

Cannabis Odor Control Solutions

CAPCOA SPRING MEMBERSHIP MEETING

Santa Barbara County Air Pollution Control District

Our Mission: To protect the people and the environment
of Santa Barbara County from the effects of air pollution.

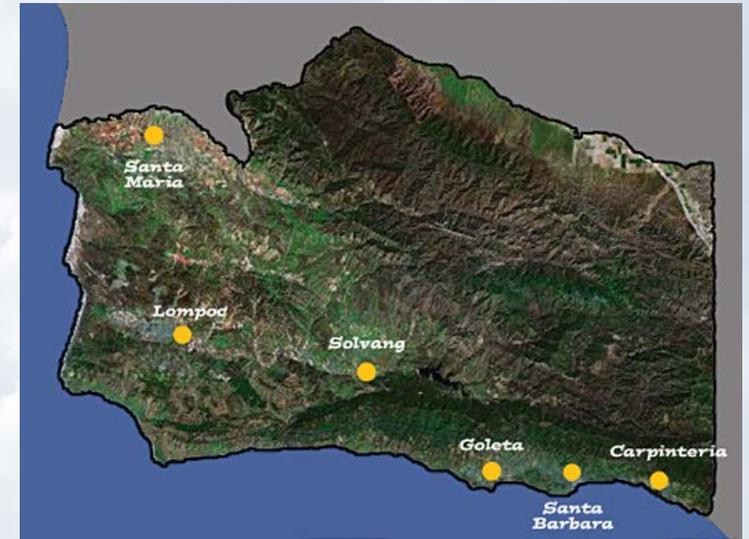
Aeron Arlin Genet
Director / APCO

May 15, 2018



Cannabis in Santa Barbara County

- Santa Barbara County currently has the most temporary cannabis cultivation licenses in California^{1,2}
- 52 cannabis cultivators in Carpinteria alone³
- Odor generated from cannabis cultivation is a significant nuisance issue for residents



Odors From Cultivation

- Odors produced during cannabis flowering stage
- For large-scale operations, significant portion of plants will be flowering at any given time
- Cannabinoids, Terpenes, Sesquiterpenes



Odor Neutralizers

- Process works like this: chemical reaction occurs between the odors and compounds in the neutralizer to scrub the smell
- Neutralizer is converted into a vapor that gets dispersed
 - Odors “surf” the airstream
 - Odors & neutralizer more likely to meet if in the airstream together
- One example shown here: Ecosorb CNB 100 odor neutralizer



Vapor-Phase Odor Control Technology

- Vapors go through PVC piping around perimeter of greenhouse
- PVC piping contains holes for release of odor neutralizer
- Size and number of holes unique to each installation but designed to minimize pressure drop

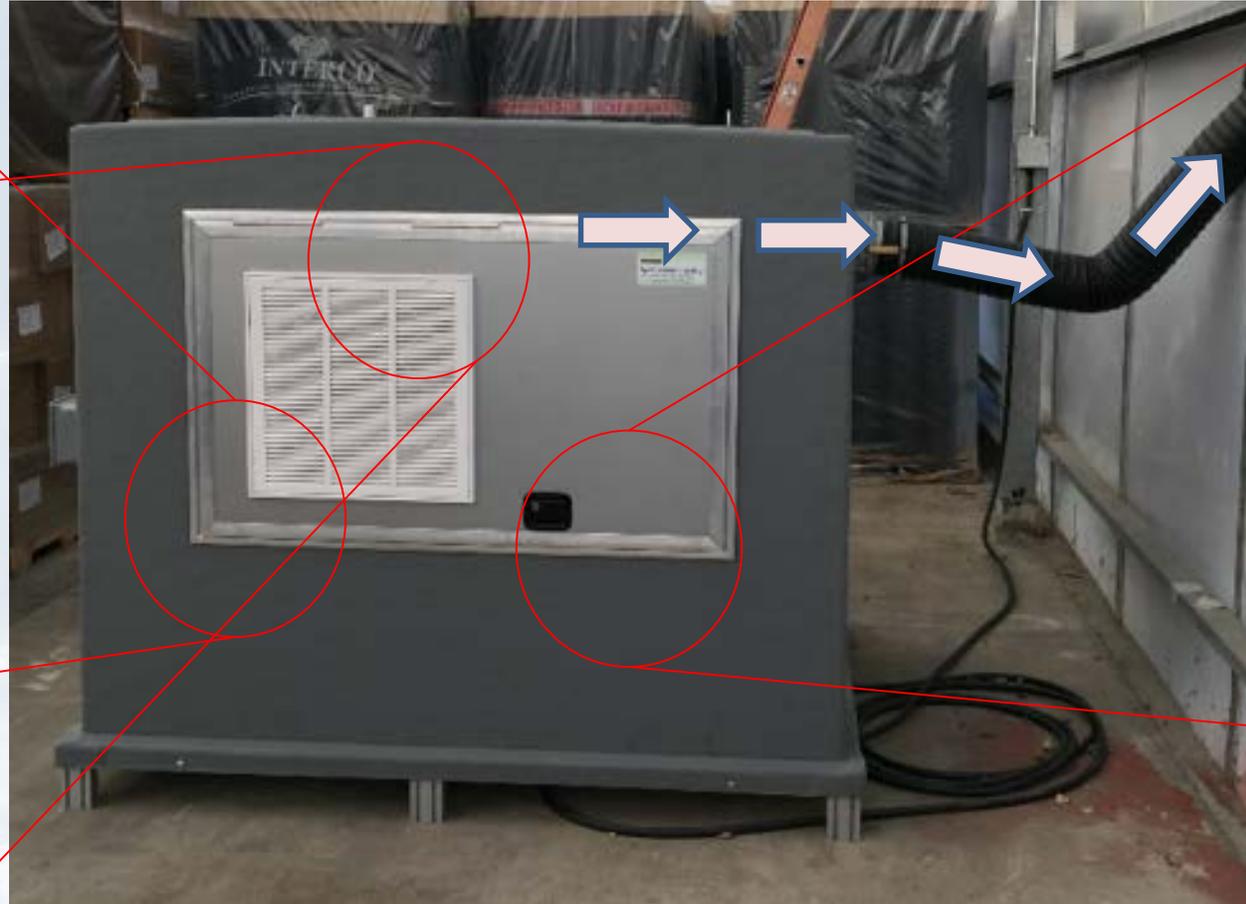


<http://byers-scientific.com/assets/bsm-vapor-system-v01.pdf>

Odor Control System Process Flow

Holding Tank
(Ecosorb CNB 100)

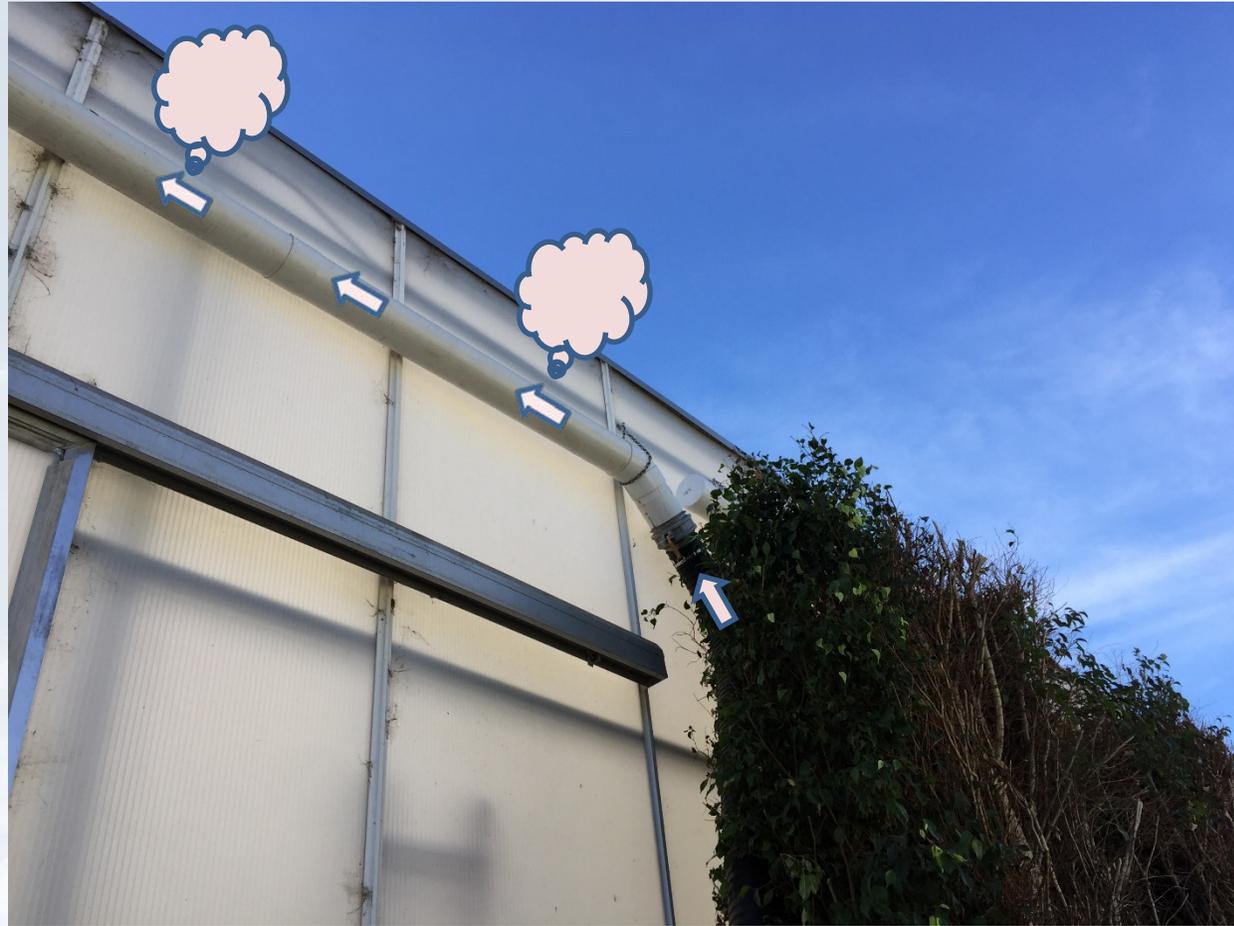
High pressure, low
volume blower



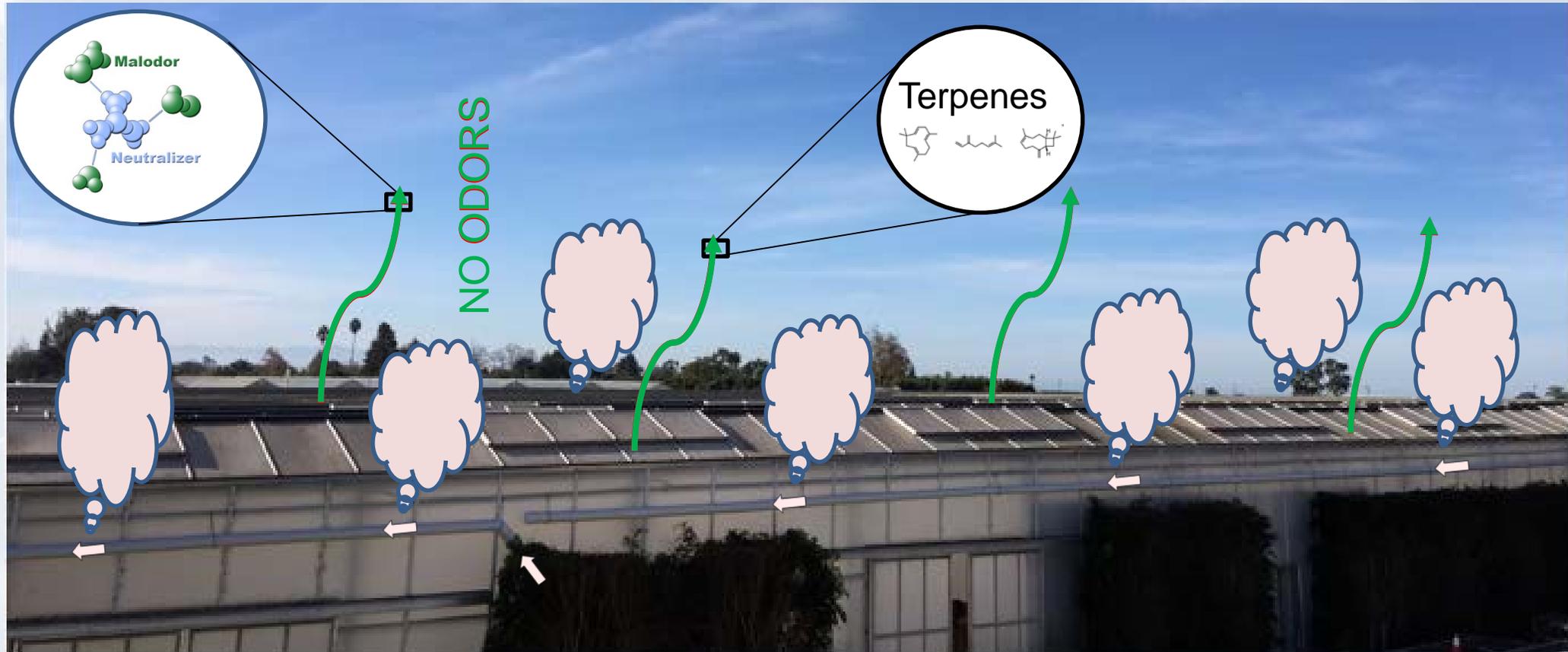
Evaporation Tank
(confidential)



Odor Control System Process Flow Cont.



Odor Control System Process Flow Cont.

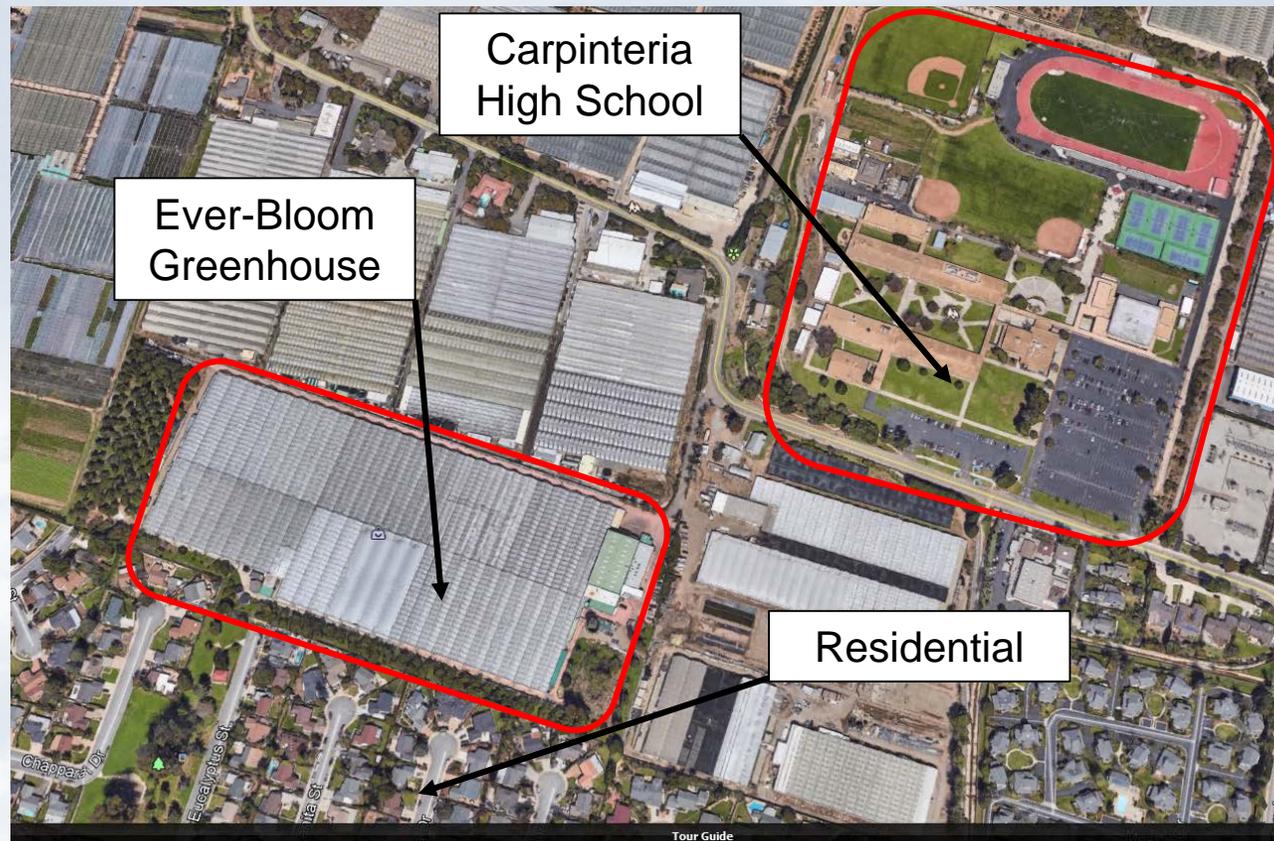


Considerations

- Ecosorb CNB 100 example:
 - Throughput ~ 3.5 gallons per day
 - A pine/citrus scent from overproduction of neutralizer vapor
 - Approximate capital cost \$38,000 - \$53,000, including installation
 - Annual operating cost (based on typical large-scale greenhouse operations) is \$45,000 – \$50,000 per year

Ever-Bloom Test Case

- 15-acre greenhouse located near sensitive receptors
- 650,000 sq. ft cannabis growing operation, previously grew flowers
- Installed a Byers-Scientific & Manufacturing vapor-phase odor control system in November 2017



Ever-Bloom Test Case Cont.

- Ever-Bloom invited District staff to inspect odor-control system in February 2018
- District staff toured the greenhouse and odor-control system
- Odor-control system was operating during the visit and appeared to be working as advertised
- Pungent odors from inside the greenhouse could not be detected directly outside the greenhouse or at the property line

Other Applications

- System currently installed at 14 cannabis operations in Carpinteria
- System can be used to control odors from:
 - Solid Waste (landfills, waste transfer stations, compost, pulp & paper)
 - Wastewater Treatment
 - Commercial (food waste, trash compactors, food processing)
 - Agricultural (dairy, poultry and hog farming)
- Also operational at Miramar Landfill in San Diego as well as composting and landfill operations throughout the US

Questions

Ecosorb CNB 100 Data Sheet



Byers Scientific & Manufacturing
Industrial Odor Management

2332 W. Industrial Park Drive
Bloomington, IN 47404
Ph: (812) 269-6218

ECOSORB® CNB 100 TECHNICAL DATA SHEET



Ecosorb® CNB 100 is an odor neutralizer designed specifically for the control of cannabis odors. It was designed to remove the odorous chemicals that are produced when growing cannabis. Ecosorb® CNB 100 is effective on the main groups of odor causing chemical compounds found in cannabis including but not limited to the cannabinoids, terpenes, and sesquiterpenes groups.

Ecosorb® CNB 100 can be diluted with water or used neat depending on the application and delivery equipment. Dilution with water ranges from roughly 1 part in 10 of water to 1 part in 100 of water, depending on the type of delivery system and odor intensity. This product is a blend of plant oils, food grade surfactant, and purified water.

Ecosorb® CNB 100 should never be applied in a manner that would allow it to come in direct contact with the cannabis plant, water or soil.

FEATURES

- True odor neutralized
- Biodegradable and non-toxic
- Environmentally friendly
- No measurable flash point
- Scientifically proven

ADVANTAGES

- No masking of odors
- Usually no permits required
- Safe for employees and neighbors
- Safe for all environments
- It performs as advertised

PHYSICAL PROPERTIES

pH: ~6.0
Specific Gravity: ~0.99
Boiling point: ~208° F
Appearance: Milky White
Odor: Slight Citrus

HMIS CLASSIFICATION

Health: 0 Flammability: 0 Reactivity: 0 Protective Equipment: B



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ECOSORB® CNB 100 TECHNICAL DATA SHEET



ALL INGREDIENTS CAN BE FOUND LISTED ON THE FOLLOWING CHEMICAL SUBSTANCE INVENTORIES:

United States: TSCA South Korea: ECL and KECI
Canadian: DSL China: IECSC
European: EINECS Japan: ENCS
Australian: AICS New Zealand: NZIoC

REGULATORY

- Ecosorb® CNB 100 is non-hazardous by OSHA Hazard Communication Standard 29 CFR 1910.1200
- This product does NOT contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm.
- Not subject to reporting requirements of the United States SARA Section 313.
- Uncontrolled product according to WHMIS classification criteria.

HANDLING AND PACKAGING

Ecosorb® CNB 100 is shipped in HDPE containers. It is recommended to store the product in the original container. The product should be stored in a well-ventilated place, in a cool area, out of direct sunlight, and tightly sealed. Store the product above 35°F and below 85°F. Allowing the product to freeze is especially damaging and will disrupt the emulsion. Extended exposure to higher temperatures may cause separation. Ecosorb® CNB 100 is incompatible with oxidizing agents and strong acids. This product does not burn. Always shake or mix before using.

DISPOSAL AND CLEANUP

Wash with water or soap and water. The product is not hazardous to humans, animals, or the environment. Dispose of in accordance with local, regional, and national and/or international regulations.

CONTAINERS

Ecosorb® CNB 100 is available in the following sizes:
5 Gallon Pails
55 Gallon Drums
275 Gallon Containers

DISTRIBUTOR OF

Ecosorb® *Remarkably effective. Surprisingly simple.*



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