

ATTACHMENT 7: ODOR ABATEMENT PLAN, DATED DECEMBER 23, 2021

Cannabis Odor Abatement Plan (Revised)

December 23, 2021

Prepared for:
Valley Crest Farms, LLC

Site Address: 5980 Casitas Pass Rd
Carpinteria, CA 93013

Prepared by:
Nate Seward, PE, CIH
Professional Mechanical Engineer (M31978)
Certified Industrial Hygienist (9582 CP)
Certified Radon Tester #108180RT
EPA & IICRC Instructor (WRT & AMRT)
Licensed Asbestos Abatement Consultant (I-1923)



Table of Contents

1.0	Compliance with Standards	1
2.0	Site Plan	1
3.0	Description of Odor Emitting Activities and Phases	2
4.0	Odor Equipment and Methods	3
	Nuetralizing Deodorant; Odor Armor 420	3
	How it works	4
5.0	Regenerative Carbon Scrubbers and Carbon Filters	7
6.0	Review and Approval by Third Parties	8
7.0	Model OAP and Odor Complaint Tracking System	9
8.0	Analysis of Other Technologies	15
9.0	Conclusions	15
10.0	Limitations	16

Attachment 1 – Fogco Odor Control System – Operations Manual & Benzaco Odor Armor 420 SDS

Attachment 2 – Benzaco Odor Management Plan

Attachment 3 – Charcoal Filter Equipment Specifications

Site Address: 5980 Casitas Pass Rd
Carpinteria, CA 93013

Re: Cannabis Odor Abatement Plan

1.0 Compliance with Standards

On behalf of Valley Crest Farms, LLC (Operator), this Odor Abatement Plan (Plan) has been prepared in compliance with the Santa Barbara County Coastal Zoning Ordinance, Section 35-144U. Cannabis Regulations, for the purposes of minimizing nuisance odors related to the cultivation of commercial cannabis at 5980 Casitas Pass Road, Carpinteria, CA 93013 (Site/Property). This Plan includes the evaluation of the following:

1. The proposed project site and analysis of existing infrastructure;
2. Odor emitting activities including the cultivation and processing of cannabis;
3. Site-specific installation of the proposed odor abatement system;
4. Current technology effectiveness in reducing and/or eliminating cannabis-related nuisance odors; and
5. Emerging technologies and other possible solutions for best available odor control technologies (BACT);

2.0 Site Description

The Operator is applying for a Coastal Development Permit (CDP) pursuant to the County's Coastal Zoning Ordinance for mixed-light greenhouse cannabis cultivation, nursery and processing. There is no change of use from the current agricultural operations on-site, and no new additional structures or expansion of footprint is proposed other than what currently exists on the Site. An existing 342,700 square foot greenhouse will contain the cultivation (336,500 square feet) and nursery operations (5,000 square feet). All processing activities, including, but not limited to, drying, trimming, packaging and storing of cannabis will occur inside an existing 35,200 square foot processing building with a 20,650 square foot mezzanine for a total of approximately 55,850 square feet.



3.0 Description of Odor Emitting Activities and Phases

Potential odor emitting activities that may occur on-site are as follows:

Greenhouse Cultivation Activities – Dutch Greenhouse

Area #1 – Nursery: Immature and vegetative cannabis plants are not considered odor emitting as they do not yet release terpenes or other odor causing compounds into the environment. Immature and/or vegetative plants are kept in the nursery area of the greenhouse, identified as #1 above (Area #1) for approximately four to five weeks before being transferred to the flowering section of the greenhouse, identified as #2 above (Area #2). With the aid of light deprivation techniques, cannabis plants in Area #1 will not be permitted to flower. Notwithstanding the fact that immature and vegetative cannabis plants produce little to no odor, the Operator has nevertheless included Area #1 within its initial odor abatement system (see Section 4.0 below). Such a design will be effective at controlling nuisance odors even if the Operator were to revise the layout of its greenhouse in the future.

Area #2 – Flowering: At approximately six weeks, and once moved into Area #2, the cannabis plant will begin to flower and produce terpenes and other compounds that typically result in odors. On average, and depending on the strain, plants are in the flowering phase for approximately seven to ten weeks. The Site consists of two odor abatement systems (see Section 4.0 below) located at both the North and South ends of the Site. The system is configured with auto dispensers located on the exterior of the greenhouse that automatically adjust based on wind direction and timed to coincide with daily hours of operation.

Area #2 – Harvesting: At approximately seven to ten weeks, cannabis plants are harvested. Harvesting of cannabis plants typically result in greater odors as the plants are agitated during the harvesting process. Harvesting activity will occur entirely within Area #2 of the greenhouse and encompassed by the odor abatement system (see Section 4.0 below). Once harvested, the cut cannabis plants will be packed into totes with sealed lids and stacked on carts for transport to the Processing Building.

Processing Building – Drying, Trimming and Storage: Carts are wheeled into the Processing Building before opening any individual tote. Plants are individually hung on racks to dry in climate controlled dry rooms for approximately seven to ten days. Once dry, the plants are removed and again placed into totes with sealed lids before being moved into either the trimming or storage areas for further processing or transportation off-site. All totes with sealed lids are stored in climate controlled rooms to prevent deterioration or contamination prior to transport.

4.0 Odor Equipment and Methods

The Operator is proposing to use the Fogco Odor Control system which utilizes the Odor-Armor 420® deodorant product specifically designed for cannabis odor neutralization (see Attachment 1 for Fogco equipment, specifications and SDS sheet for Odor-Armor 420 by Benzaco Scientific). The odor mitigation will consist of a micro fogging system encompassing each building per the manufacturer's recommendations. The objective as recognized by the County of Santa Barbara is to eliminate odors from reaching receptors within residentially zoned properties closest to the subject site.

Neutralizing Deodorant

The odor neutralizing agent to be used within the Fogco system is Odor Armor 420 manufactured by Benzaco Scientific, a leader in odor neutralization materials. Benzaco Scientific Subtractive Odor Control™ uses scientific odor neutralization concepts developed over the last twenty years and allows for a dramatic reduction or complete elimination of cannabis-related odors. Benzaco Scientific uses selected essential oils dispersed around and amongst the cannabis-related odors via vapor phase delivery. This results in a specific chemical and physical process that is designed to neutralize the cannabis-related odors. This process is referred to as a subtractive process and is not masking the cannabis-related odors.

The odor technology is an approved system as defined by the County of Santa Barbara's Coastal Zoning Ordinance, Section 35-144U Cannabis Regulations – which includes a “vapor phase system.” Furthermore, the system utilizes a vapor phase system technology and meets the following standards:

- **“The resulting odors must be odor-neutralizing, not odor masking”** - The neutralizing agent (Odor Armor 420) is an actual deodorant neutralizer (not a masking agent) specifically formulated for use in mitigating cannabis-related odors.
- **“The technology must not be utilized in excessive amounts to produce a differing scent (such as pine or citrus)”** - The neutralizing agent does not generate differing scents and is used in a proportional amount to the cannabis odor emissions being generated by the Site's operations. The system can be modified or adjusted to deliver the deodorant with the objective to obtain a neutral odor.
- **“Use of these systems must have supporting documentation which meet the United States Environmental Protection Agency's Acute Exposure Guideline Levels or similar public health threshold”** - The deodorant and/or neutralizing by-products are not a public health (acute or chronic) or environmental concern with supporting documentation that meets the United States Environmental Protection Agency's Acute Exposure Guideline Levels or similar public health thresholds.

The proposed odor abatement technology and methodologies are being used successfully in many other odorous industries including, landfills, waste/recycling, mining, demolition and others for the past thirty years.

How it Works:

The Fogco pumping systems will be constructed upon a solid stainless-steel frame and will feature a double-filter system (10-micron bag filter ► 5-micron cartridge filter) to insure proper filtration of any suspended solids.

- This equipment has the capability of precise dilution of the deodorant product for accurate feed rates. The deodorant will be diluted to be fed at the rate of 500 parts of water to 1 part of deodorant.
- For each zone, nozzles will be spaced at 10' spacings.
- The recommendation is to center the pump and then "tee" into the line to run equal distances in both directions. The pump is designed to receive a 24v on/off signal from a windmeter/weather station (included). The nozzles are size .025" and flow .029 GPM (1.74 GPH)
- Nozzles and tubing to be attached to the outside roof-edge of the buildings. 12" copper nozzle extensions will bring each nozzle away from the buildings.
- It is assumed that the pumping units will be placed indoors within the Boiler room. The unit will require 230v, 3-phase, 20-amp power. Valley Crest Farms will need to supply a minimum of 4 GPM clean city water at 40 psi to the pumping units. The systems will be constructed of high-pressure hoses and brass/SS double-filter nozzles. Because of the high pressure (~1000 PSI.) of our unique delivery system, the nozzles will be spaced to 10-foot centers.



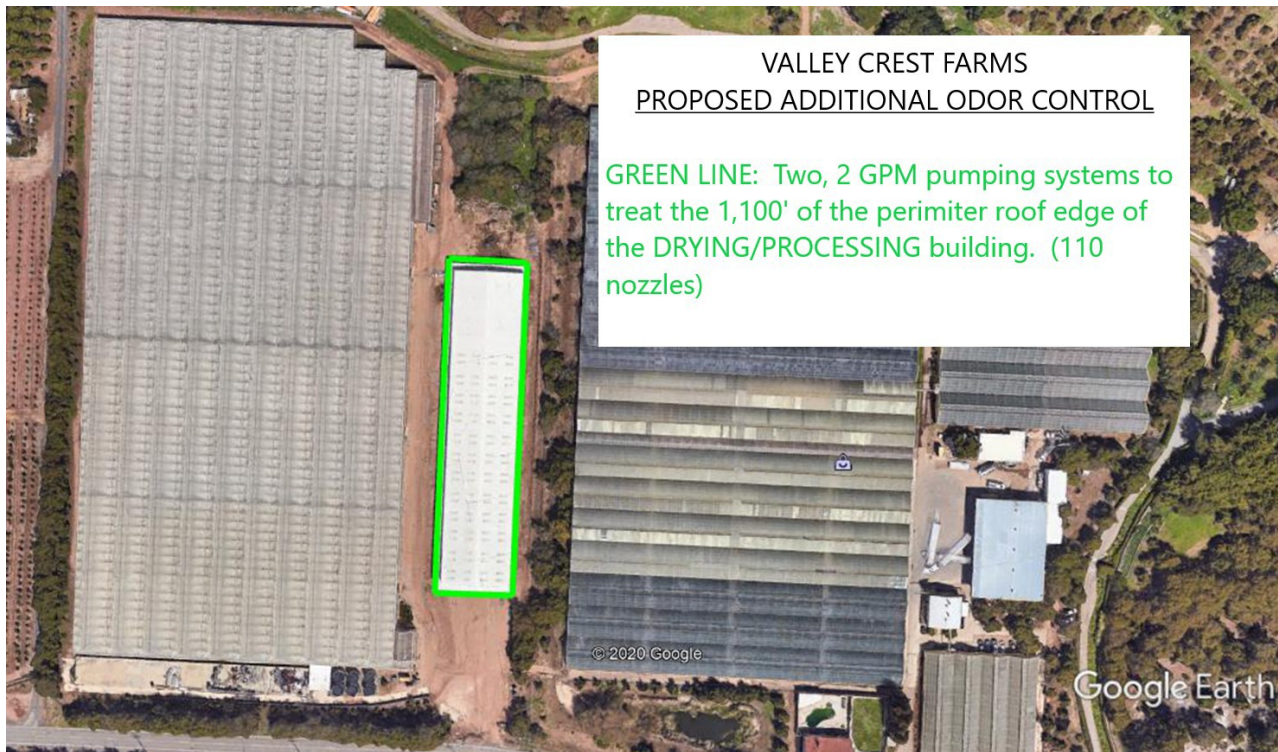
Odor Pumping equipment

Dutch Greenhouse – The Greenhouse will feature four, single-zone systems covering the perimeter of the greenhouse. Under normal operation, and depending on weather conditions, only two of the four zones will be activated by the greenhouse QCOM system to neutralize odors on the downwind side of the building.

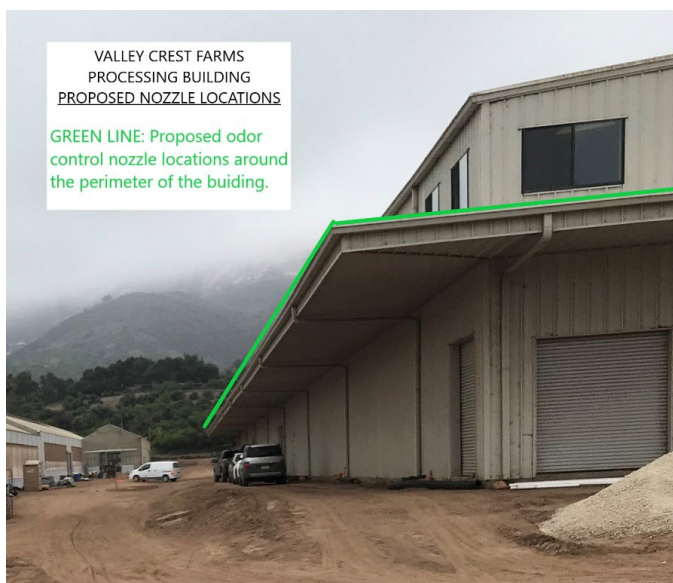


North side of Greenhouse; Valley Crest

Processing Building – All four sides are to be covered with two, single-zone high-pressure FOGCO pumping odor control systems. Only the downwind zone of the Processing Building will be activated to control transient odors.



Drying/Processing Building



5.0 Regenerative Carbon Scrubbers and Carbon Filters

We have evaluated a variety of best available odor control technologies (BACT) and currently recommend vapor phase as of the date of this report. Carbon filters are a proven technology for air-tight, enclosed buildings, but the efficacy around carbon scrubbers for venting greenhouses is still emerging.

Regenerative carbon scrubbers (RCS) as effective odor control technology for flowering cannabis plants in venting greenhouses is still under research and development, although preliminary data shows that the technology may be effective. As of the date of this report, however, regenerative carbon scrubbers for mitigation of odors from flowering cannabis plants in venting greenhouses are not yet currently commercially available and therefore cannot be firmly established as best available odor control technology (BACT). As research and development advances, however, the Operator may utilize RCS as supplemental technology in addition to the proposed vapor phase system, or utilize RCS to replace the vapor phase technology entirely.

As the technology surrounding RCS systems evolve and become commercially available, and should such technology prove effective in eliminating or substantially minimizing nuisance odors from escaping venting greenhouse environments, the Operator shall consult with qualified odor experts to implement RCS throughout its Operation with the long-term goal of eliminating or reducing reliance on vapor phase technology. Such implementation, however, shall be contingent on Site-specific analysis and conditions, including, but not limited to, available electrical power.

For additional odor reductions, carbon filtration systems are effective in mitigating odors but are not generally used within greenhouses due to the extremely large amount of air volume needed to be processed. Presently, carbon filtration is only effective in enclosed structures, such as the Processing Building and are only effective when they are used in conjunction with an inline fan to pull the air through the filter which includes activated carbon or charcoal. As such, odor reduction is only achieved if the air moves through the carbon filtration mechanism, which is not currently feasible in a venting greenhouse. Enclosing a greenhouse and attempting to use carbon filtration instead of vapor phase would require the installation of elaborate HVAC systems resulting in increased energy usage and is not a commercially feasible or environmentally sustainable option.

The Operator is planning to utilize CAN-LITE filters 10" horizontal air cleaners with activated carbon filters within the Processing Building where cannabis activities occur for additional odor mitigation and reduction. The activated carbon filters deliver approximately 1,500 CFM and will be placed within the structures to be most effective for odor mitigation. Maintenance and filter replacement will occur according to the manufacturers' specifications (see Attachment 3 for specifications).

Carbon Filter Requirements – The following analysis is used to determine the number of carbon filters needed to effectively neutralize nuisance cannabis odors from escaping the Processing Building:

$$\text{Cubic Feet/Min (CFM) Needed} = \frac{\text{Room Volume} \times \text{Air Changes/hour}}{60}$$

Assumptions: Air Changes/Hour = 4, 1,500 CFM per Carbon Filter

Processing Building Dimensions and Total Volume:

$$35,200 \text{ ft}^2 \text{ (Building Footprint)} \times 25 \text{ ft (Building Height)} = 880,000 \text{ ft}^3$$

Processing Activities

Drying Rooms:

$$50' \times 25' = 1,250 \text{ ft}^2 \times 12.5' \text{ tall} = 15,625 \text{ ft}^3 \times 2 \text{ Rooms} = 31,250 \text{ ft}^3$$

$$75' \times 25' = 1,875 \text{ ft}^2 \times 12.5' \text{ tall} = 23,437.5 \text{ ft}^3 \times 3 \text{ Rooms} = 70,312.5 \text{ ft}^3$$

Trimming Rooms:

$$50' \times 25' = 1,250 \text{ ft}^2 \times 12.5' \text{ tall} = 15,625 \text{ ft}^3$$

$$25' \times 25' = 625 \text{ ft}^2 \times 12.5' \text{ tall} = 7,812.5 \text{ ft}^3 \times 2 \text{ Rooms} = 15,625 \text{ ft}^3$$

Product Storage:

$$50' \times 25' = 1,250 \text{ ft}^2 \times 12.5' \text{ tall} = 15,625 \text{ ft}^3$$

Mezzanine Trimming Rooms/Product Storage:

$$25' \times 20' = 500 \text{ ft}^2 \times 10' \text{ tall} = 5,000 \text{ ft}^3 \times 22 \text{ Rooms} = 110,000 \text{ ft}^3$$

Total: 258,437.5 ft³

Analysis:

$$\text{CFM Needed} = (258,437.5 \times 4) / 60 = 17,229.17 \text{ CFM}$$

$$\# \text{ of Carbon Filters Required} = 17,229.17 / 1,500 = 11.49$$

Total: 12 Carbon Filters

Should the floor plan or activities within the Processing Building change, the Operator commits to ensuring that this analysis is applied to any such future changes to ensure effective mitigation of nuisance cannabis odors.

6.0 Review and Approval by Third Parties

Vapor-phase odor neutralizing technology is a proven odor abatement technology for reducing nuisance odors, including cannabis-related odors. According to a May 2018 presentation by Santa Barbara County Air Pollution Control District (APCD), an inspection was performed by APCD personnel of a 650,000 ft² cannabis cultivation facility in Carpinteria which revealed that an odor control system was operating and working as advertised and noted that pungent odors from inside the greenhouse, “could not be detected directly outside the greenhouse or at the property line.”

Field Observations

Criterion Environmental personnel, including myself, have also performed olfactory assessments at various cannabis cultivation properties in Carpinteria that are deploying the vapor phase Odor abatement technology. Results from these assessments are similar to the findings from APCD in that there is a substantial reduction in the cannabis related odor intensity within a few feet of the odor emitting source. The onsite field assessments also indicated an obvious reduction or dissipation in odor observation the further downwind from the mixing zone. The mixing zone is the air space above the piping delivery system where the deodorant neutralizer and the cannabis odors interact.

7.0 Odor Complaint Tracking System

In the event of an odor complaint at the Property, please contact the Operator's Primary Odor Contact, as well as the Planning & Development Department (Department) at (805) 568-2057 or online at https://www.surveymonkey.com/r/cannabis_complaints

Primary Odor Contact:

Christian Garner, Head of Security and Facilities (805) 317-6567

christian@goheadwaters.com

1. Weather Monitoring

- A. Operator shall install and maintain continuous weather monitoring equipment in accordance with direction of a meteorological monitoring network plan provided by a qualified third-party professional so as to continuously record and transmit weather data, including wind speed, direction (including low speed wind direction capabilities), temperature and barometric pressure for as long as it engages in cannabis cultivation at this Property.
- B. This weather data will be maintained electronically and made available upon request (for at least one year) to the Department.
- C. Operator will use weather data to identify the variables and conditions that can cause, contribute to and affect Odor Episodes (defined below) and to better understand the transport and fate of odor emissions from cannabis operations in Carpinteria.
- D. In the event that a regional meteorological network is created by the Department or other entity, data from Operator's weather monitoring equipment shall be made available in real time to such network.

2. Odor Technology

The facility shall follow all methods for controlling and reducing odor as outlined in this Odor Abatement Plan and shall deploy, or re-deploy the best available control technologies (BACT) or methods as necessary to control odor at the facility, as determined by the Department. Any BACT to be employed by an Operator at a future date may require additional permits or changes to existing permits as determined by the Department.

3. Initial Audit and Continuing Monitoring Obligations

The Operator shall develop a testing program to deploy continuously over a 7-day period the best available proven odor monitoring device/method to measure cannabis odor causing emissions from the property during the first week of permitted operations, if other equivalent baseline odor testing has not already been conducted. The applicant shall maintain all odor monitoring data for 3 years and shall provide odor monitoring data to the Department upon request.

4. Community Participation and Outreach

Prior to the commencement of operations, the Operator shall provide to property owners and residents located within 1,000 feet of the Property the contact information for the Primary Odor Contact, who shall be available by telephone on a 24 hour/day basis to receive and respond to calls regarding any odor complaints (Santa Barbara County Article II Coastal Zoning Ordinance (CZO) §35-144U.C.6.f.1.). The Operator shall immediately notify the Department, property owners and residents located within 1,000 feet of any changes to the local contact (CZO §35-144U.C.6.f.2.).

5. Odor Response Protocol

The Operator will continuously monitor odor complaints and will immediately route complaints to the Primary Odor Contact for a timely response. The Operator may utilize analytical tools and measurement systems to evaluate odor inquiries and assess odor conditions, as well as for routine monitoring of horticultural conditions, for the long-term goal of eliminating fugitive cannabis odors.

The Operator shall notify the Department of any complaints the Operator receives within 24 hours of receiving the complaint (CZO §35-144U.C.6.f.3). The Operator shall respond to an initial complaint within one hour and if needed, take corrective action to address any violation of CZO §35-144U.C.6 within two hours (CZO §35-144U.C.6.f.4). The Operator shall implement a complaint tracking system for all complaints that the operator receives, which includes a method for recording the following information: contact information of the complainant (if the complainant is willing to provide), as well as a description of the location from which the complainant detected the odors; time that the operator received the complaint; description of the complaint; description of the activities occurring on site when the complainant detected the odors; and actions the operator implemented in order to

address the odor complaint. The operator shall provide the complaint tracking system records to the Department as part of any Departmental inspections of the cannabis activity, and upon the Department's request. The operator shall maintain the complaint tracking records for a minimum of five years (CZO §35-144U.C.6.f.5).

If the Department receives three verified complaints regarding odor events in any 365-day period, the Operator shall implement corrective actions to comply with the odor abatement requirements of County Code Section §35-144U.C.

a. Level 1 Response - Initial Assessment and Corrective Actions

For any instance in the Odor Response Protocol below where the Operator can determine that an odor complaint is "resolved" or "unresolved", the determination by the Operator does not preclude the Department from taking further actions, including enforcement actions pursuant to Section 35-185 (Enforcement and Penalties), of the Coastal Zoning Ordinance, which may include, but are not limited to, initiating proceedings to revoke the applicable cannabis land use entitlement(s) pursuant to Section 35-169.8 (Coastal Development Permits) of the Coastal Zoning Ordinance.

Once an odor complaint is received by the Operator, the Operator shall within one hour after the odor complaint is received, perform an onsite visual inspection to ensure the function and integrity of the following:

1. The odor abatement equipment is working as intended and that there are no visible breaks or blockages in any odor abatement equipment; and
2. If being used, all carbon scrubbers or other odor abatement equipment are working properly and filters are clear of any debris; and
3. All doors are closed, sealed and secured, including greenhouse entry and exit points, internal processing rooms and processing entry and exit points, pursuant to Operator's Standard Operating Procedures ("SOPs"); and
4. A walk of the perimeter of the cannabis facilities, inspecting the integrity of the walls and structure and examining if a physically apparent source of odor can be detected.

If a cause for the reported odor episode was discovered during the inspection, the Operator shall take corrective action to address any violation of CZO §35-144U.C.6 within two hours of the complaint.

After taking corrective action, the Operator shall complete a site inspection at the reported odor complaint location to determine whether the odor complaint has abated. If odor is no longer detectable at the reporting location identified in the complaint or at locations in the direction where the Operator would expect odor to migrate based on the meteorological

conditions present at the time of the odor complaint, then the odor complaint may be deemed resolved.

If no cause for the reported odor complaint was ascertained during the inspection and if odor is not detectible at the reporting location identified in the complaint, the odor complaint shall be deemed resolved.

b. Level 2 Response -- Diagnostic Assessment and Corrective Actions

If, after the Level 1 Response is complete, the Operator continues to observe fugitive odors, receives further odor complaints indicating that the odor is persisting or recurring periodically during the following 8-24 hour period, the Operator shall:

1. Conduct a weather assessment (wind speed, direction and any shifts, anecdotal weather information collected from interested parties, time and duration of odor complaint) of the conditions that were occurring at and in the two hours before the time of the odor complaint;
2. Perform a comprehensive diagnostic review of the odor abatement system;
3. Interview staff members that were on site during and in the two hours before the time of the odor complaint and determine if they performed or observed any actions or circumstances that may have caused or contributed to the reported odor complaint and evaluate if the operation adhered to the Operator's SOPs for odor abatement;
4. Repair or correct any conditions discovered that may cause or contribute to the odor complaint.

If a cause for the reported odor complaint is identified, the Operator shall take corrective actions, revise its SOPs, and/or adjust the odor control systems as necessary to address the condition(s) that caused the odor complaint. The Operator shall obtain any applicable permits related to project changes resulting from corrective actions before implementing any new odor abatement equipment that is not identified in the OAP. The Operator shall report the conclusions of its investigations (excluding any bona-fide proprietary or trade secret information) to the Department. Once these steps are completed, the odor complaint shall be deemed resolved.

If no cause for the reported odor complaint was ascertained during diagnostic assessment, and if the known reporting location is confirmed to be odor-free, the Operator shall prepare a written report (excluding any bona-fide proprietary or trade secret information) summarizing the Level 2 Response and submit it to the Department.

c. Level 3 Response -- Analytical Assessment and Corrective Actions

If, after the Level 2 Response is complete, the Operator continues to observe fugitive odors and/or receives further odor complaints during the following 8-24 hour period, or the reporting party responds that odor is persisting or recurring periodically during the following 8-24 hour period, the Operator shall implement further corrective actions as follows:

1. Commission a Professional Engineer (PE) or a Certified Industrial Hygienist (CIH) to perform an on-site evaluation of odor levels to analyze whether the Operator is the source of the reported odor complaint. The Operator's PE or CIH will use the Operator's and any other available meteorological data and the Operator's knowledge of operational activities at the time specified in the odor complaint to investigate the odor complaint, as feasible.
2. If no further conclusions are found from the analysis, and the Operator is unable to identify the potential cause of the odor complaint, the odor complaint is unresolved.
3. In the event that an odor complaint is unresolved and is recurring or continuing, as evidenced by repeated odor complaints from the property, the Operator shall:
 - i. Commission a Professional Engineer or a Certified Industrial Hygienist to implement a testing protocol to measure odor or an odor-causing constituent using the best, currently available objective, odor measurement device, technology or methods.
 - ii. Undertake corrective actions identified by the PE or a CH including, but not limited to:
 1. Revise its SOPs.
 2. Adjust or improve the function of the existing odor control systems (e.g., adjust dispersal of neutralizers, replace spent carbon media, install self-closing doors).
 3. Install supplemental or replacement odor control technologies, such as but not limited to internal greenhouse scrubbing systems. Such technology could potentially include installation of 5-15 Regenerative Carbon Scrubbing units per acre of adult-flowering cultivation (exact system design to be defined on a Project specific basis as determined by a qualified professional). Depending on the scope and nature of the supplemental or replacement odor control technologies, additional permitting may be required by the Department and, if required, must be obtained before installing the technology.

If a cause for the reported odor complaint is identified, the Operator shall take corrective actions as recommended by the PE or CIH as necessary to address the condition(s) that resulted in the odor complaint. The Operator shall obtain any applicable permits related to project changes resulting from corrective actions before implementing any new odor abatement equipment that is not identified above in the OAP. The Operator shall report the conclusions of its investigations (excluding any bona-fide proprietary or trade secret

information) to the Department. Once these steps are completed, and the odor is not detectable at the reporting location, the odor complaint shall be deemed resolved.

If no cause for the reported odor complaint was ascertained during diagnostic assessment, and if the odor is not detectable at the reporting location, the Operator shall prepare a written report (excluding any bona-fide proprietary or trade secret information) summarizing the Level 3 Response and submit it to the Department.

If after the PE or CIH Analysis has been completed, the Operator believes it is not the sole or a contributing source of the reported odor complaint, the Operator shall notify the Department of its conclusion, within three (3) calendar days of reaching such conclusion. The Department will consider this information in determining whether corrective actions are necessary to comply with the odor abatement requirements of Section 35-144U.C, but the Department is not bound by the Operator's conclusion. If the Department verifies that the Operator is not a contributing source of the reported odor complaint, the complaint shall be deemed resolved.

d. Level 4 Response -- Comprehensive BACT Analysis and Corrective Actions

If, after the Level 3 Response is complete, the Operator continues to observe fugitive odors and/or receives further odor complaints, or the reporting party responds that odor is persisting or recurring periodically during the following 8-24 hour period, the Operator shall implement further corrective actions as follows:

- a. Commission a comprehensive Best Available Control Technology (BACT) analysis and submit to the Department a written report prepared by a Professional Engineer or a Certified Industrial Hygienist that includes:
 1. The likely or potential source of the odor complaint;
 2. Additional adaptive management techniques, including operational modifications and curtailment that are recommended to eliminate odor complaints;
 3. Recommendations for new or revised odor abatement technologies; and
 4. Installation of current best available analytical tools to monitor, identify and quantify the emissions causing or contributing to odor complaints.

If the BACT analysis concludes that a more effective odor control system is available that will resolve or materially reduce the severity of the odor causing the complaint the Operator shall take all necessary steps to install the more effective odor control system as expeditiously as practicable. The Operator shall obtain any applicable permits related to project changes resulting from corrective actions before implementing any new odor abatement equipment that is not identified in the OAP. The Operator shall report the conclusions of its investigations (excluding any bona-fide proprietary or trade secret information) to the Department. Once these steps are completed, and the odor is not detectable at the reporting location, the odor complaint shall be deemed resolved.

If no cause for the reported odor complaint was ascertained during diagnostic PE or CIH assessment, and if odor is not detectible at the reporting location, , the Operator shall prepare a written report (excluding any bona-fide proprietary or trade secret information) summarizing the Level 4 Response and submit it to the Department. If after the BACT Analysis, the Operator believes it is not the sole or a contributing source of the reported odor complaint, the Operator shall notify the Department of its conclusion, within three (3) calendar days of reaching such conclusion. The Department will consider this information in determining whether corrective actions are necessary to comply with the odor abatement requirements of Section 35-144U.C, but the Department is not bound by the Operator's conclusion.

e. For all Odor Episodes – Reporting and Corrective Actions:

The Operator shall make available to the Department and any reporting party, upon request, a report detailing all efforts taken to resolve odor complaints.

8.0 Analysis of Other Technologies

Ozone generators are often used for odor control, particularly within the structural restoration industry, such as smoke and odor or mold/sewage odor control. However, ozone technology has significant disadvantages and concerns. Ozone is a reactive gas and can be harmful if exposed to humans. OSHA has established permissible exposure limits to workers and EPA, NIOSH, and FDA have all agreed there is an increase in health risk if exposed to ozone. Based on this information, we do not recommend the use of ozone as an odor mitigation technology.

Masking Agents – There are several odor masking agents on the market that essentially disguise a malodor with a stronger, more pleasant odor. Due to the ineffectiveness of actually neutralizing the odor, we do not recommend the use of masking agents.

Other than the currently approved odor abatement technologies previously discussed within this plan (i.e., vapor phase technology & activated carbon filters) along with the Other odor mitigation technologies, Criterion Environmental, Inc. is unaware of any other odor technologies on the market specifically designed for cannabis odor mitigation.

9.0 Conclusions

The vapor-phase system, in conjunction with the use of activated carbon/charcoal filters as supplemental odor removal, are approved odor control technologies with recognition from Santa Barbara County Air Pollution Control District (APCD). Based on the review of the proposed technologies, our field observations, the efficiency of odor removal from these odor abatement systems and the site-specific installation at this property, we conclude the following:

1. The neutralizing agent is an actual deodorant neutralizer (not masking agents) specifically formulated for use in mitigating cannabis-related odors;
2. The system can be modified or adjusted to deliver the deodorant to obtain a neutral odor; and
3. The deodorant and/or neutralizing by-products are not a public health (acute or chronic) or environmental concern with supporting documentation that meets the United States Environmental Protection Agency's Acute Exposure Guideline Levels or similar public health thresholds.

In my professional opinion as a Licensed Professional Engineer (PE) and Certified Industrial Hygienist (CIH), the equipment and methods proposed to be used for reducing odors are consistent with accepted and available industry-specific best available control technologies. These technologies and methods, when properly designed and monitored, will mitigate cannabis-related odors from being experienced beyond the property lines and within residential zones.

10.0 Limitations

It should be noted and understood that although cannabis activities have been legalized and permitted within the County, it is expected that illegal and unpermitted commercial and personal growing operations will continue within the immediate area. Some of these operations are not complying with State or County regulations, particularly as it relates to odor abatement and are not in full compliance with the County's standards for odor abatement. Therefore, malodor complaints by the public may be incorrectly directed at the Operator. Cannabis odors, whether "real" or "psychological" are subjective and interpretive, depending on the receptor.

If you have any questions or concerns regarding the information provided, please do not hesitate to call us at 805.432.4888.

Respectfully submitted,



Nate Seward, PE, CIH

Professional Mechanical Engineer (M31978)

Certified Industrial Hygienist (9582 CP)

Attachment 1

Fogco Odor Control information



Case Study—Colorado Cannabis Grow Facility

COLORADO CANNABIS GROW FACILITY SAVED FROM LICENSE REVOKE BY IMPLEMENTING AN ODOR-ARMOR® 420 ODOR MANAGEMENT PLAN

The Problem

A licensed cannabis grow facility in the mountains of Colorado recently was saved from the imminent inevitability of being shut-down for persistent nuisance odor complaints from the neighbors. Although the owner had previously installed high-pressure fogging nozzles to treat odors from the greenhouse exhaust fans, complaints began to flood in...threatening the continued existence of the business.

The Objective

For the purpose of optimizing the existing odor control system to operate as it completely should, a thorough review of the system was conducted including:

- Nozzle placement
- Cross-wind affects
- Choice of odor counteractant,
- Feed-rate of the counteractant, and
- Contact-time of the counteractant with the cannabis odors.



The Study

It was determined that Odor-Armor® 420 should be used to treat the nuisance odors. Odor-Armor® 420 was specifically formulated to counteract the esters, terpenoids and reduced sulfur compounds found in nuisance marijuana odor. In order to demonstrate the efficacy and performance, an independent, third-party environmental consultant was brought in to conduct a three-day odor survey. The purpose: measure strength and characteristics of nuisance odors at the property line and the surrounding community utilizing Nasal Ranger® technology.

The Nasal Ranger® is a state-of-the-art portable, field olfactometer for confidently measuring and quantifying odor strength in the ambient air. Since the detection of odors are mostly subjective in nature, this device provides odor detecting and measuring values which determines ambient odor “Dilution-to-Threshold” (D/T) values objectively.

Continued on other side



Case Study—Colorado Cannabis Grow Facility (Pg. 2)



The Solution

With a cooperative effort from both Fogco Systems and Benzaco Scientific, engineers designed and constructed diversion hoods over each greenhouse exhaust fan to minimize the affect of the strong cross-winds blowing across the fans. The hoods increased the contact time between the Odor-Armor[®] 420 and the cannabis odor. As a result, the subsequent odor mapping from the Nasal Ranger testing demonstrated “no discernable marijuana odor” at neither the facility property boundary, nor in the surrounding community.

The Results

Despite being initially skeptical, both site personnel and the neighbors were significantly impressed and convinced. Because the growing facility implemented an Odor-Armor[®] 420 odor mitigation program, odor complaints have dropped off from over 30 per month to less than 2 per year. And more importantly, this particular site narrowly escaped being shut-down for odor complaints. Key neighbors who were initially in strong opposition to the cannabis operation had now written and submitted letters of support to the judge, encouraging a permit renewal. The use of Odor-Armor[®] 420, the Nasal Ranger[®] data, and the community letters of support were all enough to convince the hearing judge to rule:



“Permit Granted”

Information concerning human and environmental exposure may be reviewed on the Safety Data Sheet for this product. For additional information regarding incidents involving human and environmental exposure call 888.413.5800 and ask for Health and Environmental Affairs. For more information concerning sales and service contact 888.413.5800 and ask for your local sales representative.

Write Benzaco Scientific Inc., 5024 Garfield St NW, Washington, DC 20016.

www.benzaco.com



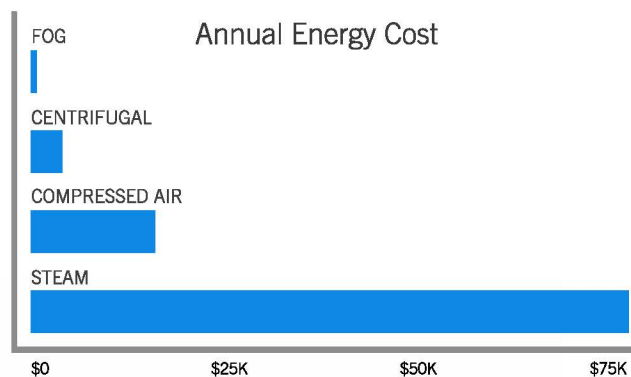
CLIMATE CONTROL

The Integrated Climate Control system (ICC) is an all-inclusive fog system that monitors and controls humidity and temperature levels based on programmable set points. The system incorporates Fogco's low-flow CAT pump; an integrated 2 zone FOGCOntroller microprocessor; and a combination of Revolution, Revolution II, or Evolution fan units. These fan units utilize 'air-assist' technology to provide exceptional throw and distribution of the humidity. This technology improves absorption of the moisture which provides precise and controllable humidity levels throughout the facility.

Although there are different methods of increasing humidity levels, a quick calculation of annual energy costs indicates the significant savings of using a fog based humidification system.

The ICC system provides better performance at a lower cost than other alternatives. It is effective in any Industrial humidification application including greenhouses, paper and wood processing, printing facilities, textiles, wineries, and more.

Better Control. Better Results.



Analysis for moisture output of 1 GPM (500 pounds per hour) 10 hours per day, 365 days per year with a kW rate of \$.13 per hour





ODOR CONTROL

An effective odor control system is a critical piece of any type of marijuana growing operation. Regardless of size or complexity, escaping odors must be treated and neutralized before reaching public areas creating community concerns and complaints. Since ventilation is a key ingredient to plant health, the pungent odor from different strains can be smelled for miles without some form of odor control.

Fogco's diverse line of high pressure products allows for a customized odor system to be designed for a variety of applications. When combining an injector with the high pressure fog system, a neutralizing agent can be introduced which will control and eliminate the odor rather than merely masking it. This technology has been effectively used for years to eliminate odor concerns in industrial markets such as sewage facilities, garbage transfer stations, farming, etc.

Better Control. Better Results.





SUBTRACTIVE ODOR CONTROL™

ODOR-ARMOR® 420

Many products, like masking agents, designed to control malodors using fragrances added to the air to overwhelm the malodor, actually ADD to the intensity of the malodor – additive masking technology. Many times the result is a fragrant version of the malodor AND a higher level of odor intensity.

The principle is simple...

Masking agents are additive +++++ **Odor intensity is increased**

Benzaco Scientific **Subtractive Odor Control™** makes additive masking technologies obsolete. By using scientific odor neutralization concepts developed over the last 20 years, Benzaco Scientific is able to dramatically reduce or eliminate malodors completely.

Benzaco Scientific uses selected essential oils, intimately dispersed with the malodor in vapor phase delivery and through a combined process of chemical reaction, odor opposites (antagonistic pairs), absorption and adsorption, and pluralistic effects, the odor is neutralized and eliminated.

ODOR-ARMOR® 420 is subtractive----- *Odor intensity is decreased*

Basically, Benzaco Scientific changes the way one smells the odor. The shape of the odor molecule triggers odor perception. Odor molecules solubilize in mucous in the nasal cavities. The solubilized molecule attaches to a protein in one of millions of olfactory sensory receptors. This combined protein/molecule triggers a signal to the olfactory bulb, which acts like a switching station, sending signals to the brain. These signals are received by various areas of the brain including the temporal lobe, which houses memory. Memory plays a very significant role in odor perception. Smells are remembered, and emotions are triggered by them.

Benzaco Scientific chemists use a number of techniques to modify malodors:

1. Modify the shape (chemical structure) of the odor molecule BEFORE it reaches the nose.
2. Modify the number and intensity of the triggering molecules reaching the nose.
3. Modify the perception of the odor.

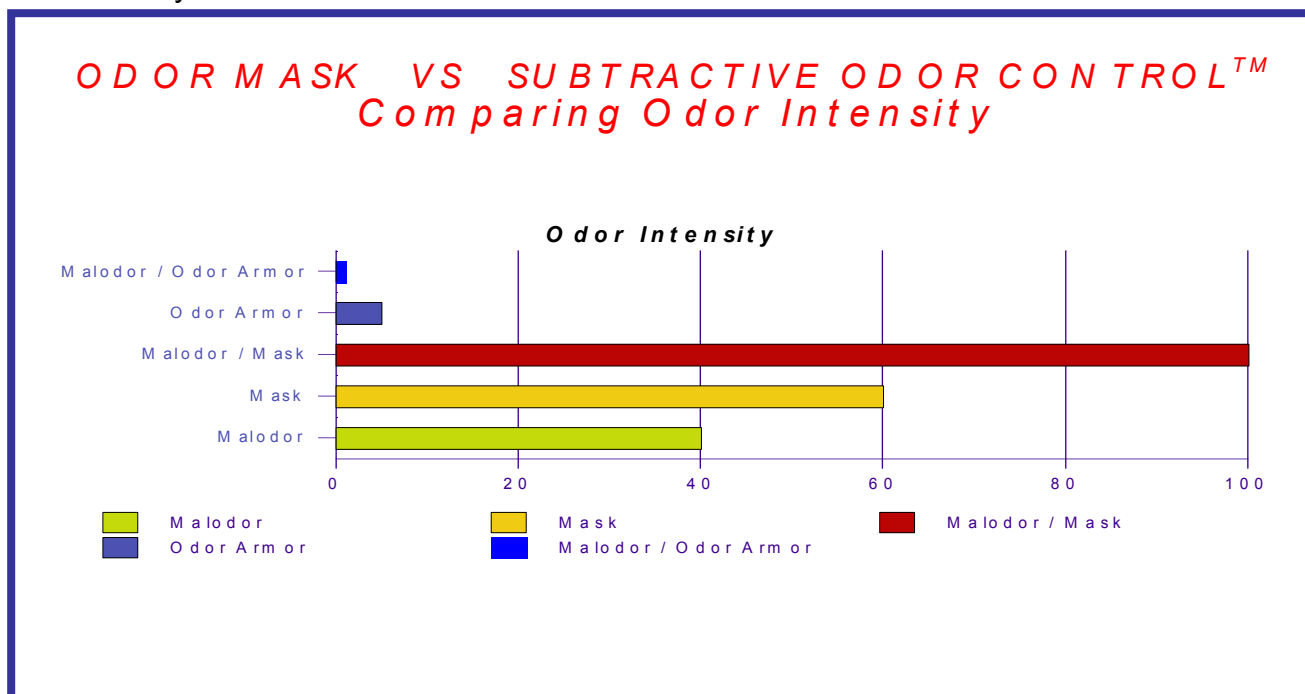
The chemical reactions between the molecules of malodour and the odor neutralizer creates a different molecule. If the new molecule reaches the nose, a different mechanism is triggered. Often, the reactions are catalyzed by other malodour molecules like hydrogen sulfide.

By selecting odor molecules which trigger an opposite signal to the malodor, both odors are cancelled. This effect known as antagonistic pairs or odor opposites, has been well studied and documented. The concept is used everyday in restaurants when lemon or orange is applied to cooked fish in order to negate the strong amine odors that can emanate. Antagonistic pairs exist, that work well outside of 1 to 1 stoichiometric chemistry. Benzaco Scientific chemists have discovered many odor opposites that work at a fraction of the level of the malodor they neutralize.

By correctly applying vapor phase technology, Benzaco Scientific is also able to take advantage of certain essential oils that solubilize (absorb) malodorous molecules, thus reducing the opportunity for these molecules to reach the sensory cells. Adsorption, a surface phenomena where molecules attach with a temporary electrical bond which in effect changes the shape of the molecules reaching odor receptors, is also used. Finally, many malodors have a dualistic or pluralistic effect. They are only malodorous when present at certain concentrations but when reduced in level, actually take on an acceptable odor.

Benzaco Scientific has many operational sites in the United States using Subtractive Odor Control™ Technology. The results are impressive. Analysis of air samples before and after treatment show reductions in odor intensity of 90% plus. Comparative tests on other vapor phase odor control technologies showed reductions of 40 to 60%

Benzaco Science chemists and engineers have combined to make Subtractive Odor Control™ an extremely effective method of odor management for the cannabis-growing industry. The right chemistry and the right engineering make the difference between unsatisfactory odor masking and complete odor reduction. Benzaco Scientific Subtractive Odor Control™ - tested and proven for over 20 years.



For more information on Benzaco Scientific engineered solutions for odor control, visit our website www.benzaco.com or contact your Benzaco Scientific Sales Representative, Rick O'Sadnick at 202.258.4777 or rick@benzaco.com.



St. Croix Sensory, Inc.

1150 Stillwater Boulevard North
Stillwater, MN 55082

1-800-879-9231
T: 651-439-0177
F: 651-439-1065

www.fivesenses.com

15 May 2017

Dana Pack
Fogco Systems, Inc.
600 S 56th St.
Chandler, AZ 85226

Re: Fogco-Benzaco Odor Management of Marijuana Grow Facility Air Emissions

On April 6, 2017, St. Croix Sensory evaluated the efficacy of a high-pressure, hose-and-nozzle, water fogging odor management system at CW Nevada medical marijuana grow facility in Pahrump, Nevada.

For more than 35 years, St. Croix Sensory staff has been assisting facility owners, consulting engineering firms, and regulatory agencies quantify odors from a variety of industrial, agricultural, and municipal operations, including wastewater treatment, landfills, composting, and manufacturing in both field and laboratory settings. St. Croix Sensory manufactures and markets state-of-the-art odor sampling and measurement equipment. Our "ODOR SCHOOL"® is an internationally recognized program to prepare inspectors to conduct field evaluations of ambient odors. We are dedicated to providing and maintaining the highest standard of quality for all laboratory services and manufactured products. St. Croix Sensory maintains a professional practice that continually reviews ASTM International, CEN (European), and ISO Methods. Our quality control practices ensure quality is met from receiving of materials and sample to the finished products and final reports delivered to our customers.

The purpose of this study was to evaluate the efficacy of an odor management system provided by Fogco Systems, Inc. (of Chandler, AZ) utilizing an odor counteractant specifically formulated for cannabis growing operations by Benzaco Scientific, Inc. (ODOR-ARMOR 420®). Three screened and trained assessors performed as an odor judge tribunal to evaluate at the fence line the untreated and treated air emissions from the grow facility. The evaluation protocol accommodated the guidelines of ASTM E1593 Standard Guide for Assessing the Efficacy of Air Care Products in Reducing the Perception of Indoor Malodor. The growing facility's almost continuous exhaust fans created the desirable "actual" conditions downwind at the facility fence line to be compliant with the ASTM 1593 scope for quantitative odor assessment in determining efficacy.

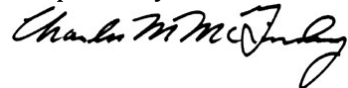
The odor tribunal unanimously agreed the treated air emissions with the Fogco System utilizing the Benzaco ODOR-ARMOR 420® odor counteractant product demonstrated "no discernible odor" at the fence line downwind of the facility continuous exhausts. Prior to the Fogco/Benzaco treatment, the ambient air at the fence line downwind of the CW Nevada facility presented as pungent, earthy, and marijuana-weed-like. The odor tribunal reported a consensus, "the marijuana odor disappeared when the fogging system was operating".

Downwind of the CW facility, from 1/8 to 1-mile on public access roadways, the ambient air was without a discernible odor. On the day of the evaluations, 4/6/2017, the weather conditions were dry (20% relative humidity), mostly sunny (60-deg F) with wind direction at the CW facility in Pahrump, NV was from the south at moderate wind speeds of 10-mph.

The Fogco System appeared to create a uniform evaporating fog-mist with no free-water droplets observed in the air, nor upon the immediate ground area. The Benzaco Scientific odor counteractant, when observed close to the immediate fog-mist, did not appear to have a strong, specific top-note fragrance, other than slightly floral and/or sweet.

The evaluation of the Fogco high-pressure fogging system, treating the exhaust air with Benzaco's ODOR-ARMOR 420® at the Pahrump, Nevada, CW Nevada marijuana grow facility demonstrated efficacy-effectiveness in treating the facilities air emissions, yielding "no discernible marijuana odor".

Respectively submitted,



Charles McGinley
Technical Director
St. Croix Sensory, Inc.


Benzaco Scientific
ENGINEERED ODOR MANAGEMENT
SAFETY DATA SHEET

1.0 IDENTIFICATION

GHS Product Identifier

Product Name	Odor-Armor [®] 420 EPA
Other Means of Identification	Not available
Product Type	Liquid
Recommended Use of the chemical	Odor Counteractant Industrial (not for food or food contact use)
Supplier Details	Benzaco Scientific, Inc. 5185 MacArthur Blvd NW Suite 606 Washington, DC 20016
Emergency Telephone Information	888-413-5800

2.0 HAZARD INFORMATION

GHS Classification of the substance / mixture

Physical Hazards	Not classified.
Health Hazards	Not classified.
Environmental Hazards	Not classified.
OSHA Defined Hazards	Not classified.

OSHA Hazard Communication Standard

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS Label Elements

Hazard Symbol		
Signal Word	Warning	Danger

Hazard Statements	H302 Harmful if swallowed. H318 Causes serious eye damage.
--------------------------	---------------------------------------------------------------

Precautionary Statement

Prevention	P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection.
-------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Response	P301 + P312 + P330 IF SWALLOWED: Call a POISIN CENTER or doctor/physician if you feel unwell. Rinse mouth. P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage	P403+P235: Store in a well-ventilated place. Keep cool. Store away from incompatible materials.
Disposal	P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazards not otherwise classified (HNOC) None known.

3.0 COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>Common Name and Synonyms</u>	<u>CAS#</u>	<u>Weight %</u>
Essential Oils	No information available	Mixture	1-50
Alcohols, C9-11, ethoxylated	No information available	68439-46-3	1-50

*This product is non-toxic, non-corrosive, non-flammable and bio-degradable.

*The specific chemical identities of the ingredients in this mixture are considered to be trade secrets and are withheld in accordance with the provisions of 1910.1200 of the Code of Federal Regulations.

4.0 FIRST-AID MEASURES

First aid measures for different exposure routes

Eye Contact	Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a physician, preferably an ophthalmologist.
Skin Contact	Wash skin with soap and plenty of water. If skin irritation persists, call a physician.
Inhalation	If unconscious, place in recovery position and seek medical advice. If symptoms develop, move person to fresh air, if they persist, obtain medical attention.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth if victim is unconscious, is rapidly losing consciousness or is convulsing. If symptoms persist, call a physician. Take victim immediately to a hospital.

Most important symptoms/effects, acute and delayed

Long Term Effects None known.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5.0	FIRE-FIGHTING MEASURES
-----	-------------------------------

Unsuitable Extinguishing Media	High volume water jet.
Specific Hazards during Firefighting	Do not allow run-off from firefighting to enter drains or water courses.
Hazardous Combustion Products	No hazardous combustion products are known.
Further Information	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special Protective Equipment for Firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6.0	ACCIDENTAL RELEASE MEASURES
-----	------------------------------------

Personal precautions, protective equipment and emergency procedures

Personal Precautions	Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard.
Environmental Precautions	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains, inform respective authorities.

Methods and materials for containment and cleaning up

Before attempting to clean up, refer to hazard data within this document. Contain spilled material if possible.

Small spills	Soak up with inert absorbent material (e. g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable covered and properly labeled containers for disposal. Wash the spill site with large quantities of water.
Large spills	Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. For larger quantities, review Federal, State / Provincial and Local Governments prior to disposal.
Environmental Precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7.0	HANDLING AND STORAGE
-----	-----------------------------

Precautions for safe handling

Advice on protection against Fire and explosion	Normal measures for preventive fire protection.
Advice on safe handling	Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection, see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations. Safety glasses and gloves recommended.

Conditions for safe storage, including any incompatibilities**Technical measures / Storage conditions:**

Keep out of reach of children. Store away from direct sunlight or ultraviolet light. Keep container tightly closed when not in use and store in a dry place away from incompatible materials, heat and sources of ignition.

Shelf life:

Use within 12 months.

Maximum Storage Temperature:

40 - 95 °F

*May get cloudy at higher temperatures.

8.0	EXPOSURE CONTROLS / PERSONAL PROTECTION
-----	------------------------------------------------

Control parameters**Biological Limit Values**

No biological exposure limits noted for the ingredient(s).

Appropriate Engineering Controls**Ventilation**

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Individual Protection Measures**Eye/Face Protection**

Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.

Skin Protection

Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hand protection

Wear appropriate chemical resistant gloves when handling this material for prolonged or repeated contact. Consistent with general hygienic practice for any material, skin contact should be minimized.

Respiratory Protection

General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air purifying respirators may not provide adequate protection.

Hygiene Measures

Use good personal hygiene. Do not consume or store food in the work area. When using, do not eat, drink or smoke. Wash hands before breaks, eating or smoking and at the end of the workday.

9.0	PHYSICAL AND CHEMICAL PROPERTIES
------------	-----------------------------------------

Physical State	Liquid
Color	Clear, Colorless, Opaque
Odor	Fragrant
Odor Threshold	No test data available
pH (100%)	5 - 7.5
Freezing Point	No test data available
Melting Point	No test data available
Boiling Point	>100 °C (212 °F)
Flash Point - Closed Cup	>200 °C
Evaporation Rate (H₂O = 1):	No test data available
Flammability Solid	No test data available
Flammability Gas	No test data available
Flammable Limits In Air Lower:	No test data available
Upper	No test data available
Vapor Pressure	No test data available
Vapor Density (air = 1)	No test data available
Specific Gravity (H₂O = 1)	0.999
Solubility in Water (by weight)	100 %
Auto Ignition Temperature	No test data available
Decomposition Temperature	No test data available
Viscosity	Water thin
Pour Point	No test data available

10.0	STABILITY AND REACTIVITY
-------------	---------------------------------

Reactivity	No dangerous reaction known under conditions of normal use.
Stability/Instability	Stable under recommended storage conditions.
Conditions to Avoid	Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid direct sunlight or ultraviolet sources. Keep away from heat, flame, sparks and other ignition sources.
Incompatible Materials	To avoid losing product integrity; mix this product only with water.
Hazardous Polymerization	Will not occur.

11.0	TOXICOLOGICAL INFORMATION
-------------	----------------------------------

Acute Toxicity**Components 68439-46-3****Acute Inhalation Toxicity****Acute Dermal Toxicity**

No data available
LD50, Rat > 2,000 mg/kg.

Skin Corrosion / Irritation

Remarks: Extremely corrosive and destructive to tissue.

Components 68439-46-3

Species: Rabbit

Result: No skin irritation

**Serious Eye Damage /
Eye Irritation**

Remarks: May cause irreversible eye damage.

Components 68439-46-3

Species: Rabbit

Result: Risk of serious damage to eyes

Respiratory or Skin Sensitization**Components 68439-46-3**

Test Type: Maximization test

Species: Rabbit

Result: Did not cause sensitization on laboratory animals

Germ Cell Mutagenicity**Components 68439-46-3**

Genotoxicity in vitro

Test Type: Ames test

Species: Salmonella typhimurium

Result: Negative

Germ Cell Mutagenicity – Assessment Mutagenicity classification not possible from current data

Carcinogenicity**Components 68439-46-3**

Carcinogenicity – Assessment Carcinogenicity classification not possible from current data

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive Toxicity**Components 68439-46-3**

Reproductive Toxicity – Assessment Fertility classification not possible from current data.

Teratogenicity – Assessment Embryo toxicity classification not possible from current data.

12.0

ECOLOGICAL INFORMATION**Ecotoxicity****Components 68439-46-3****Aquatic**

Fish LC50

Species

Pimephales promelas (fathead minnow)

Test Results

12 mg/l, 96 hours

Daphnia and other

Aquatic invertebrates EC50

Daphnia magna (Water flea)

5.4 mg/l, 48 hours

Algae

Algae ErC50

Desmodusmus subspicatus (green algae)

>8.9 mg/l, 72 hours

Acute aquatic toxicity – Assessment Toxic to aquatic life.

15.0 REGULATORY INFORMATION**US Federal Regulations**

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

EPCRA – Emergency Planning and Community Right-to-Know Act**CERCLA Hazardous Substance List (40 CFR 302.4)**

This material does not contain any components with a CERCLA RQ.

SARA 304 Emergency Release Notification

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

Immediate (Acute) Health Hazard

SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61)

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112r for Accidental Release Prevention (40 CFR 68.130, Subpart F)

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489)

Clean Water Act

This product does not contain any hazardous substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any hazardous chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. CleanWater Act, Section 307.

US State Regulations**US Massachusetts RTK – Substance List**

No components are subject to the Massachusetts Right to Know Act

US New Jersey Worker and Community Right-to-Know Act

68439-46-3 Alcohols, C9-11, ethoxylated 1 – 50%

US Pennsylvania Worker and Community Right-to-Know Law

68439-46-3 Alcohols, C9-11, ethoxylated 1 – 50%

US California Proposition 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16.0 OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date:	May 18, 2018	SDS prepared by:	Benzaco Scientific, Inc.
Revision:	March 11, 2019	Telephone:	888-413-5800

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



PRODUCT VOC INFORMATION

Product: ODOR-ARMOR[®] 420

Test: Volatile Organic Compound Content via EPA Method 24

Results: The VOC content of ODOR-ARMOR[®] 420 using EPA Method 24 was found to be 1.42% by weight in the UNDILUTED product.

The VOC content of ODOR-ARMOR[®] 420 using EPA Method 24 in the use concentrate (500:1) is **0.00284% by weight**

@ 1000:1 dilution the VOC content by weight is 0.00142%

Other Applicable Information:

ODOR-ARMOR[®] does not contain any components of concern listed on the List of Ozone Depleting Substances from Section 602 of the Clean Air Act or from the List of Hazardous Air Pollutants from Section 112 of the Clean Air Act Amendments of 1990.

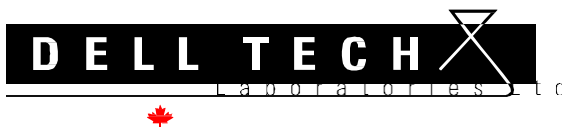
The information and recommendations contained in this document are presented in good faith and believed to be reliable but shall not be part of the terms and/or conditions of sale of any Benzaco Scientific product. Because many factors affect product application and performance, each customer must determine for itself, by conducting appropriate tests or other methods, whether Benzaco Scientific products are suitable for that customer's needs.

BENZACO SCIENTIFIC MAKES NO WRITTEN, ORAL, EXPRESS OR IMPLIED WARRANTY REGARDING THE BENZACO SCIENTIFIC PRODUCTS DESCRIBED HEREIN, THE RESULTS TO BE OBTAINED FROM THEIR USE, OR THE ACCURACY OR USE OF THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN. BENZACO SCIENTIFIC SPECIFICALLY DISCLAIMS THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Information concerning human and environmental exposure may be reviewed on the Material Safety Data Sheet for the product. For additional information regarding incidents involving human and environmental exposure call 888-413-5800 and ask for Health and Human Affairs.

For more information, contact a Benzaco Scientific Sales Office or call toll free 888.413.5800.

Write: Benzaco Scientific,
5185 MacArthur Blvd. NW, Suite 606
Washington DC 20016
www.benzaco.com



October 5, 2017

Mr. John Ablon, President Benzaco
Scientific Inc.
5024 Garfield St. NW
Washington, DC USA
20016

Dear Mr. Ablon:

You have requested that Dell Tech Laboratories provide additional information to that on the Safety Data Sheets (SDS) that we prepared for your products, Odor-Armor[®], Odor-Armor[®] 420 and the OCC2000[®] blends. Specifically, you are asking about the toxicology of the ingredients in your formulation beyond what is stated on the SDS.

Our information is based on a search on the toxicology of the component materials. One important element of our search is the presence or absence of any ingredient on lists provided by United States Federal and State regulators. When chemical materials have demonstrated sufficient toxicology or environmental concerns, regulators will place them on these lists. The lists serve to warn consumers about the use, shipping, handling and disposal requirements of the chemical.

In our search, we have used a reference known as “the List of Lists” of regulated chemical materials in the USA. After comparing these lists to the components in Odor Armor, Odor Armor does not contain any components of concern that are listed on the following regulatory lists:

1. List of Hazardous Air Pollutants from Section 112 of the Clean Air Act Amendments of 1990
2. List of Priority Pollutants of the National Permit Discharge Elimination System (NPDES) Permit Regulations (40 CFR 122) from the EPA Office of Water
3. Resource Conservation and Recovery Act Materials List (includes F, K, P, U and D listings)
4. List of Extremely Hazardous Substances from Section 302 of the Superfund Amendments and Reauthorization Act of 1986 (SARA)
5. List of Toxic Chemicals from Section 313 of SARA
6. List of Hazardous Substances from the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)
7. List of Ozone Depleting Substances from Section 602 of the Clean Air Act
8. List of Hazardous Substances under part 116 of the Federal Water Pollution Control Act (FWPCA)
9. No component at a level subject to disclosure on the Hazardous Substance List of Pennsylvania Right-To-Know-List

Together with the Safety Data Sheet that we previously provided, we feel that we have completely covered the information that you requested. Should the regulatory agencies in the United States or Canada add any of the components in your product to any list of toxicology or environmental concern, we will notify you immediately.

Yours very truly,

Dell Tech Laboratories Ltd.

Robert J. Dell

Robert J. Dell President

Attachment 2

Benzaco Odor Management Plan

June 01, 2020

Greenbrier Holdings
Valley Crest Farms, LLC
5980 Casitas Pass Rd.
Carpinteria, CA 93013
ATTN: Norm Allinder
(209) 534-6252
norm@greenbrierhdgs.com

SUBJECT: RECOMENDATIONS AND PLAN TO EFFECTIVELY CONTROL CANNABIS ODORS. VALLEY CREST FARMS. CARPINTERIA, CA.

Dear Norm:

Benzaco Scientific, Inc. is pleased to present these recommendations to provide an effective odor control plan for the Valley Crest Farms grow facility in Carpinteria, CA. Benzaco Scientific's *Odor-Armor*[®] 420 lines of odor neutralizers are the best high-pressure fogging and vapor-phase odor neutralizers available anywhere. When used properly, it will eliminate the odor issues expected to be being experienced at your site. Further technical information can be found in the attachments at the end of this proposal.

Overview and Considerations

The Valley Crest Farms Greenhouses are being proactive and getting out in front of any concern for the potential for cannabis smells from the site migrating off site and becoming a nuisance.

Recommendations

This plan will address both the delivery systems required, and the proper neutralization chemical to be used. We recommend the use of the concentrated *ODOR ARMOR 420*[®] product. The product is a true odor neutralizer that physically eliminates odors, unlike masking agents that seek to simply overpower them.

WATER CONSERVATION

It is important to highlight that in addition to effective odor mitigation, special attention is always paid to *conserving water* at every turn in the design of an odor management system. This is accomplished by incorporating *low flow atomizing nozzles* and automating the functions of the odor control systems into the automated control of the greenhouse communication systems (QCOM).

The FOGCO odor control systems at the Valley Crest greenhouse have already been installed, and the PROCESSING building will be fitted with odor control nozzles around the entire perimeter of the building, and the sides split into *individual zones*. The idea being that depending upon the wind direction and speed, only the zones on the direct *down-wind* side of the buildings will be activated to mitigate the transient odors.

For instance: The Valley Crest Farms “Big” greenhouse features four, single-zone systems covering the perimeter of the greenhouse. (four zones in total). Under normal operating and weather conditions, only two of the four zones will be activated by the greenhouse QCOM system, drastically *reducing water consumption of the units by 50%*.

Below are descriptions of the two buildings that make up Valley Crest Farms, and how they are equipped with odor control equipment:

PROPOSAL / CURRENT ODOR CONTROL SET-UP AT VALLEY CREST FARMS

There are two total buildings at Valley Crest Farms:

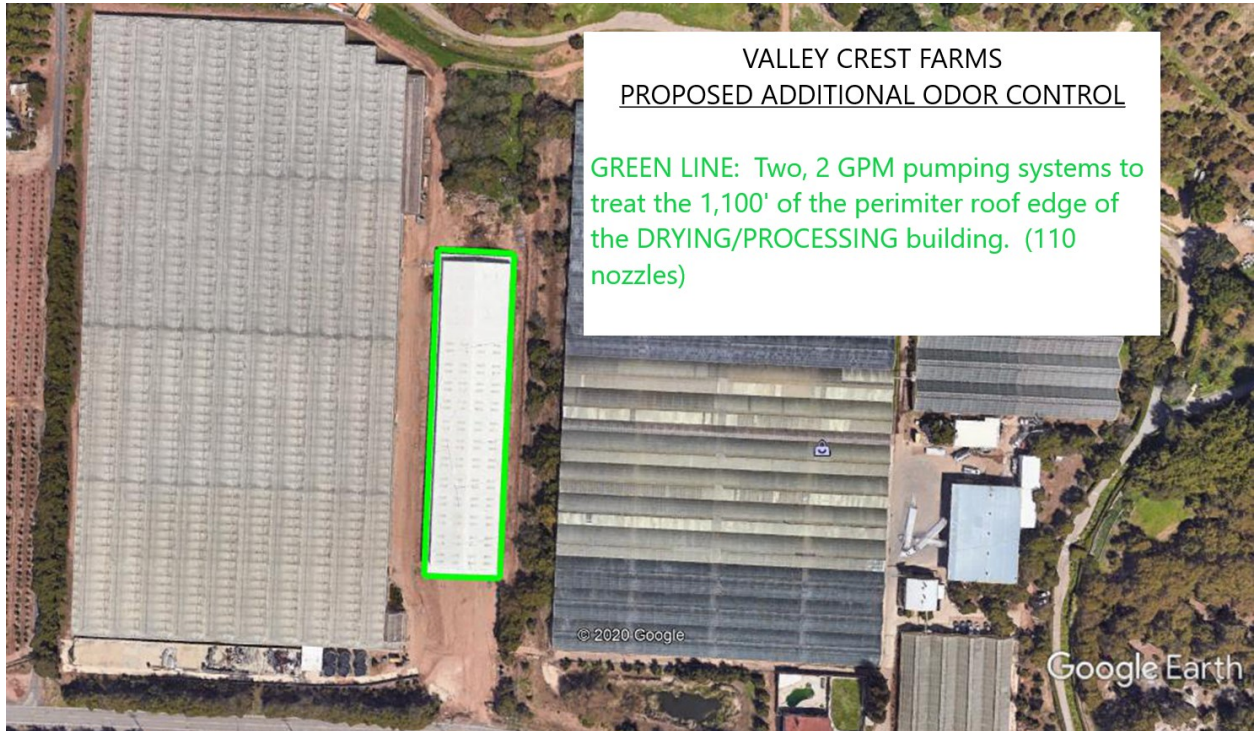
1. The Dutch Greenhouse

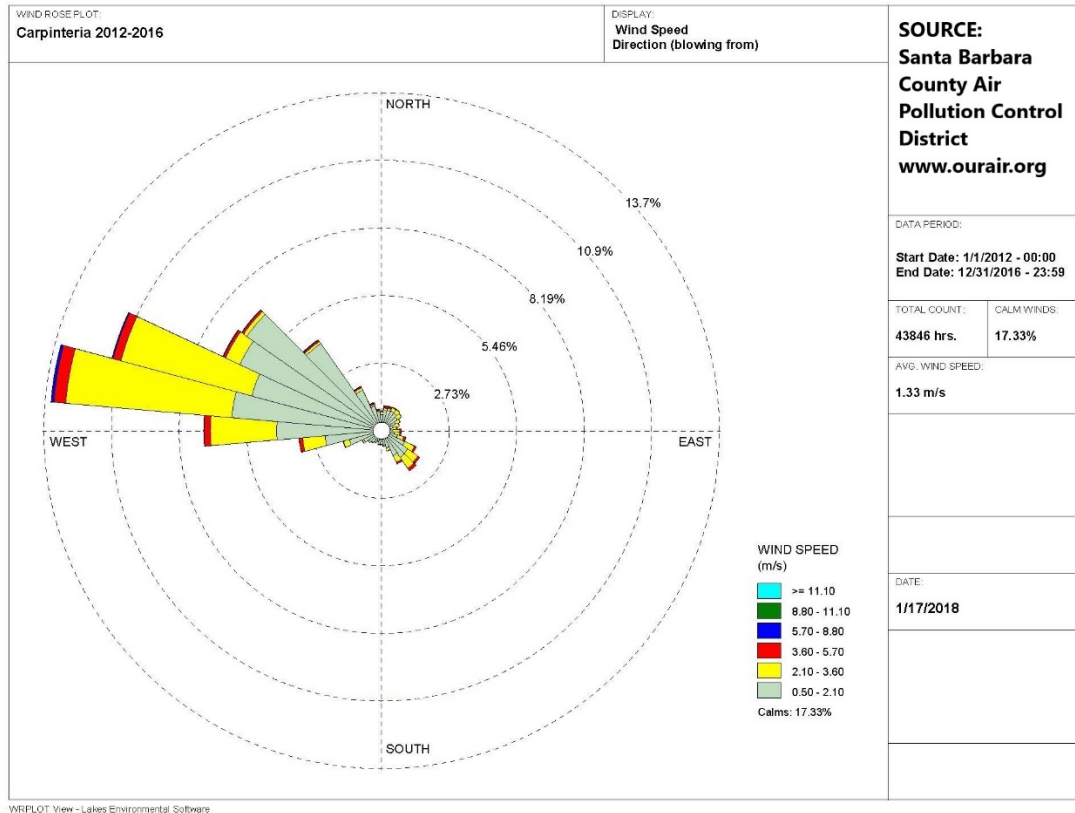
All four sides are already covered with four existing FOGCO high-pressure odor control systems. (see the picture below). The functionality of the individual zones is dependent upon the direction of the wind. (Only the downwind zones of the greenhouse are activated to control odors)

2. The “Drying/Processing” building

All four sides are to be covered with two, single-zone high-pressure FOGCO pumping odor control systems. Only the downwind zone of the Processing building will be activated to control transient odors.







Carpinteria Wind-Rose

This Wind-Rose depicts and confirms that the predominant wind direction in Carpinteria and at Valley Crest Farms is from the west-northwest, at average speeds of under 3.6 mph. Most odor control activities will address the east-southeast (downwind) sides of the site.

The new Fogco pumping systems will be constructed upon a solid stainless-steel frame and will feature a double-filter system (10-micron bag filter ► 5-micron cartridge filter) to insure proper filtration of any suspended solids.

- This equipment has the capability of precise dilution of the **ODOR ARMOR 420®** product for accurate feed rates. **ODOR ARMOR 420®** will be diluted to be fed at the rate of 500 parts of water to 1 part of product.
- For each zone, nozzles will be spaced at 10' spacings.
- The recommendation is to center the pump and then "tee" into the line to run equal distances in both directions. The pump is designed to receive a 24v on/off signal from a windmeter/weather station (included). The nozzles are size .025" and flow .029 GPM (1.74 GPH)
- Nozzles and tubing to be attached to the outside roof-edge of the buildings. 12" copper nozzle extensions will bring each nozzle away from the buildings.

- It is assumed that the pumping units will be placed indoors, within the greenhouse. The unit will require 230v, 3-phase, 20-amp power. Valley Crest Farms will need to supply a minimum of 4 GPM clean city water at 40 psi to the Processing building units. The systems will be constructed of high-pressure hoses and brass/SS double-filter nozzles. Because of the high pressure (~1000 PSI.) of our unique delivery system, the nozzles will be spaced to 10-foot centers.



ODOR CONTROL ON NORTH SIDE OF THE GREENHOUSE AT VALLEY CREST FARMS



Odor control pumping systems at Valley Crest Farms

Benzaco Scientific, Inc. is confident Valley Crest Farms Greenhouses will find that this odor control unit, hoses, nozzles, and fittings will exceed expectations and will prove to be an integral part in the Site's overall odor control plan. Please review this proposal, and if you have any questions or concerns you would like to discuss, please call me at (202) 258-4777. Benzaco Scientific, Inc looks forward to continuing working with you and the Valley Crest Farms greenhouse facilities.

Sincerely,
Benzaco Scientific, Inc.

Rick O'Sadnick

Rick O'Sadnick
Senior Scientist

John Ablon

John Ablon
CEO

ATTACHMENTS

- **St. Croix Sensory (Nasal Ranger) findings describing the effectiveness of Odor-Armor[®] 420 counteracting cannabis odors**
- **Explanation of Subtractive Odor Control**
- **Frequently asked questions**
- **Health & Safety / TOX Monitor data**



St. Croix Sensory, Inc.

1150 Stillwater Boulevard North
Stillwater, MN 55082

1-800-879-9231
T: 651-439-0177
F: 651-439-1065

www.fivesenses.com

15 May 2017

Dana Pack
Fogco Systems, Inc.
600 S 56th St.
Chandler, AZ 85226

Re: Fogco-Benzaco Odor Management of Marijuana Grow Facility Air Emissions

On April 6, 2017, St. Croix Sensory evaluated the efficacy of a high-pressure, hose-and-nozzle, water fogging odor management system at CW Nevada medical marijuana grow facility in Pahrump, Nevada.

For more than 35 years, St. Croix Sensory staff has been assisting facility owners, consulting engineering firms, and regulatory agencies quantify odors from a variety of industrial, agricultural, and municipal operations, including wastewater treatment, landfills, composting, and manufacturing in both field and laboratory settings. St. Croix Sensory manufactures and markets state-of-the-art odor sampling and measurement equipment. Our "ODOR SCHOOL"® is an internationally recognized program to prepare inspectors to conduct field evaluations of ambient odors. We are dedicated to providing and maintaining the highest standard of quality for all laboratory services and manufactured products. St. Croix Sensory maintains a professional practice that continually reviews ASTM International, CEN (European), and ISO Methods. Our quality control practices ensure quality is met from receiving of materials and sample to the finished products and final reports delivered to our customers.

The purpose of this study was to evaluate the efficacy of an odor management system provided by Fogco Systems, Inc. (of Chandler, AZ) utilizing an odor counteractant specifically formulated for cannabis growing operations by Benzaco Scientific, Inc. (ODOR-ARMOR 420®). Three screened and trained assessors performed as an odor judge tribunal to evaluate at the fence line the untreated and treated air emissions from the grow facility. The evaluation protocol accommodated the guidelines of ASTM E1593 Standard Guide for Assessing the Efficacy of Air Care Products in Reducing the Perception of Indoor Malodor. The growing facility's almost continuous exhaust fans created the desirable "actual" conditions downwind at the facility fence line to be compliant with the ASTM 1593 scope for quantitative odor assessment in determining efficacy.

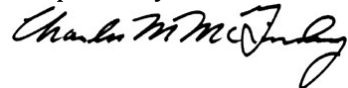
The odor tribunal unanimously agreed the treated air emissions with the Fogco System utilizing the Benzaco ODOR-ARMOR 420® odor counteractant product demonstrated "no discernible odor" at the fence line downwind of the facility continuous exhausts. Prior to the Fogco/Benzaco treatment, the ambient air at the fence line downwind of the CW Nevada facility presented as pungent, earthy, and marijuana-weed-like. The odor tribunal reported a consensus, "the marijuana odor disappeared when the fogging system was operating".

Downwind of the CW facility, from 1/8 to 1-mile on public access roadways, the ambient air was without a discernible odor. On the day of the evaluations, 4/6/2017, the weather conditions were dry (20% relative humidity), mostly sunny (60-deg F) with wind direction at the CW facility in Pahrump, NV was from the south at moderate wind speeds of 10-mph.

The Fogco System appeared to create a uniform evaporating fog-mist with no free-water droplets observed in the air, nor upon the immediate ground area. The Benzaco Scientific odor counteractant, when observed close to the immediate fog-mist, did not appear to have a strong, specific top-note fragrance, other than slightly floral and/or sweet.

The evaluation of the Fogco high-pressure fogging system, treating the exhaust air with Benzaco's ODOR-ARMOR 420® at the Pahrump, Nevada, CW Nevada marijuana grow facility demonstrated efficacy-effectiveness in treating the facilities air emissions, yielding "no discernible marijuana odor".

Respectively submitted,



Charles McGinley
Technical Director
St. Croix Sensory, Inc.

SUBTRACTIVE ODOUR CONTROL™

ODOR-ARMOR® 420

Many products, like masking agents, designed to control malodours using fragrances added to the air to overwhelm the malodour, actually ADD to the intensity of the malodour – additive masking technology. Many times, the result is a fragrant version of the malodour AND a higher level of odour intensity.

The principle is simple...

Masking agents are additive ++++++ **Odour intensity is increased**

Benzaco Scientific **Subtractive Odour Control™** makes additive masking technologies obsolete. By using scientific odour neutralization concepts developed over the last 20 years, Benzaco Scientific is able to dramatically reduce or eliminate malodours completely.

Benzaco Scientific uses selected essential oils, intimately dispersed with the malodour in vapor phase delivery and through a combined process of chemical reaction, odour opposites (antagonistic pairs), absorption and adsorption, and pluralistic effects, the odour is neutralized and eliminated.

ODOR-ARMOR® is subtractive ----- *Odour intensity is decreased*

Basically, Odor-Armor® 420 changes the way one smells an odour. The shape of the odour molecule triggers odour perception. Odour molecules solubilize in mucous in the nasal cavities. The solubilized molecule attaches to a protein in one of millions of olfactory sensory receptors.

This combined protein/molecule triggers a signal to the olfactory bulb, which acts like a switching station, sending signals to the brain. These signals are received by various areas of the brain including the temporal lobe, which houses memory. Memory plays a very significant role in odour perception. Smells are remembered and emotions are triggered by them.

Benzaco Scientific chemists use a number of techniques to modify malodours:

1. Modify the shape (chemical structure) of the odour molecule BEFORE it reaches the nose.
2. Modify the number and intensity of the triggering molecules reaching the nose.
3. Modify the perception of the odour.

It is believed physical reactions between the molecules of malodour and the odour neutralizer create a different molecule. If the new molecule reaches the nose, a different mechanism is triggered. Often, the reactions are catalyzed by other malodour molecules like hydrogen sulfide.

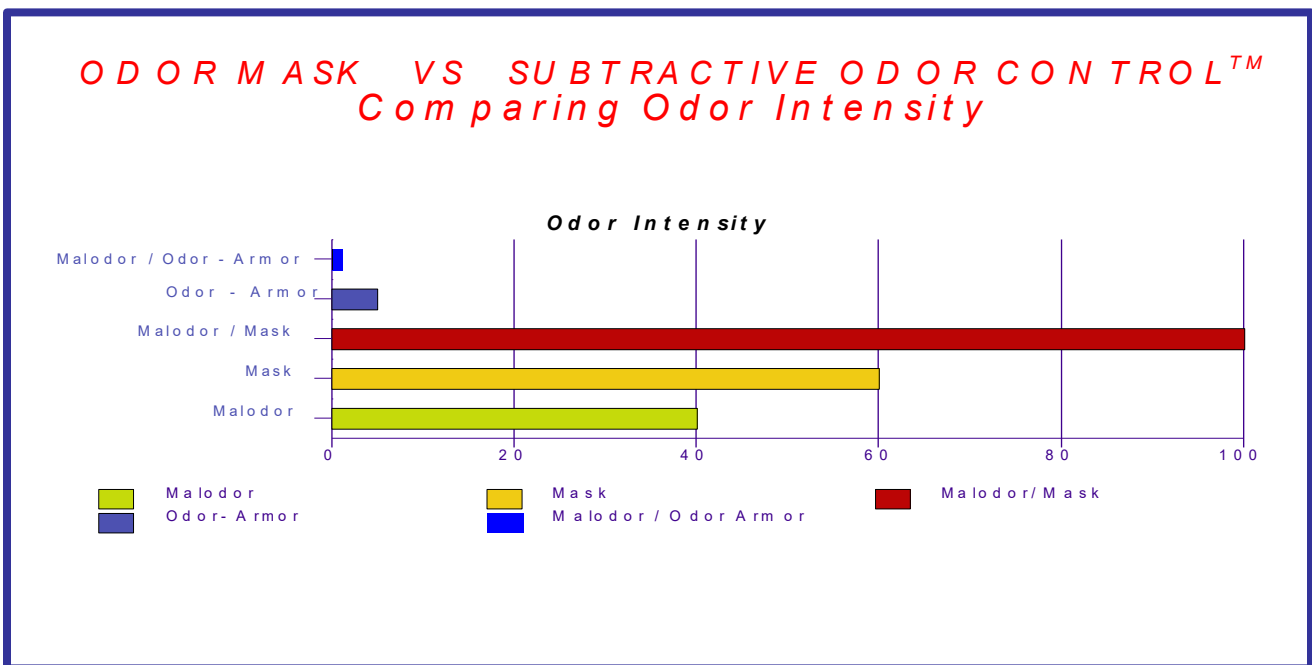
By selecting odour molecules which trigger an opposite signal to the malodour, both odours are cancelled. This effect known as “antagonistic pairing” or “odour opposites”, has been well studied and documented. The concept is used every day in restaurants when lemon or orange is applied to cooked fish in order to negate the strong amine odours that can emanate. Antagonistic pairs exist, that work well outside of 1 to 1 stoichiometric chemistry. Benzaco Scientific chemists have discovered many odour opposites that work at a fraction of the level of the malodour they neutralize. ***It’s best described as noise-cancelling headphones... for the nose.***

By correctly applying vapor phase technology, Benzaco Scientific is also able to take advantage of certain essential oils that solubilize (absorb) malodourous molecules, thus reducing the opportunity for these molecules to reach the sensory cells. Adsorption, a surface phenomena where molecules attach with a temporary electrical bond which in effect changes the shape of the molecules reaching odour receptors, is also used. Finally, many malodours have a dualistic or pluralistic effect. They are only malodourous when present at certain concentrations but when reduced in level, actually take on an acceptable odour.

Benzaco Scientific has many operational sites in the United States using Subtractive Odour Control™ Technology. The results are impressive. Analysis of air samples before and after treatment show reductions in odour intensity of 90% plus. Comparative tests on other vapor phase odour control technologies showed reductions of 40 to 60%

Benzaco Science chemists and engineers have combined to make Subtractive Odour Control™ an extremely effective method of odour management in municipal and industrial waste treatment plants. The right chemistry and the right engineering make the difference between unsatisfactory odour masking and complete odour reduction.

Benzaco Scientific Subtractive Odour Control™ - tested and proven for over 20 years.



For more information on Benzaco Scientific engineered solutions for odour control, visit our website www.benzaco.com or contact us at 888.413.5800

FAQ on Odor Control

1) What makes Odor Armor® so different from other essential oil odor control products?

One of the critical things to understand about essential oil technology for odor control is that not all essential oils are created equal. Essential oils used in odor control are extracts of many different fruits, vegetables and other plant material. There are thousands of these oils available and many find their way into perfumes and fragrances as well as solvents, flavor enhancers, cooking oils and other uses. However, there are a very limited number of these oils effective for the process of odor elimination.

The oils used in odor control display certain critical chemical properties that allow the oil to have a physical or chemical effect on odorous compounds. The effectiveness of any odor control product is directly dependent on how well the oils are chosen and blended to effect the correct chemical or physical reaction on those odorous compounds. Benzaco has spent years in the pursuit the IDEAL formula for odor control using essential oil technology. We believe that Odor Armor® is the best technology on the market today.

Benzaco has developed a line of odor control products that is more effective, in terms of both odor elimination and cost effectiveness, than any of our competitors' products.

2) How does essential oil technology work to eliminate odor?

Three simple reactions occur allowing Odor Armor® to effectively and safely eliminate odors.

- 1) chemical absorption of the malodor
- 2) chemical solubility of the odorous compounds
- 3) counteracting odor through antagonistic pairing

The chemistry involved utilizes the unique characteristics of each oil in the product to optimize the simple reactions. The result is complete odor elimination without harmful byproducts or the use of hazardous chemicals.

3) I've been told that essential oils are perfumes and fragrances; is Odor Armor® a masking type of product?

Many essential oils are indeed fragrances and are used in perfume formulations; however, not all essential oils are fragrant or used as fragrances. Odor Armor® is a blend of oils that though having some fragrance is not suitable to mask an odor. It simply does not contain a high enough level of fragrance to do so. Even at very high dosage without the presence of odorous compounds Odor Armor® is only mildly fragrant and the fragrance is nondescript. A masking agent is usually made up of one distinct fragrance that is readily detectable and

increases in intensity as the dosage is elevated. Masking agents add to the overall odor intensity by introducing an odor greater than the offending malodor often resulting in an even greater odorous condition. Odor Armor® is true neutralizing chemistry that reduces and eliminates odor.

4) What is the best way to determine if a product will work to eliminate my odor?

The best instrument yet devised for odor monitoring is still the human nose. A simple lab test using a sample of the odor causing material and a dilution of Odor Armor® at the expected dosage for treatment is all that's needed to get a good notion of whether the product will work. A simple testing procedure is available on request. Beyond that simple lab test, an actual trial on the offending area of the plant or site can also be arranged and easily accomplished with minimal expense. If the product is going to work either of the above methods will easily determine that.

5) How many others offer vapor phase technology?

A number of companies operate in the odor control market. Those companies are scattered throughout the U.S. and are generally regional in scope. We are aware of 15 to 20 small companies offering limited products, equipment and expertise. Often their offering is not a true neutralizing technology, but a combination of masking technology, perfume and some degree of neutralizing capability. There are also a tremendous number of janitorial service companies that dabble in odor control. The offerings are usually masking agents.

6) What do you mean "not a true neutralizer"?

Most companies offer a neutralizing product or line of products that are a blend of only a handful of essential oils. Often the primary component is pine oil or some other commodity essential oil. Though pine oil is effective in some cases, it falls far short of complete effectiveness. Because the products are not effective at odor neutralization, the products are blended to contain a fragrance to compensate for the shortfall. These products have limited applications and are not effective on most odors. In addition, the products require very high dosages to achieve even limited effectiveness, yet they often cost as much or more as Odor Armor®.

7) Is Odor Armor® safe to use?

Odor Armor® is nontoxic, non-hazardous and absolutely safe to use.

8) How quickly will Odor Armor® work?

Lab data has shown that the reactions occur within seconds of contact with odorous gasses and go to completion within seconds more. That means that you can be sure that the product will neutralize odor before it leaves your site thus eliminating odor complaints. Further, unlike masking agents, which can separate from the odor, the Odor Armor® reactions are nonreversible and will not separate from the Odor Armor® and cause problems downwind of the site.

9) Is the same product good for all applications?

Odor Armor® is formulated to address a broad spectrum of odorous conditions because odors are seldom-simple one or two component gasses. The design of the product is such that it will effectively respond under changing odor intensity as well as changing odor characteristics. Because of this, it is unusual to find an application where Odor Armor® will not work.

10) Will Odor Armor® work under all conditions?

As long as the conditions being treated do not change too dramatically from moment to moment, Odor Armor® will work beautifully and without much attention to the dosage. However, if there are large swings in odor causing conditions the product may need dosage adjustment, as would any chemistry that works by neutralization.

11) Will Odor Armor® work on all odors?

In tests and applications, Odor Armor® has worked on nearly all odors. Some applications have required a different combination of ingredients because of a particular odorous compound. Benzaco can formulate to any application needing a unique product for odor control.

12) Can I test the treated air to determine effectiveness?

No. There are no easy or economical ways to quantify the treatment. However, the best test is using your nose. If it works, you won't smell anything. If it doesn't work, you will smell the odor. If it's overfed you may get a slight smell of a nondescript fragrance that's very slight but pleasant. If it's underfed, you will get odor that will be at a reduced level from before treatment. In that case, all that's needed is some slight dosage adjustment.

13) What about winter operations, does the product freeze?

The product in its concentrated form freezes at about 25 degrees F but there is no detrimental effect on the efficacy or stability of the product. In its diluted form, the solution will freeze at about 30 degrees F. Since the diluted form is a water solution, it must be freeze protected by heat tracing if freezing is a potential.

14) What references do you have and what have you treated with your products?

Benzaco has been in the odor control business for over twenty years. We have treated everything from smoke odor in airplanes to rendering plants to solid waste and sewage. We have extensive experience in odor control from every aspect - chemical, mechanical, equipment and application. We CAN engineer a solution to your odor control problem. References are available upon request.

15) Can I add Odor Armor® to my system water to affect odor control?

Though the product can be used in the water phase it is not the most effective or economical method for its use. The chemistry of neutralization requires intimate contact of the oils and odorous compounds in the vapor phase. The volatility of the oils changes

dramatically when added to a water stream. More product would be required to effect the same results as a fraction of product use in the vapor phase. It's just not economical.

16) Can I add Odor Armor® to my sludge/compost/working face etc to affect odor control at the surface?

Absolutely. Odor Armor® is an exceptional odor control agent when added to surfaces emitting odorous compounds. You would get excellent odor control as long as there was Odor Armor® present on the surface in question. Because the Odor Armor® would evaporate along with the odorous compounds, a fresh dosage should be added when odor returns.

17) Can I spray Odor Armor® on odorous equipment and containers?

Yes. Surfaces treated with Odor Armor® remain odorless as long as the product remains on the surface.

18) I am considering using a scrubber on my exhaust gasses; do I still need to treat?

Scrubbing is an excellent mechanical method of removing the bulk of the odorous gas coming from a process. However, there are certain limitations to scrubbers that one needs to consider before buying and utilizing a scrubber as a means of odor control.

- 1) Is the odorous gas water soluble to the levels that are below the odor detection limit for that compound?
- 2) What will be required to establish and maintain the proper water chemistry to allow efficient operation of the scrubber?
- 3) What are my ongoing operational and maintenance costs?
- 4) What will I need to do during scrubber downtime?

The use of scrubbing can indeed reduce the requirement for odor control but often it will not eliminate it. The question then becomes which method is more economical and easier to administer or is a combination of the two the best way to go?

19) Can I use activated carbon as a means of odor control?

Activated Carbon can be a suitable means of mechanical odor control as long as the limitations of the applications are considered. Activated carbon is really only suitable for the elimination of hydrogen sulfide. Beyond that, the method either does not work at all or is severely limited in its ability to adsorb odorous gases. Processes that may have high voc content or are high in oils and greases also limit the carbon. Fouling of the carbon bed by the oils or rapid use of the bed capacity by the volatile organics would require frequent cleaning and regeneration of the carbon beds thus adding to the overall cost of the program of odor control.

For more information on Benzaco Scientific engineered solutions for odor control, visit our website www.benzaco.com or contact your Benzaco Scientific Sales Representative.



5185 MacArthur Blvd. NW, Suite 606
Washington, D.C. 20016
1-888-413-5800
Fax 1-202-625-7777

May 10, 2020

Greenbrier Holdings
Valley Crest Farms, LLC
5980 Casitas Pass Rd.
Carpinteria, CA 93013
ATTN: Norm Allinder
(209) 534-6252
norm@greenbrierhldgs.com

**SUBJECT: BENZACO ODOR-ARMOR® 420 ODOR- MANAGEMENT
HEALTH & SAFETY AND TOXICOLOGY INFORMATION**

Dear Norm,

Thanks for reaching out to us requesting information on the health and safety, along with toxicology information for our product, Odor-Armor®, which you utilize for odor management

Odor-Armor® is a proprietary blend of natural plant extracts held together in a stable, homogeneous emulsion with an EPA approved food-grade surfactant. The surfactant then allows the natural plant extracts to be mixed and diluted with water, at a target rate of 500:1 to 1000:1 to manage nuisance smells.

It is important to note that all the data collected by these two independent laboratories is on the concentrated, undiluted product that we formulate and manufacture. All liquid being fogged from nozzles has been diluted with purified water by at least a factor of 500: a dilution ratio of 500:1 or more.

1. HEALTH & SAFETY DATA

Tox Monitor Laboratories of Oak Park, Illinois was contracted by Benzaco Scientific to conduct thorough toxicology studies of our proprietary odor counteractant, Odor-Armor®.

Tox Monitor Laboratories is a small privately held contract laboratory established in 1977, making the company one of the oldest and most trusted Acute Toxicology Laboratories in the United States. Originally incorporated by Michael A. Kukulinski, Robert F. Locke, and Thomas W Welsh, the company expanded in 1988 to perform FDA Preclinical studies. Their BSR Division is operated out of Loyola University Stritch School of Medicine in nearby Maywood, Illinois. The laboratory

conducted a variety of studies from 28 days to two-year carcinogenicity studies.

At Tox Monitor Laboratory, Standard Acute Toxicology Protocols include:

- Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
- Consumer Product Safety Commission (CPSC)
- Department of Transportation (DOT)
- Toxic Substances Control Act (TSCA)
- OPPTS/OECD Guidelines
- GHS Product Classification

Areas of their specialty include Dermal and Ocular Irritation, Dermal and Oral Toxicity, Inhalation Toxicity, Dermal Sensitization, Mucosal Irritation, and USP/ISO Medical Device Testing.

Tox Monitoring Laboratories performed their tests on undiluted Odor-Armor[®] to determine the:

- Inhalation Toxicity
- Dermal Irritation
- Oral Toxicity
- Dermal Toxicity, and
- Eye Irritation potential of the product.

In their findings of each of the above categories, Tox Monitor Laboratories listed the USEPA Toxicity classification of Odor-Armor. The four EPA toxicity categories, from one to four are:

- 1 Toxicity category I is Highly toxic and Severely irritating,
- 2 Toxicity category II is Moderately toxic and Moderately irritating,
- 3 Toxicity category III is Slightly toxic and Slightly irritating,
- 4 Toxicity category IV is Practically non-toxic and not an irritant.

It is important to point out that the USEPA offers no classification of “Toxicity Category V” This means that ALL compounds, including deionized water itself, could score no better than a Toxicity Category of IV.

The following is a summary of their findings regarding the toxicology and Health & Safety concerns of Odor-Armor[®] in its concentrated, undiluted form:

SUMMARY - Inhalation Toxicity

Benzaco Scientific sample identified as ODOR-ARMOR was tested for acute inhalation toxicity in accordance with OPPTS Guideline 870.1300 and OECD Guideline 403.

Benzaco Scientific sample identified as ODOR-ARMOR a clear liquid, was tested for acute inhalation toxicity at a targeted level of 2.0 mg/L of air by exposing five male and five female rats for a four-hour period. The actual gravimetric concentration of the study was 2.44 mg/L of air. No mortality was observed during the 14-day observation period. The inhalation LC₅₀ of Benzaco Scientific sample identified as ODOR-ARMOR was found to be greater than 2.44 mg/L of air for a 4-hour period.

In accordance with the OPPTS Guidelines, Benzaco Scientific sample identified as ODOR-ARMOR would be classified as EPA Toxicity Category IV for acute inhalation toxicity.

SUMMARY - Dermal Toxicity

Benzaco Scientific test substance identified as ODOR-ARMOR was tested for acute dermal toxicity according to OPPTS, OECD Guidelines. Benzaco Scientific test substance identified as ODOR-ARMOR

a clear liquid, was administered by dermal application at a dose of 5000 mg/kg body weight to five male and five female rabbits. No mortality occurred during the 14-day observation period. The acute dermal LD50 was found to be greater than 5000 mg/kg body weight. Therefore, in accordance with OPPTS Guidelines, Benzaco Scientific test substance identified as ODOR-ARMOR meets the requirements for EPA Toxicity Category IV for acute dermal toxicity.

SUMMARY – Oral Toxicity

Benzaco Scientific test substance identified as ODOR-ARMOR was tested for acute oral toxicity in accordance with OPPTS 870.1100 and OECD 425 Guidelines.

Benzaco Scientific test substance identified as ODOR-ARMOR was administered by oral gavage at a 5000 mg/kg body weight limit dose level, according to the Agency's Up and Down Procedure to female rats. The acute oral LD50 was determined to be greater than 5000 mg/kg body weight. Therefore, in accordance with OPPTS 870.1100 and OECD 425 Guidelines, Benzaco Scientific test substance identified as ODOR-ARMOR meets the requirements for EPA Toxicity Category IV for acute oral toxicity.

SUMMARY – Dermal Irritation

Benzaco Scientific, test substance identified as ODOR-ARMOR was tested for primary dermal irritation in accordance with OPPTS and OECD Guidelines.

Benzaco Scientific test substance ODOR-ARMOR a clear liquid, was applied at a dose of 0.5 ml to an unbraded site on a clipped area of each of three albino rabbits. The application sites were graded for indication of skin reactions at 0.5, 24, 48 and 72 hours after test substance removal. There were no skin irritation reactions in any of the test subjects. In accordance with the OPPTS Guidelines, ODOR-ARMOR would be classified as EPA Toxicity Category IV for dermal effects.

SUMMARY - Eye Irritation

Benzaco Scientific test substance identified as ODOR-ARMOR was tested for eye irritation in accordance with OPPTS and OECD Guidelines.

Benzaco Scientific test substance identified as ODOR-ARMOR a clear liquid was administered into one eye of each of three albino rabbits. The eyes were observed and scored at 1, 24, 48 and 72 hours. There was minimal irritation observed in all of the test subjects and the maximum group mean score was 3.33/110.0 at the 1-hour observation. All eyes cleared by 48 hours.

In accordance with the OPPTS Guidelines, Benzaco Scientific test substance identified as ODOR-ARMOR would be classified as EPA Toxicity Category III. (All eyes cleared by 48 hours.)

2. ENVIRONMENTAL TOXICITY

Benzaco Scientific contracted with Dell Tech Laboratories of London, ON Canada to provide additional information to that on the Safety Data Sheets (SDS) that they prepared for our products, Odor-Armor®, and the OCC2000® blends. Specifically, we asked about the toxicology of the ingredients in our formulations beyond what is stated on the SDS.

Their information is based on a search on the toxicology of the component materials. One important element of our search is the presence or absence of any ingredient on lists provided by United States Federal and State regulators. When chemical materials have demonstrated sufficient toxicology or environmental concerns, regulators will place them on these lists. The lists serve to warn consumers about the use, shipping, handling and disposal requirements of the product.

In their search, they used a reference known as “the List of Lists” of regulated chemical materials in the USA. After comparing these lists to the components in Odor-Armor, Odor-Armor does **not** contain any components of concern that are listed on the following regulatory lists:

1. List of Hazardous Air Pollutants from Section 112 of the Clean Air Act Amendments of 1990
2. List of Priority Pollutants of the National Permit Discharge Elimination System (NPDES) Permit Regulations (40 CFR 122) from the EPA Office of Water
3. Resource Conservation and Recovery Act Materials List (includes F, K, P, U and D listings)
4. List of Extremely Hazardous Substances from Section 302 of the Superfund Amendments and Reauthorization Act of 1986 (SARA)
5. List of Toxic Chemicals from Section 313 - Emergency Planning and Community Right-to-Know Act (EPCRA), which is also known as Title III of the Superfund Amendments and Reauthorization Act (SARA)
6. List of Hazardous Substances from the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)
7. List of Ozone Depleting Substances from Section 602 of the Clean Air Act
8. List of Hazardous Substances under part 116 of the Federal Water Pollution Control Act (FWPCA)
9. No component at a level subject to disclosure on the Hazardous Substance List of the Pennsylvania Right-To-Know List.
10. Any chemical substance contained or listed in the most recent 2019 updated list of the U.S. EPA Toxic Substance Control Act (TSCA) Section 8 (b) of 1976.
11. Odor-Armor[®] 420 contains **no** substances identified as Toxic Air Contaminants (TAC’s) by the State of California Air Resources Board. Those substances have been identified and have been determined by the State Board to be toxic air contaminants as defined in Health and Safety Code section 39655. In addition, Odor-Armor[®] 420 contains **no** substances which have been listed as federal hazardous air pollutants (HAPs) pursuant to section 7412 of Title 42 of the United States Code under the state's air toxics program pursuant to section 39657 (b) of the California Health and Safety Code. (Title 17, California Code of Regulations, section 93001 April 8, 1993).

H&S / TOX Letter to Valley Crest Farms
May 10, 2020
Page 5

SUMMARY

Benzaco Scientific has been formulating, manufacturing, and supplying odor-management products for numerous industrial and agricultural applications for over 30 + years. We have never experienced any cases of physical harm or detriment to people or animals due to exposure to our products. Neither long term nor short term exposure. Either diluted or in its concentrated form.

Benzaco Scientific, Inc. appreciates the opportunity to be an integral supplier of odor-management products for Valley Crest Farms of Carpinteria, California. If you have any further questions or require additional information, please feel free to call me at (202) 258-4777.

Sincerely,

Rick O'Sadnick

Benzaco Scientific, Inc.
Rick O'Sadnick
Senior Scientist
(202) 258-4777
rick@benzaco.com

Attachment 3

Charcoal Filter Equipment Specifications



SUPERIOR PERFORMANCE



Simply the Best
Accept No Imitations



[Home](#) > [Filters](#) > [Can-Filters](#) > [Can 150](#)



Can 150

sku: 358700

msrp:
\$433.06

At a Glance

The Original Can-Filters are designed for the control of VOCs (paint fumes, hydrocarbons, ect...), odors, and other gaseous contaminants. Built with the same proven packed bed design and pelletized virgin activated carbon we've used for 30 years, this line of time tested activated carbon air filters sets the standard for long life, consistent performance, and low presure drop. Rated at a conservative 0.1 sec contact time, the Original Can-Filters provide excellent value and confidence.

Details:

- Made in North America
- 7 sizes from 33-150cm, largest in industry
- You pick the flange that's right for you
- Low pressure drop even on smaller sizes
- Pelletized carbon delivers the cleanest filter available
- 2.5" Carbon bed, thickest in industry
- Flange comes seperate to fit a wide range of fans and applications

Technical Data:

- Max Exhaust CFM: 1260 cfm / 2100 m³h @ 0.1 sec contact time

- Max Recirculating (Scrubbing) CFM: 2520 cfm / 4200 m³h
- Recommended Min Airflow: 630 cfm / 1056 m³/h
- Prefilter: Yes
- Flange: 10", 12", 14"
- Dimensions: (with pre-filter)
- Outside Diameter: 42cm / 16.5"
- Height: 150cm / 60"
- Total Weight: 71kg / 156lbs
- Carbon Weight: 56kg / 123lbs
- Carbon Bed Depth: 6.5cm / 2.56"
- Max Operating Temp: 80°C
- Pressure drop at max cfm: 180pa / .75"wg

Recommended Fans:

Exhaust:

Can-Fan 10" HO

Pro-Series 8" (*speed 1, 2, 3*)

Max-Fan 8" HO (*speed 1, 2, 3*)

Max-Fan 10"

Q-Max 10" (*speed 1, 2, 3*)

Can-Fan 12" HO

Max-Fan 14"

Recirculating:

Q-Max 12"

Max-Fan 12"

Max-Fan 14" HO

YOU MAY ALSO BE INTERESTED IN THE FOLLOWING PRODUCT(S)



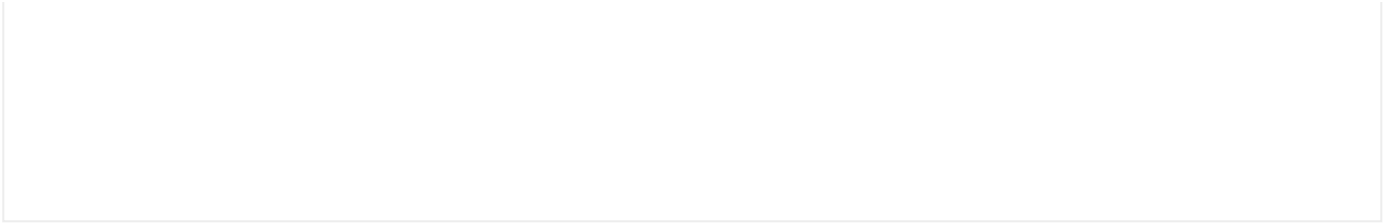
14" Flange 100/125/150



Can 150 Pre-Filter



14" Max-Fan™



© 2018 Canfilters. All Rights Reserved. [\[Privacy Policy\]](#)Country: