be exempt from permit requirements:

l. more than one gallon per year of any one of the exempt compounds listed below. The one gallon per year per stationary source limit is a per compound limit for each compound in aggregate for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

a) dimethyl carbonate; or
b) methyl formate; $HCOOCH_3$; or
c) HCFC-225ca (3,3-dichloro-1,1,1,2,2-pentafluoropropane); or
d) HCFC-225cb (1,3-dichloro-1,1,2,2,3-pentafluoropropane); or
e) HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane); or
f) HFC-245fa (1,1,1,3,3-pentafluoropropane); or
g) HFC-365mfc (1,1,1,3,3-pentafluorobutane); or
h) HFE-7100; $(CF_3)_2CFCF_2OCH_3$; (2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane); or
i) HFE-7100; $C_4F_9OCH_3$; (1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane); or

2. more than one gallon per year of tertiary-butyl acetate; $C_6H_{12}O_2$ (1,1-dimethylethyl ester). Tertiary-butyl acetate (also known as t-butyl acetate or tBAc) shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds. The one gallon per year per stationary source limit for tertiary-butyl acetate is an aggregate limit for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

[. . .]

E. Compliance with Rule Changes

[. . .]

If no application is filed within the ninety (90) day period, the application filing fee prescribed in Rule 210, Fees, shall be doubled and the equipment owner shall be subject to a Notice of Violation and to the penalty provisions set forth in California Health and Safety Code Sections 42400 et seq.

[. . .]

F. Internal Combustion Engines

[. . .]

5. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

8. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

I. Coatings Applications Equipment and Operations

The following listed coating applications equipment and operations are exempt from permit requirements. [. . .]

3. Equipment used in surface coating operations provided that the total amount of coatings and solvents used does not exceed 55 gallons per year. [. . .] Solvents meeting the criteria of Section U.2.b or Section U.2.c or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation. [. . .]

6. Unheated non-conveyorized coating dip tanks of 100 gallons or less capacity.

[. . .]

K. Food Processing and Preparation Equipment

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

P. Miscellaneous Equipment and Operations

[. . .]

14. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

U. Solvent Application Equipment and Operations

The following solvent cleaning, solvent cleaning machines and their operations are exempt from permit requirements. Notwithstanding the listed exemptions, any collection of articles, machines, equipment or other contrivances within each listed equipment category at a stationary source that has aggregate emissions in excess of 10 tons per calendar year of any affected pollutant is not exempt.

1. Unheated nonconveyorized solvent rinsing containers of 1.00 gallon or less capacity provided that solvent cleaning performed in association with such containers complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning.

2. Single solvent cleaning machines, which use unheated solvent, and which:

   a. have a liquid surface area (i.e., the area of the drain for remote reservoir cleaning machines or the solvent/air interface area for other solvent cleaning machines) of less than 929 square centimeters (1.0 square foot), unless the aggregate liquid surface area of all solvent cleaning machines at a stationary source, covered by this exemption is greater than 0.929 square meter (10 square feet), or

   b. use only solvents with an initial boiling point of 150 degrees Celsius (302 degrees Fahrenheit) or greater as determined by ASTM D-1078-05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International, or

   c. use solvents with a reactive organic compound content of two percent or less by weight as determined by Environmental Protection Agency Method 24.

   d. The liquid surface area of any solvent cleaning machine using the following solvent shall not be counted towards the 0.929 square meter (10 square feet) aggregate limit in subsection a. above:

      i. any solvent that has a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Method 24, or

      ii. any solvent exempt pursuant to subsection b. or subsection c. above.

3. Wipe cleaning operations, provided that the solvents used do not exceed 55 gallons per year per stationary source and that the solvent cleaning complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning.

   To qualify for this exemption, the owner or operator shall maintain records of the amount (gallons per year) of solvents used for wipe cleaning at the stationary source for each calendar year.

   These records shall be maintained on site for at least 3 years and be made available to the District on request. Thereafter, the records shall be maintained either on site or readily available for expeditious inspection and review for an additional 2 years. Solvents meeting the criteria of 2.b. or c. above or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation.

4. Notwithstanding the Section U.3 exemption above, solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dentistry facilities, and other health care facilities, including but not limited to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and bloodmobiles.

5. Notwithstanding the Section U.3 exemption above, solvent cleaning associated with janitorial cleaning, including graffiti removal.

[. . .]

RULE 321. SOLVENT CLEANING MACHINES AND SOLVENT CLEANING. (Adopted 2/24/1975, readopted 10/23/1978, revised 6/11/1979, 7/10/1990, 4/17/1997, 7/17/1997, 9/18/1997, and [*date of revised rule adoption*])

A. Applicability

This rule shall apply to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning operation outside of a solvent cleaning machine during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at any stationary source.

B. Exemptions

Except as otherwise specifically provided herein, the provisions of this rule shall not apply to the following:

1. Any solvent cleaning machine equipped with and any solvent cleaning performed with a solvent (including emulsions) that contains two percent by weight or less of each of the following:

    a. Reactive organic compounds (as determined by Environmental Protection Agency method 24), and

    b. Toxic air contaminants (as determined by generic solvent data, solvent manufacturer's composition data or by a gas chromatography test and a mass spectrometry test).

    c. Any person claiming this exemption shall maintain the records specified in Sections R.1.a.1) and R.1.a.2) in a manner consistent with Section R.3 and make them available for review.

2. The cleaning of architectural coating application equipment provided that the solvent used does not exceed 950 grams of reactive organic compound per liter of material.

3. Dry cleaning operations of clothing or other fabrics covered under Rule 320, Petroleum Solvent Dry Cleaners, or California Code of Regulations Title 17, Section 93109, Airborne Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning and Water-Repelling Operations.

4. Stripping of cured coatings, cured adhesives, cured sealants, and cured inks, except the stripping of such materials from spray application equipment.

5. Notwithstanding Section B.1, any solvent cleaning machine that uses any halogenated hazardous air pollutant solvent provided such a solvent cleaning machine is subject to 40 CFR, Part 63, Subpart T, National Emission Standards for Halogenated Solvent Cleaning (Sections 63.460 et. seq.).

6. Any equipment or operation that is subject to or specifically exempted by any of the following District rules.

    a. Rule 325, Crude Oil Production and Separation.

    b. Rule 326, Storage of Reactive Organic Compound Liquids.

    c. Rule 330, Surface Coating of Metal Parts and Products.

    d. Rule 337, Surface Coating of Aircraft or Aerospace Vehicle Parts and Products.

    e. Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.

    f. Rule 343, Petroleum Storage Tank Degassing.

g. Rule 344, Petroleum Sumps, Pits and Well Cellars.

h. Rule 349, Polyester Resin Operations.

i. Rule 351, Surface Coating of Wood Products.

j. Rule 353, Adhesives and Sealants.

k. Rule 354, Graphic Arts.

7. Janitorial cleaning, including graffiti removal.

8. Provisions of Sections H.7, I.7, K.6, and, M.1 shall not apply to the following:

a. Cleaning of solar cells, laser hardware, scientific instruments, high-precision optics, telescopes, microscopes, avionic equipment, and aerospace and military fluid systems; and

b. Cleaning in laboratory tests and analyses, including quality assurance and quality control applications, bench scale projects, or short-term (less than 2 years) research and development projects; and

c. Cleaning of cotton swabs to remove cottonseed oil before cleaning of high-precision optics.

d. In addition, the provisions of Sections H.7, I.7, and K.6 shall not apply to solvent cleaning machines employed with solvents having 900 grams of reactive organic compound per liter of material or less during the production, repair, maintenance, or servicing of electrical apparatus components, electronic components, satellites, satellite components, aerospace vehicles, aerospace vehicle components, aerospace vehicle payloads, aerospace vehicle payload components, medical devices, or silicone manufacturing.

9. Solvent cleaning with aerosol products shall not be subject to Section D.9 and Section M.1 provisions and the Section M.2.c prohibition on solvent atomization provided:

a. 160 fluid ounces or less of aerosol products are used per day, per facility, and

b. Records are maintained as specified in Sections R.2 and R.3, and

c. The aerosol products comply with volatile organic compound limits for consumer products specified in the California Code of Regulations, Title 17, Section 94507 et seq.

10. Provisions of Section M.1, Table 1, Solvent Cleaning Activity (c) shall not apply to the cleaning of application equipment when such equipment is used to apply a coating on a satellite or when applying a radiation-effect coating.

11. Section D.9 and M.2.c prohibitions on solvent atomization shall not apply to the following applications:

a. Cleaning of the nozzle tips of automated spray equipment systems, except for robotic systems.

b. Cleaning with hand-held spray bottles, squirt bottles, and other closed containers having a capacity of one liter or less.

c. Cleaning of gas turbines or jet engines using a gas-path solvent cleaner.

12. De-icing of aircraft and aerospace vehicles.

13. Solvent cleaning with a solvent containing 50 grams of reactive organic compounds per liter of material or less shall not be subject to the Section D.9 provision.

14. Solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dental care facilities, and other health care facilities, including but not limited to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and bloodmobiles.

15. Provisions of Section M.1 shall not apply if the net aggregate amount of solvent used for all solvent cleaning subject to Rule 321 (i.e., subject to Sections D, M.2, and/or M.3 provisions) at a stationary source does not exceed 55 gallons per year. Solvents with a reactive organic compound content of 50 grams per liter of material or less do not count towards the 55 gallons per year aggregate limit. Any person claiming this exemption shall maintain records as specified in Sections R.2 and R.3.

16. Provisions of Section M.1 shall not apply to the following applications:

    a. Cleaning of ultraviolet lamps used to cure ultraviolet inks coatings, adhesives, or resins.

    b. Cleaning of mold release compounds from molds.

    c. Cleaning of aerospace assembly and subassembly surfaces that are exposed to strong oxidizers or reducers such as nitrogen tetroxide, liquid oxygen, or hydrazine.

    d. Cleaning of paper gaskets.

    e. Cleaning of clutch assemblies where rubber is bonded to metal by means of an adhesive.

    f. Cleaning of hydraulic actuating fluid from filters and filter housings.

    g. Wipe cleaning to remove crude oil and crude oil residue from well workover, drilling operations, and other activities related to petroleum production and processing on offshore platforms, provided the solvent reactive organic compound content does not exceed 800 grams per liter of material and the reactive organic compound composite partial pressure is no more than 8 millimeters of mercury at 20 degrees Celsius.

17. Provisions of Sections H.7, I.7, and K.6 shall not apply to the following applications, provided the solvent reactive organic compound content does not exceed 900 grams per liter of material and the reactive organic compound composite partial pressure is no more than 5 millimeters of mercury at 20 degrees Celsius:

    a. Cleaning associated with the manufacturing of nuts and bolts designed for automotive racing applications.

    b. Cleaning of precision–lapped mechanical seals in pumps that handle liquefied gasses.

18. Provisions of Sections J.11.a, d, and e shall not apply to batch vapor cleaning machines with a solvent/air interface area less than 929 square centimeters (1 square foot) or a solvent capacity less than 2 gallons, provided all such solvent cleaning machines emit, in aggregate, less than 55 pounds of reactive organic compounds per month per stationary source. Any person claiming this exemption shall maintain records as specified in Sections R.1 and R.3.

19. The use of solvent for purposes other than cleaning.

20. The Section E.7 and Section J.11.a, d, and e provisions shall not apply to batch vapor cleaning machines provided:

a. The equipment was installed before January 1, 2007; and

b. The solvent/air interface area is less than 4.40 square feet or the solvent capacity is less than 2 gallons; and

c. The equipment is used only for cleaning electronic components; and

d. The total aggregate reactive organic compound emissions from all batch vapor cleaning machines subject to this exemption do not exceed 188 pounds per month per stationary source; and

e. The equipment is subject to a Permit to Operate to help facilitate verifications that the requirements of subparagraphs B.20.a, b, c, and d are met.

f. In addition, the Section J.8 requirement to have a freeboard ratio of 1.0 or greater shall not apply to solvent cleaning machines meeting the requirements in subsections a – e above, provided the solvent cleaning machines have a freeboard ratio of 0.75 or greater.

21. The Section I.3, I.4, and I.7 requirements for unheated batch cleaning machines shall not apply, provided the equipment is used in medical device manufacturing when performing incidental product cleaning in conjunction with quality assurance or quality control tests (e.g., when conducting leak testing of silicone shells) and the solvent reactive organic compound content does not exceed 900 grams per liter of material.

22. Metal lift-off and other semiconductor and microelectromechanical device manufacturing processes involving thin film deposition, vacuum deposition, and dry etching operations; including any maintenance activities associated with such operations.

23. The solvent container draining and filling provisions in Section D.12 shall not apply to solvent transfers out of a sump, provided the sump has a maximum capacity of 8 gallons or less, such sump is easily removed from the solvent cleaning machine, and the solvent is poured from the sump directly into a bulk storage container.

24. Any batch vapor cleaning machine meeting all of the following requirements shall be exempt from the Section J.8 requirement to have a freeboard ratio of 1.0:

a. The equipment is used only for cleaning electronic components; and

b. The dimensions are such that the freeboard ratio is 0.75 or greater; and

c. The solvent cleaning machine is equipped with the freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than minus 4 degrees Fahrenheit; and

d. The batch vapor cleaning machine is equipped with a superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

C. Definitions

See Rule 102 for definitions not limited to this rule. For purposes of this rule the following definitions shall apply:

"Aerosol Product" means a hand-held, non-refillable container that expels pressurized product by means of a propellant-induced force.

"Aerospace Vehicle" means the completed unit of any aircraft, helicopter, missile, or space vehicle.

"Aerospace Vehicle Component" means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any aircraft, helicopter, missile, or space vehicle, including mockups and prototypes.

"Air Blanket" means the layer of air inside the solvent cleaning machine freeboard located above the solvent/air interface.

"Airless Solvent Cleaning Machine" means any solvent cleaning machine that is automatically operated and seals at an absolute internal pressure of 0.02 pounds per square inch absolute or less, prior to the introduction of solvent vapor into the cleaning chamber and maintains differential pressure under vacuum during all cleaning and drying cycles.

"**Air-Tight Solvent Cleaning Machine"** means any solvent cleaning machine that is automatically operated and seals at a differential pressure no greater than 0.5 pounds per square inch absolute during all cleaning and drying operations.

"Automated Parts Handling System" means a mechanical device that carries all parts and parts baskets at a controlled speed from the initial loading of soiled or wet parts through the removal of the cleaned or dried parts. Automated parts handling systems include, but are not limited to, hoists and conveyors.

"Batch Cleaning Machine" means a solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning cycle before new parts are introduced into the solvent cleaning machine. An open-top vapor cleaning machine is a type of batch cleaning machine. A solvent cleaning machine, such as a Ferris wheel or a cross-rod degreaser, that clean multiple batch loads simultaneously and are manually or semi-continuously loaded are batch cleaning machines.

"Bench Scale Project" means a project (other than at a research and development facility) that is operated on a small scale, such as one capable of being located on a laboratory bench top.

"Carbon adsorber" means a bed of activated carbon into which an air-solvent gas-vapor stream is routed and which adsorbs the solvent on the carbon.

"Carry-out" see **"Drag-out."**

"Circumferential Trough" means a receptacle located below the primary condenser that conveys condensed solvent and atmospheric moisture to a water separator.

"Cold Cleaning Machine" means any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surfaces of the parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling solvent to clean the parts are classified as cold cleaning machines. Cold solvent wash stations are classified as cold cleaning machines.

"Condenser" or **"Primary Condenser"** means a series of circumferential cooling coils on a vapor cleaning machine through which a chilled substance is circulated or recirculated to provide continuous condensation of rising solvent vapors and, thereby, create a concentrated solvent vapor zone.

"Condenser Flow Switch" means a safety switch connected to a thermostat that shuts off the sump heater if the condenser coolant is either not circulating or exceeds its designed operating temperature.

"Continuous Cleaning Machine" see **"In-Line Cleaning Machine."**

"Continuous Web Cleaning Machine" means a solvent cleaning machine in which parts such as film, coils, wire, and metal strips are cleaned at speeds typically in excess of 11 feet per minute. Parts are

generally uncoiled, cleaned such that the same part is simultaneously entering and exiting the solvent application area of the solvent cleaning machine, and then recoiled or cut. For the purposes of this rule, all continuous web cleaning machines are considered to be a subset of in-line solvent cleaning machines.

"Conveyorized (In-Line or Continuous) Cold Cleaning Machine" means any continuously loaded solvent cleaning machine that is not a conveyorized vapor cleaning machine.

"Conveyorized (In-Line or Continuous) Cleaning Machine" means any cold or vapor solvent cleaning machine, that uses an automated parts handling system to automatically provide a continuous supply of parts to be cleaned. Conveyorized (in-line or continuous) cleaning machines include but are not limited to vibra, monorail, mesh, belt, web, and strip cleaning machines. Strip cleaning machines clean material by drawing the strip itself through the unit for cleaning prior to coating or other fabrication processes**.** For the purposes of this rule "**Conveyorized (In-Line or Continuous) Cleaning Machine"** has the same meaning as **"In-Line Cleaning Machine."**

"Conveyorized (In-Line or Continuous) Vapor Cleaning Machine" means any continuously loaded solvent cleaning machine that immerses parts in boiling solvent or in solvent vapors generated by boiling solvent. Conveyorized (in-line or continuous) cleaning machines that contain any vapor cleaning sections shall be considered to be conveyorized vapor cleaning machines for the purposes of this rule.

"Cross-Rod Solvent Cleaning Machine" means a batch solvent cleaning machine in which parts baskets are suspended from "cross-rods" as they are moved through the machine. In a cross-rod cleaning machine, parts are loaded semi-continuously, and enter and exit the machine from a single portal.

"Downtime Mode" means the time period when a solvent cleaning machine is not cleaning parts and the sump heating coils, if present, are turned off.

"Drag-out" means solvent carried out of a solvent cleaning machine that adheres to or is entrapped in the part being removed.

"Drying Tunnel" means an add-on enclosure extending from the exit area of a solvent cleaning machine that reduces drag-out losses by containing evaporating solvent.

"Dwell" means the technique of holding parts within the freeboard area but above the vapor zone of the solvent cleaning machine. Dwell occurs after cleaning to allow solvent to drain from the parts or parts baskets back into the solvent cleaning machine.

"Dwell Time" means the period of time when parts are held within the freeboard area of the solvent cleaning machine, after cleaning, to allow solvent to drain from the parts back into the solvent cleaning machine.

"Electrical Apparatus Components" means the internal components such as wires, windings, stators, rotors, magnets, contacts, relays, energizers, and connections in an apparatus that generates or transmits electrical energy including, but not limited to: alternators, generators, transformers, electric motors, cables, and circuit breakers, except for the actual cabinet in which the components are housed. Electrical components of graphic arts application equipment and hot-line tools are also included in this category.

"Electronic Components" means the portions of an assembly, including, but not limited to: circuit card assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, magnetic tapes and tape drive mechanisms, discs and disc drive mechanisms, electro-optical devices (e.g., optical filters, sensor assemblies, infrared sensors, charged coupled devices, thermal electric coolers, and vacuum assemblies), solid state components, semiconductors (e.g., diodes, zeners, stacks, rectifiers, integrated microcircuits, transistors, solar cells, light sensing devices, and light-emitting devices), and other electrical fixtures, except for the actual cabinet in which the components are housed.

"Emulsion" means a suspension of small droplets of one liquid in a second liquid.

"Emission Control Device" means a device for reducing emissions of reactive organic compounds or toxic air contaminants to the atmosphere.

"Evaporation" means to change into a vapor, normally from a liquid state.

"Existing Solvent Cleaning Operation" means solvent cleaning that is being performed as of [*date of revised rule adoption*].

"Existing Solvent Cleaning Machine" means any solvent cleaning machine that is installed as of [*date of revised rule adoption*]

"Fluid System" means a power transmission system that uses the force of flowing liquids and gases to transmit power. Fluid systems include hydraulic systems and pneumatic systems.

"Freeboard Area" means; for a batch cleaning machine, the area within the solvent cleaning machine that extends from the solvent/air interface to the top of the solvent cleaning machine; for an in-line cleaning machine, it is the area within the solvent cleaning machine that extends from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower.

"Freeboard Height" means; for a batch cleaning machine, the distance from the solvent/air interface as measured during the idling mode or the top of the solvent drain of a remote reservoir cold cleaning machine to the top of the cleaning machine; for an in-line cleaning machine, it is the distance from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower as measured during the idling mode.

"Freeboard Ratio" means the ratio of the solvent cleaning machine freeboard height to the smaller interior dimension (length, width, or diameter) of the solvent cleaning machine.

"Freeboard Refrigeration Device (Also Called a 'Chiller')" means a secondary cooling coil mounted above the primary condenser that provides a chilled air blanket above the solvent vapor air-interface to cause the condensation of additional solvent vapor. A primary condenser capable of meeting the requirements of Section J.9.a or L.10.a is defined as both a freeboard refrigeration device and a primary condenser for the purposes of this rule.

"Gas-Path Solvent Cleaner" means a solvent cleaning machine (including ancillary equipment) that applies solvent to the interior of a gas turbine or jet engine for the removal of corrosion or combustion deposits.

"General Work Surface" means an area of a medical device or pharmaceutical facility where solvent cleaning is performed on work surfaces including, but not limited to, tables, countertops, and laboratory benches. General work surface shall not include items defined under janitorial cleaning.

"Guillotine Cover" means a cover that is biparting and moves in the same plane.

"Halogenated Hazardous Air Pollutant Solvent" means methylene chloride (Chemical Abstracts Service No. 75-09-2), perchloroethylene (Chemical Abstracts Service No. 127-18-4), trichloroethylene (Chemical Abstracts Service No. 79-01-6), 1,1,1-trichloroethane (Chemical Abstracts Service No. 71-55-6), carbon tetrachloride (Chemical Abstracts Service No. 56-23-5), and chloroform (Chemical Abstracts Service No. 67-66-3).

"High-Precision Optics" means any optical element used in an electro-optical device that is designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes in light energy levels.

"High Volatility Solvent" means any solvent that is not classified as a low volatility solvent.

"Hoist" means a mechanical device that carries the parts basket and the parts to be cleaned from the loading area into the solvent cleaning machine and to the unloading area at a controlled speed. A hoist may be operated by controls or may be programmed to cycle parts through the cleaning cycle automatically.

"Idling Mode" means the time period when a solvent cleaning machine is not actively cleaning parts and the sump heating coils, if present, are turned on.

"Initial Boiling Point" means the boiling point of a liquid as defined by ASTM D 1078-05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International.

"In-Line Cleaning Machine" or **"Continuous Cleaning Machine"** means any solvent cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a continuous supply of parts to be cleaned. These units are fully enclosed except for the conveyor inlet and exit portals. In-line cleaning machines can be either cold or vapor cleaning machines.

"Lip Exhaust" means a device installed at the top of the opening of a solvent cleaning machine that draws in air and solvent vapor from the freeboard area and ducts the air and vapor away from the solvent cleaning machine.

"Liquid Leak" means any solvent leak at a rate of more than three drops per minute or any visible liquid mist.

"Low Volatility Solvent" means a solvent with an initial boiling point that is greater than 120 degrees Celsius (248 degrees Fahrenheit) and with a temperature, as used, at least 100 degrees Celsius (212 degrees Fahrenheit) below the initial boiling point.

"Maintenance Cleaning" means a solvent cleaning operation or activity carried out to keep clean general work areas where manufacturing or repair activity is performed, to clean tools, machinery, molds, forms, jigs, and equipment. This definition does not include the cleaning of adhesive, coating, or ink application equipment.

"Manufacturing Process" means the process of making goods or articles by hand or by machinery.

"Medical Device" means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar article, including any component, accessory, raw material, partial or completed fabricated part, that meets one of the following conditions:

1. It is intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease; or
2. It is intended to affect the structure or any function of the body; or
3. It is defined in the National Formulary or the United States Pharmacopeia, or any supplement to them.

"Mixer" means any device that mechanically agitates the liquid solvent to enhance the cleaning process.

"Nonabsorbent Container" means any container made of nonporous material, which does not allow the migration of the liquid solvent through it.

"Nonatomized Solvent Flow" means the use of a solvent in the form of a liquid stream without atomization.

"Nonleaking Container" means a container without any liquid leaks.

"Open-Top Vapor Cleaning Machine" means a batch solvent cleaning machine that has its upper surface open to the air and boils solvent to create solvent vapor used to clean and/or dry parts.

"Primary Condenser" see "**Condenser**."

"Radiation-Effect Coating" means a material that prevents radar detection.

"Reactive Organic Compound Composite Partial Pressure" means the sum of the partial pressures of compounds defined as reactive organic compounds. Reactive organic compound composite pressure shall be calculated as follows:

$$PP_C = \frac{\sum_{i=1}^{n} \left(W_i\right)\left(VP_i\right) / \left(MW_i\right)}{\left(W_w / MW_w\right) + \sum_{e=1}^{n} \left(W_e / MW_e\right) + \sum_{i=1}^{n} \left(W_i / MW_i\right)}$$

Where:

W_i = Weight of the "i"th reactive organic compound, in grams
W_w = Weight of water, in grams
W_e = Weight of the "e"th exempt organic compound, in grams
MW_i = Molecular weight of the "i"th reactive organic compound, in grams per grams-mole
MW_w = Molecular weight of water, in grams per grams-mole
MW_e = Molecular weight of the "e"th exempt compound, in grams per grams-mole
PP_c = Reactive organic compound composite partial pressure at 20 degrees Celsius, in millimeters of mercury
VP_i = Vapor pressure of the "i"th reactive organic compound at 20 degrees Celsius, in millimeters of mercury

"Refrigerated Freeboard Chiller" see the definition for "**Freeboard Refrigeration Device (also called a 'Chiller').**"

"Remote Reservoir Cold Cleaning Machine" means any device in which liquid solvent is pumped to a sink-like work area that drains solvent back into an enclosed container while parts are being cleaned, allowing no solvent to pool in the work area. A remote reservoir cold cleaning machine that uses an enclosed container that is accessible for dipping or soaking parts is also considered to be a batch cleaning machine.

"Repair Cleaning" means a solvent cleaning operation or activity carried out during a repair process.

"Repair Process" means the process of returning a damaged object or an object not operating properly to good condition.

"Research and Development Activities" means activities conducted at a research or laboratory facility whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for sale or exchange for commercial profit, except in a de minimis manner.

"Rotating Basket" means a perforated or wire mesh cylinder containing parts to be cleaned that is slowly rotated while proceeding through the solvent cleaning machine.

"Scientific Instrument" means an instrument (including the components, assemblies, and subassemblies used in their manufacture) and associated accessories and reagents that is used for the detection, measurement, analysis, separation, synthesis, or sequencing of various compounds.

"Semiconductor Manufacturing" means any process or operation producing semiconductor material, slicing or polishing semiconductor material, utilizing photoresist to manufacture intermediate products, or producing either semiconductor devices or related solid state devices.

"Silicone Manufacturing" means any process or operation producing a silicone raw material (e.g., polymer, fluid, gum, gel, elastomer, dispersion, or other bulk state silicone material). Silicone manufacturing also includes any on site preliminary processes or operations that occurs before a silicone raw material is produced.

"Soils" mean contaminants that are removed from the part or parts being cleaned. Soils include, but are not limited to, grease, oils, waxes, metal chips, carbon deposits, fluxes, and tars.

"Solvent" means any liquid containing any reactive organic compound or any toxic air contaminant, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, drying agent, preservative, or other similar uses.

"Solvent/Air Interface" means, for a vapor cleaning machine, the location of contact between the concentrated solvent vapor layer and the air. This location of contact is defined as the mid-line height of the primary condenser coils. For a cold cleaning machine, it is the location of contact between the liquid solvent and the air.

"Solvent/Air Interface Area" means; for a vapor cleaning machine, the surface area of the solvent vapor zone that is exposed to the air; for an in-line cleaning machine, it is the total surface area of all the sumps; for a cold cleaning machine, it is the surface area of the liquid solvent that is exposed to the air, except for remote reservoir cleaning machines, in which case it is the area of the drain.

"Solvent Cleaning" means any activity, operation, or process (including, but not limited to, surface preparation, cleanup, or wipe cleaning) performed outside of a solvent cleaning machine, that uses solvent to remove uncured adhesives, uncured coatings, uncured inks, uncured polyester resin material, uncured sealant, or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment, and general work areas. Cleaning spray equipment used for the application of coating, adhesive, ink, polyester resin material, or sealant is also considered to be solvent cleaning irrespective of the spray material being cured.

"Solvent Cleaning Machine" means any device or piece of equipment that uses solvent liquid or vapor to remove soils, moisture, or other contaminants from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch cold, batch vapor, in-line cold, in-line vapor, remote reservoir, and gas-path solvent cleaners. Buckets, pails, and beakers with capacities of 3.785 liters (1.00 gallon) or less are not considered solvent cleaning machines. However, the use of such a container or similar containers (e.g., hand-held spray bottles) with a liquid solvent for cleaning is considered to be solvent cleaning. Any device or piece of equipment used exclusively for stripping shall not be considered to be a solvent cleaning machine.

"Solvent Container" means that part of the solvent cleaning machine that is intended to hold the cleaning solvent.

"Solvent Vapor Zone" means; for a vapor cleaning machine, the area that extends from the liquid solvent surface to the level that solvent vapor is condensed. This condensation level is defined as the midline height of the primary condenser coils.

"Space Vehicle" means a vehicle designed to travel beyond the earth's atmosphere.

"Space Vehicle Component" means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any space vehicle, including mockups and prototypes.

"Spray Pump Control Switch" means a safety switch that prevents the spray pump from operating if the vapor level falls below the design operating level.

"Sump" means the part of a solvent cleaning machine where the liquid solvent is located.

"Sump Heater Coils" mean the heating system on a cleaning machine that uses steam, electricity, or hot water to heat or boil the liquid solvent.

"Superheated Vapor System" means a system that heats the solvent vapor, either passively or actively, to a temperature above the solvent's initial boiling point. Parts are held in the superheated vapor before exiting the machine to evaporate the liquid solvent on them. Hot vapor recycle is an example of a superheated vapor system.

"Superheated Vapor Zone" means any region located within the vapor zone of a vapor cleaning machine whereby solvent vapors are heated above the solvent's initial boiling point.

"Ultrasonics" means enhancement of the cleaning process by agitation of liquid solvents with high frequency sound wave vibrations.

"Vapor Cleaning Machine" means a batch or in-line solvent cleaning machine that boils liquid solvent generating solvent vapor that is used as a part of the cleaning or drying cycle.

"Waste Solvent Residue" means sludge that may contain dirt, oil, metal particles, and/or other undesirable waste products concentrated after heat distillation of the waste solvent either in the solvent cleaning machine itself or after distillation in a separate still.

"Water Layer" means a layer of water that floats above the denser solvent and provides control of solvent emissions. In many cases, the solvent used in batch cold cleaning machines is sold containing the appropriate amount of water to create a water cover.

"Workload" means the objects put in a solvent cleaning machine for the purpose of removing oil, grease, soil, coating, dirt, moisture, or other undesirable matter from the surface of the objects.

"Workload Area" means:

(1) The plane geometric surface area of the top of the submerged parts basket, or
(2) The combined plane geometric surface area(s) displaced by the submerged workload, if no basket is used.

D. General Operating Requirements. Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning shall ensure such operation conforms to the following requirements:

1. All solvent, including waste solvent and waste solvent residue, and waste solvent cleaning materials such as cloth, paper, etc. shall be stored or disposed of in nonabsorbent and nonleaking containers equipped with tight-fitting covers. The covers shall be in place unless adding material to or removing material from the containers, the containers are empty, or doing maintenance/inspection of the containers. After distillation recovery of waste solvent, solvent residues shall not contain more than 20 percent of reactive organic compound by weight.

2. The solvent cleaning machine, ventilation system, and/or emission control equipment shall be installed, operated, and maintained consistent with the manufacturer's specifications.

3. The cleaning of porous or absorbent materials, such as cloth, leather, wood, or rope, is prohibited. This provision shall not apply to paper gaskets, paper filters, and medical devices.

4. All containers holding solvent shall be free of liquid leaks. Solvent cleaning machine equipment, such as covers, pumps, water separators, steam traps, or distillation units shall not have any liquid leaks, visible tears, holes, or cracks. Any such liquid leak, visible tear, hole, or crack that is detected shall be repaired within one day from discovery, or the solvent cleaning machine shall be drained of all solvent, consistent with Section D.12 provisions, and shut down until replaced or repaired. Solvent cleaning machines shall not be operated when leaking.

5. Covers and other closure devices (e.g., valves or drain plugs) designed to reduce solvent evaporation shall not be removed or opened except to process work or to perform monitoring,

inspections, maintenance, or repairs that require the removal of the covers or other closure devices. Solvent cleaning machines shall not be operated when performing maintenance or repairs.

6. For solvent cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent carry-out shall be minimized by the following methods, as applicable:

   a. Except for remote reservoir cold cleaning machines, the workload shall be racked.

   b. Parts having cavities, holes, or blind holes shall be tipped or rotated before being removed from the solvent cleaning machine such that the solvent in the cavities, holes, or blind holes is returned to the solvent container.

   c. The workload shall be drained within the freeboard area so that the drained solvent is returned to the solvent container.

   d. For cold solvent cleaning, parts shall be drained immediately after cleaning, until one of the following conditions exists:

      1) At least 15 seconds have elapsed; or

      2) Dripping of solvent ceases; or

      3) The parts become visibly dry.

   e. For automated parts handling systems, the workload shall be moved in and out of the solvent cleaning machine at less than 3.4 meters per minute (11.2 feet per minute).

7. For solvent cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent flow shall be directed downward to avoid turbulence at the solvent/air interface and to prevent liquid solvent from splashing outside of the solvent cleaning machine. If a flexible hose or flushing device is used, flushing shall be performed only within the freeboard area of the solvent cleaning machine.

8. For solvent cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent flow shall not be used in a manner such that liquid solvent splashes outside the container.

9. Solvent shall not be atomized unless it is vented to an emission control system that meets the requirements of Section N.

10. Any solvent spills shall be wiped up immediately and the used absorbent material (e.g., cloth, paper, sand, sawdust, etc.) shall be stored in closed containers that are handled in accordance with Section D.1.

11. Solvent levels shall not exceed the solvent cleaning machine's fill line.

12. Draining or filling solvent containers shall be performed at a level lower than the liquid solvent surface.

13. When using a ventilation fan, it shall not be positioned in such a way as to direct air flow near a solvent cleaning machine opening.

E. Additional Operating Requirements for Batch Vapor Cleaning Machines and In-Line Vapor Cleaning Machines. Any person who owns, operates, or uses any batch vapor cleaning machine or any in-line vapor cleaning machine shall ensure the equipment operation conforms to the following requirements:

1. Except to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers:

    a. Idling mode covers shall be closed or in place when the equipment is in an idling mode.

    b. Downtime mode covers shall be closed or in place when the equipment is in a downtime mode.

2. When starting the solvent cleaning machine, the primary condenser shall be turned on before the sump heater.

3. When shutting down the solvent cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.

4. The workload shall be cleaned in the vapor zone for at least 30 seconds or until condensation ceases.

5. Parts shall be allowed to dry within the solvent cleaning machine until the exterior surface of the parts become visually dry.

6. Solvent spray shall be kept at least 10 centimeters (3.94 inches) below the solvent/air interface.

7. The workload area shall not occupy more than half of the solvent/air interface area of the solvent cleaning machine.

8. For solvent cleaning machines equipped with water separators, water shall not be visibly detectable in the solvent phase exiting the water separator, nor shall solvent be visibly detectable in the aqueous phase leaving the separator.

9. If equipped with a superheated vapor zone:

    a. The manufacturer's specifications for determining the minimum proper dwell time within the superheated vapor system shall be followed.

    b. Parts and parts baskets shall remain in the vapor zone for at least the minimum proper dwell time.

    c. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

F. Additional Operating Requirements for Gas-Path Solvent Cleaners. Any person who owns, operates, or uses any gas-path solvent cleaner shall ensure the equipment operation conforms to the following requirements:

1. Cleaned parts or equipment shall be drained until dripping ceases or 15 seconds have elapsed.

2. The cover of the solvent container(s), reservoir(s) and opening(s) of a solvent collection system shall be closed at all times except to process work or to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers or other closure devices.

G. General Equipment Requirements for Solvent Cleaning Machines. Any person who owns, operates, or uses any solvent cleaning machine shall ensure that it is equipped with the following:

1. A container for the solvent.

2. Except for remote reservoir cold cleaning machines using low volatility solvents, an apparatus or cover(s) to completely cover the solvent container when not processing work.

3. Except for gas-path solvent cleaners using a solvent with a reactive organic compound content of 50 grams per liter of material or less, an apparatus or a device for draining cleaned parts such that the drained solvent or drag-out is returned to the solvent container.

4. A list of the applicable operating requirements. At a minimum, the list shall include the applicable operating requirements contained in Sections D, E, and F. The list of operating requirements shall be legible and conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.

5. Where solvent agitation is used, equipment that achieves agitation by use of pump recirculation, mechanical mixing (a mixer), or ultrasonics. Gas or air agitation shall not be used. When a pump-agitated solvent bath is used, the pump agitator shall be designed to produce a rolling motion of the solvent without any observable splashing against tank walls or parts being cleaned.

6. When employing solvent flow, a flexible hose or flushing device that produces only a continuous fluid stream. An atomized or shower type spray shall not be used unless it is used in an in-line or enclosed solvent cleaning machine where the spray is conducted in a totally confined space that is sealed from the atmosphere.

7. Where a hood, enclosure, lip exhaust, or a lip exhaust connected to a hood or enclosure is employed, a blower or fan such that the air ventilation rate shall not exceed 20 cubic meters per minute per square meter (65.6 cubic feet per minute per square feet) of solvent/air interface area, unless necessary to meet a National Institute for Occupational Safety and Health standard.

8. When a lip exhaust is installed or added after July 17, 1997, an emission control system that meets the requirements of Section N.

9. A workroom having an average draft rate, as measured parallel to the plane of the solvent cleaning machine opening, not exceeding 9.1 meters per minute (30 feet per minute), unless necessary to meet a National Institute for Occupational Safety and Health standard.

10. When employing an automated parts handling system, equipment such that the speed of the parts shall not exceed 3.4 meters per minute (11.2 feet per minute).

H. Additional Equipment Requirements for Remote Reservoir Cold Cleaning Machines. Any person who owns, operates, or uses any remote reservoir cold cleaning machine shall ensure that it is equipped with the following:

1. A sink or work area that is sloped sufficiently towards the drain to prevent pooling of solvent.

2. A single drain hole, not larger than 100 square centimeters (15.5 square inches) in area, for the solvent to flow from the sink into the enclosed reservoir.

3. Except when using low volatility solvents, a cover or a device, such as a valve or a drain plug, to prevent or minimize solvent vapor emissions from the solvent container when not processing work or performing monitoring, inspections, maintenance, or repairs that require the removal of the cover or device.

4. A freeboard height of 6 inches or higher.

5. When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio is 0.75 or greater.

6. In lieu of the freeboard height required by Section H.4 or the freeboard ratio required by Section H.5, one of the following requirements may be met:

   a. A water layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine shall be used, or

b. An emission control system that meets the requirements of Section N shall be used.

7. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less.

I. Additional Equipment Requirements for Batch Cold Cleaning Machines. Any person who owns, operates, or uses any batch cold cleaning machine other than a remote reservoir cold cleaning machine shall ensure that it is equipped with the following:

1. When using a high volatility solvent, a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close. If a mechanized batch cold cleaning machine (e.g., a manually loaded or semi-continuously loaded Ferris wheel or cross-rod solvent cleaning machine) is used with a high volatility solvent, the unit shall be equipped with a downtime mode cover.

2. If using a high volatility solvent, the drainage apparatus or device required by Section G.3 shall be internal so that the cleaned parts are within the solvent cleaning machine and under the cover while draining. The drainage apparatus or device may be external where the internal type cannot fit into the cleaning system provided the drained solvent is returned to the solvent container.

3. When using a low volatility solvent that is not agitated, a freeboard height of 6 inches or higher or dimensions such that the freeboard ratio is 0.5 or greater.

4. When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio is 0.75 or greater.

5. In lieu of the freeboard height or freeboard ratio required by Section I.3 or the freeboard ratio required by Section I.4, one of the following requirements may be met:

   a. A water layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine shall be used, or

   b. An emission control system shall be used that meets the requirements of Section N shall be used.

6. A conspicuous mark denoting the maximum allowable solvent level conforming to the applicable freeboard requirements. This requirement does not apply if employing a water layer or an emission control system per Section I.5.

7. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less.

J. Additional Equipment Requirements for Batch Vapor Cleaning Machines. Any person who owns, operates, or uses any batch vapor cleaning machine shall ensure that it is equipped with the following:

1. For open-top vapor cleaning machines, a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close without disturbing the vapor zone. This requirement does not apply to open-top vapor cleaning machines equipped with top enclosures, provided:

   a. the operator only opens the enclosure cover(s) or door(s) when the condenser is operative or when the solvent cleaning machine is shut down, and

   b. the solvent cleaning machine solvent/air interface area is less than 1 square meter (10.8 square feet), and

c. the solvent cleaning machine cover is designed such that it can be opened and closed easily without disturbing the vapor zone.

2. For mechanized batch vapor cleaning machines (e.g., a manually-loaded or semi-continuously-loaded Ferris wheel or cross-rod solvent cleaning machine), idling and downtime mode covers.

3. A primary condenser situated above the boiling solvent.

4. A condenser flow switch that automatically shuts off the sump heater if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.

5. A vapor level control device that automatically shuts off the sump heater if the vapor level in the vapor cleaning machine rises above the height of the primary condenser.

6. For solvent cleaning machines with solvent flow, a device such as a spray pump control switch that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.

7. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

8. Dimensions such that the freeboard ratio is 0.75 or greater. Effective [*one year from the date of revised rule adoption*], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.

9. For solvent cleaning machines with a solvent/air interface area of 1 square meter (10.8 square feet) or greater:

   a. A freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost; or

   b. An enclosed design in which the cover or door opens only when the dry part is actually entering or exiting the solvent cleaning machine.

10. In lieu of the freeboard ratio required by Section J.8 or the freeboard chiller/enclosed design required by Section J.9, an emission control system that meets the requirements of Section N may be used.

11. Effective [*one year from the date of revised rule adoption*], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:

   a. An automated parts handling system;

   b. A circumferential trough;

   c. A water separator (not required for solvents that form azeotropes with water);

   d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

K. Additional Equipment Requirements for In-Line Cold Cleaning Machines. Any person who owns, operates, or uses any batch in-line cold cleaning machine shall ensure that it is equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.

2. Openings such that the average clearance between workload material and the edges of the solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.

3. Downtime mode covers. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.

4. Dimensions such that the freeboard ratio is 0.75 or greater.

5. In lieu of the freeboard ratio required by Section K.4, an emission control system that meets the requirements of Section N may be used.

6. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less.

L. Additional Equipment Requirements for In-Line Vapor Cleaning Machines. Any person who owns, operates, or uses any in-line vapor cleaning machine shall ensure that it is equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.

2. Openings such that the average clearance between workload material and the edges of the solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.

3. Idling and downtime mode covers. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.

4. A primary condenser situated above the boiling solvent.

5. A condenser flow switch that automatically shuts off the sump heater if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.

6. A vapor level control device that automatically shuts off the sump heater if the vapor level in the vapor cleaning machine rises above the height of the primary condenser.

7. For solvent cleaning machines with solvent flow, a device such as a spray pump control switch that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.

8. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

9. Dimensions such that the freeboard ratio is 0.75 or greater. Effective [*one year from the date of revised rule adoption*], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.

10. In lieu of the freeboard ratio required by Section L.9, one of the following may be met:

    a. A freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost; or

    b. An emission control system that meets the requirements of Section N shall be used.

11. Effective [*one year from the date of revised rule adoption*], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:

    a. A circumferential trough;

    b. A water separator (not required for solvents that form azeotropes with water);

    c. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

    d. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

M. Requirements - Solvent Cleaning.

Section M requirements apply to any person performing solvent cleaning, including, but not limited to, use of wipe cleaning cloths, cotton swabs, dabber bottles, hand-held spray bottles, squirt bottles, aerosol products, and the cleaning of application equipment. The following requirements become effective [*one year from the date of revised rule adoption*] and are in addition to the general operating requirements specified in Section D.

1. **Solvent Requirements.** Except when using an emission control system that meets the requirements of Section N, no person shall use any solvent to perform solvent cleaning which exceeds the applicable grams of reactive organic compound per liter of material limit specified in Table 1.

Table 1: Reactive Organic Compound Content Limits for Solvent Cleaning

SOLVENT CLEANING ACTIVITY	ROC Limit, grams of ROC per liter of material (pounds of ROC per gallon[a])
(a) Product Cleaning During Manufacturing Processes and Surface Preparation for Coating Application:	
(i) General	50 (0.42)

[a] English units are provided for information only.

SOLVENT CLEANING ACTIVITY	ROC Limit, grams of ROC per liter of material (pounds of ROC per gallon[a])
(ii) Electrical Apparatus Components & Electronic Components	900 (7.51)
(iii) Medical Devices & Pharmaceuticals	900 (7.51)
(iv) Silicone Manufacturing	900 (7.51)
(b) Repair Cleaning and Maintenance Cleaning:	
(i) General	50 (0.42)
(ii) Electrical Apparatus Components & Electronic Components	900 (7.51)
(iii) Medical Devices & Pharmaceuticals:	
(I) Tools, Equipment, & Machinery	900 (7.51)
(II) General Work Surfaces	900 (7.51)
(iv) Silicone Manufacturing	900 (7.51)
(c) Cleaning of Coatings Application Equipment	950 (7.93)
(d) Cleaning of the Following Items and Equipment and their Components: (i) Aerospace Vehicles; (ii) Aerospace Vehicle Payloads and Satellites; (iii) Aerospace Vehicle, Aerospace Vehicle Payload, and Satellite: (I) Transport Equipment (e.g., railcars, trucks, trailers, forklifts, and containers), and (II) Support Processing Equipment (e.g., clean rooms, tools, payload fairing fixtures, alignment jigs, fuel and oxidizer loading carts and associated transfer lines).	900 (7.51)

2. **Cleaning Devices and Methods.** Except for solvent cleaning of spray application equipment, any person performing solvent cleaning with a solvent containing more than 50 grams per liter of material shall use one or more of the following cleaning devices or methods:

   a. Wipe cleaning where solvent is dispensed to wipe cleaning materials from containers that are kept closed to prevent evaporation, except while dispensing solvent or replenishing the solvent supply;

   b. Application of solvent from hand-held spray bottles, squirt bottles, or other closed containers with a capacity of one liter or less; or

   c. Non-atomized solvent flow, dip, or flush method where pooling on surfaces being cleaned is prevented or drained, and all solvent runoff is collected in a manner that enables solvent recovery or disposal. The collection system shall be kept closed to

prevent evaporation except while collecting solvent runoff or emptying the collection system.

3. **Solvent Cleaning of Spray Application Equipment.** Any person cleaning spray application equipment with a solvent containing more than 50 grams of reactive organic compound per liter of material shall use an enclosed system, or equipment that is proven to the satisfaction of the Control Officer to be equally effective as an enclosed system at controlling emissions. If an enclosed system is used, it shall totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it shall be used according to the manufacturer's recommendations and be closed when not in use.

N. Emission Control System Requirements. Any person who owns, operates, or uses any emission control system required by Sections D.9, G.8, or T.2.b.4) or as an alternative compliance method as provided for in this rule shall ensure that the following requirements are met:

1. The overall efficiency (the capture system efficiency multiplied by the emission control device efficiency) of the total system shall not be less than 85 percent by weight in reducing total reactive organic compound and toxic air contaminant emissions.

2. When using a carbon adsorber, the system exhaust shall be no more than 25 parts per million of reactive organic compound by volume, calculated as carbon, over a complete adsorption cycle,

3. The emission collection system shall have a ventilation rate between 15 to 20 cubic meters per minute per square meter of solvent/air interface area (49.2 to 65.6 cubic feet per minute per square feet of solvent air interface area), unless otherwise required to meet a National Institute for Occupational Safety and Health standard.

4. An application for installation of the emission control equipment is submitted and the Control Officer grants an Authority to Construct for the equipment.

5. An initial source test is accomplished by [*one year from the date of revised rule adoption*] or a later deadline established in an Authority to Construct to demonstrate compliance with the overall efficiency of the total system and/or the 25 parts per million reactive organic compound by volume limits of this rule.

6. Compliance through the use of an emission control system will not result in reactive organic compound emissions in excess of the reactive organic compound emissions which would result from compliance with Sections H.7, I.7, K.6, or M.1.

O. Alternative Operating and Equipment Requirements for an Airless Solvent Cleaning Machine or an Air-Tight Solvent Cleaning Machine. In lieu of meeting the requirements of Sections E through L, any person may use an airless solvent cleaning machine or air-tight solvent cleaning machine provided all of the following requirements are met:

1. The equipment is operated in accordance with the manufacturer's specifications and operated with a door or other pressure sealing apparatus that is in place during all cleaning and drying cycles.

2. No pressure relief device shall allow liquid solvent to drain out.

3. A differential pressure gauge shall be installed to indicate the sealed chamber pressure.

4. A list of operating requirements shall be legible and conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.

P. Test Methods.

Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning shall comply with the following test methods:

1. The reactive organic compound content of solvents shall be measured by the Environmental Protection Agency Reference Method 24 (40 CFR, Part 60, Appendix A-7).

2. The initial boiling point of solvents shall be determined by ASTM D 1078-05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International.

3. The capture system efficiency shall be determined in accordance with the Environmental Protection Agency method described in 40 CFR, §52.741(a)(4)(iii) when the emission control system is used for reducing emissions of reactive organic compounds. For emission control systems handling compounds that are toxic air contaminants but not reactive organic compounds, the capture system efficiency shall be determined by using the same aforementioned method modified in a manner approved by the Control Officer to quantify the mass of liquid or gaseous reactive organic compounds and/or toxic air contaminants.

4. The emission control device efficiency shall be determined pursuant to the Environmental Protection Agency method described in 40 CFR, §51, Appendix M, Methods 204-204F, when the emission control system is used for reducing emissions of reactive organic compounds. For emission control systems handling any compound that is a toxic air contaminant but not a reactive organic compound, the emission control device efficiency shall be determined using:

    a. an Environmental Protection Agency approved test method or methods, or

    b. in the case where there is no Environmental Protection Agency approved test method, a Control Officer approved detection method applicable for each target toxics specie.

    c. Several Environmental Protection Agency and/or Control Officer approved test methods on the emission control device efficiency may need to be employed to demonstrate that the emission control system overall efficiency is at least 85 percent by weight in reducing emissions of reactive organic compounds and/or toxic air contaminants. In addition, techniques to convert “parts per million by volume” test method results to 1) “parts per million by weight” and/or 2) “mass emission rates” (e.g., pounds per hour) shall be approved by the Control Officer.

5. The volumetric flowrate shall be determined in accordance with the Environmental Protection Agency Methods 2, 2A, 2C, 2D, 2F, or 2G (40 CFR, Part 60, Appendix A-1).

6. The average workroom draft rate shall be measured parallel to the plane of the solvent cleaning machine opening with a thermistor anemometer with an accuracy within ± 2 feet per minute and a calibration pursuant to the National Institute of Standards and Technology.

7. The identity of components in solvents shall be determined using manufacturer’s formulation data or by using ASTM E 168-06, “Standard Practices for General Techniques of Infrared Quantitative Analysis,” ASTM International, ASTM E 169-04, “Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis,” ASTM International, or ASTM E 260-96 (2006), “Standard Practice for Packed Column Gas Chromatography,” ASTM International.

8. Emissions of reactive organic compounds from the exhaust of an emission control system shall be measured by the Environmental Protection Agency Method 18 (40 CFR, Part 60, Appendix A-7), with gas chromatography-flame ionization detection speciation analysis for C1, C2, C3, C4, C5, C6+ species. Alternatively, the Environmental Protection Agency Method 25 or 25A in combination with Method 18 may be used.

Q. Operation and Maintenance Plan. Any person proposing to use an emission control device to comply with this rule pursuant to Section N shall submit, with the Authority to Construct application, an emission

control device Operation and Maintenance Plan to the Control Officer for approval. The Operation and Maintenance Plan shall specify:

1. operation and maintenance procedures of emissions-producing operation, and

2. which records shall be kept to document these operation and maintenance procedures.

3. In addition, these records shall comply with the requirements of Section R.1.c and R.3. The Operation and Maintenance Plan shall be implemented upon approval of the Control Officer.

R. Recordkeeping Requirements.

1. Any person who owns, operates, or uses a solvent cleaning machine or performs solvent cleaning that is subject to this rule shall comply with the following requirements:

   a. Record and maintain the following information:

      1) Brand name, stock identification number, and generic product class for each solvent used during the month at the stationary source.

      2) Material safety data sheets for each material listed in response to Section R.1.a.1).

      3) Purchase records for each material listed in response to Section R.1.a.1).

   b. Record the following information for the stationary source:

      1) On a monthly basis, the total monthly volume (gallons) usage and reactive organic compound content (grams per liter or pounds per gallon of reactive organic compound) for each material listed in response to Section R.1.a.1).

      2) Records confirming compliance with the acceptable disposal methods listed in Section D.1, each time waste solvent or waste solvent residue is removed from the stationary source for disposal.

      3) For solvent cleaning, the type of cleaning activity for each solvent used at the stationary source in accordance with the cleaning categories specified in Table 1 of this rule.

      4) For each solvent cleaning machine:

         i. Type of solvent cleaning machine.

         ii. Brand name of each solvent used in the solvent cleaning machine and the reactive organic compound content of each solvent, as used.

         iii. The solvent(s) initial boiling point.

      5) When the solvent used is a mixture of different materials that are blended by the operator, the mix ratio of the batch shall be recorded and the reactive organic compound content of the batch shall be calculated and recorded in order to determine compliance with the specified limits of reactive organic compound content, as applied.

   c. If using an emission control system pursuant to Section N as a means of complying with this rule, the person shall maintain such records as required by the Operation and Maintenance Plan in Section Q on a daily basis. Key operating parameters and other information necessary to verify compliance with the required overall efficiency of the

total system, as specified in Section N.1, shall be recorded. These parameters shall include, but not be limited to:

1) Hours of operation;

2) All maintenance work that requires the emission control system to be shut down;

3) All information needed to demonstrate continuous compliance with Section N, such as temperatures, pressures, and/or flow rates.

2. In addition to the records required by Section R.1, any person claiming the Section B.9 exemption or the Section B.15 exemption, shall maintain records in order to demonstrate compliance with the solvent usage rate aggregate limits. For Section B.9 exemption claims, daily records on a facility basis shall be maintained. For Section B.15 exemption claims, monthly and calendar year total records on a stationary source basis shall be maintained.

3. Maintain the records kept pursuant to this rule on site for at least 3 years. Thereafter, maintain such records either on site or readily available for expeditious inspection and review for an additional 2 years.

S. Reporting Requirements

Any person holding a permit for a solvent cleaning machine or solvent cleaning subject to the requirements of this rule shall submit an annual report to the District. At a minimum, the annual report shall contain the monthly records required by Section R.1.b.1), the annual totals based on each of the solvent's monthly data, the name and address of the Permittee, and the Permit to Operate number that the solvent cleaning machine and/or solvent cleaning is subject to. The report shall be due March 1 for the previous calendar year.

T. Compliance Schedule

Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning subject to this rule shall meet the following compliance schedule:

1. New solvent cleaning machines and solvent cleaning operations:

   Commencing [*date of revised rule adoption*], any new solvent cleaning machine shall comply with this rule the first time it is operated in the District. Also commencing [*date of revised rule adoption*], any new solvent cleaning shall comply with this rule the first time it is performed in the District.

2. Existing solvent cleaning machines:

   a. For any solvent cleaning machine previously subject to the Rule 321 adopted on September 18, 1997, commencing [*date of revised rule adoption*], the owner or operator shall ensure that the equipment complies with the applicable provisions of Rule 321. The provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of [*one year from the date of revised rule adoption*].

   b. For any solvent cleaning machine previously exempt from the September 18, 1997 amended Rule 321 that lost its exemption by the adoption of amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and/or Rule 321 on [*date of revised rule adoption*], the owner or operator of such equipment shall comply with the following:

      1) By [*30 days from the date of revised rule adoption*], be in full compliance with the applicable operating requirements of Sections D, E, and F.

      2) By [180 days from the date of revised rule adoption], be in full compliance with the applicable recordkeeping and reporting provisions of Sections R and S.

3) By [365 days from the date of revised rule adoption], be in full compliance with the applicable equipment requirements of Sections G, H, I, J, K, L, and N.

4) Any lip exhaust installed after [date of revised rule adoption] shall be vented to an emission control system that meets the requirements of Section N at the time of installation, notwithstanding the date in Sections G.8 and T.2.b.3.

3. Existing solvent cleaning operations:

The owner or operator of any facility performing solvent cleaning as of [*date of revised rule adoption*] and subject to the requirements of this rule shall comply with the following:

a. By [*30 days from the date of revised rule adoption*], be in full compliance with the applicable operating requirements of Section D.

b. By [*180 days from the date of revised rule adoption*], be in full compliance with the applicable recordkeeping and reporting provisions of Sections R and S.

c. By [*365 days from the date of revised rule adoption*], be in full compliance with the solvent cleaning requirements of Rule Section M.

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