

Odor Control Plans That Work: Essential Strategies for Cannabis Operators & Regulators

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As the cannabis industry continues to grow, managing odors effectively has become a crucial concern for operators, regulators, and communities. Strong and persistent odors from cannabis cultivation and processing facilities can result in community complaints, regulatory scrutiny, and legal challenges. Therefore, implementing a comprehensive and well-structured odor control plan is essential for maintaining compliance, fostering positive relationships with neighbors, and ensuring the long-term sustainability of cannabis businesses.

The Growing Need for Odor Management

With the U.S. cannabis industry projected to reach \$45 billion in revenue in 2025, the importance of odor control is becoming increasingly significant. States like Colorado and California have seen a surge in odor complaints related to cannabis operations, prompting stricter regulatory oversight. For example:

- Between 2015 and 2020, cannabis odors accounted for nearly 80% of all commercial odor complaints in Denver¹.
- Since 2018, Santa Barbara County, California, has received over 3,900 odor complaints linked to cannabis farms².
- An Oregon survey found that 62% of respondents living near cannabis facilities identified odor as their primary concern³.

Some larger cannabis cultivators are making significant investments in odor control measures, with annual expenditures ranging from \$100,000 and \$500,000 annually to mitigate emissions⁴. In states with stringent odor control laws, regulatory penalties for violations can be severe, ranging from \$1,000 to \$10,000 per day⁵.

Understanding Cannabis Odor & Olfactometry

Volatile sulfur compounds (VSC) such as thiols and mercaptans are the main source of the more offensive “Skunky” odors people tend to complain about. Terpenes are responsible for the distinctive aromas of various strains while the

¹ **Denver Department of Public Health & Environment (DDPHE)**. (2020). *Odor Control and Cannabis Cultivation: Public Complaints Data*. Denver, CO. <https://denvergov.org>

² **Santa Barbara County Planning & Development**. (2021). *Cannabis Cultivation Odor Complaint Report*. Santa Barbara, CA. <https://countyofsb.org>

³ **Oregon Cannabis Commission**. (2020). *Community Survey on Cannabis Odor Impacts*. Oregon. <https://oregon.gov>

⁴ **Humboldt County Taxation Office**. (2022). *Tax Incentives for Odor Mitigation in Cannabis Cultivation*. Eureka, CA. <https://humboldtgov.org>

⁵ **California Bureau of Cannabis Control (BCC)**. (2021). *Odor Mitigation and Compliance Costs in Commercial Cannabis Operations*. <https://cannabis.ca.gov>

sulfonated compounds are notable for their ability to travel further from the source, producing the notorious skunky odor. When communities lodge complaints against growers and operators, they often refer to this pervasive skunky smell. Floral cannabis odors primarily originate from a class of volatile organic compounds (VOCs) known as terpenes. More than 150 distinct terpenes have been identified in cannabis⁶, with key odor contributors including:

- **Myrcene** (earthy, musky)
- **Limonene** (citrusy)
- **Pinene** (piney, grassy)
- **Terpinolene** (woody, floral)

To effectively measure and manage odors, many regulators and operators rely on olfactometry, a scientific method for quantifying odor concentration and intensity. ASTM E679-04, the standard for determining odor thresholds, provides a robust framework for creating defensible odor assessments and establishing regulatory benchmarks.

Developing an Effective Odor Abatement Plan

A comprehensive **Odor Abatement Plan (OAP)** is an essential tool for cannabis businesses seeking to minimize odor emissions and regulatory risk. Key components of an effective OAP include:

1. Facility Planning & Technology Integration

- **Location Matters:** Choosing suitable sites that are strategically distanced from residential areas and sensitive receptors, such as schools, residences and public facilities.
- **Odor Mitigation Technologies and Methods:** Utilizing photo catalytic oxidation (PCO), HVAC carbon filter upgrades, vegetative buffers, and administrative controls, or carbon filtration solutions for greenhouses or processing areas and ozone within effluent ducting,
- **Sealed Environments:** Maintaining negative pressure within indoor facilities is crucial for preventing odor leaks and effectively controlling the emission of odor effluent from the premises.

2. Community Engagement & Complaint Response

- **Designated Point of Contact:** Assigning a representative to handle odor-related complaints and inquiries.
- **Transparent Communication:** Engaging local residents in discussions about odor control initiatives and ensuring transparent communication within a minimum of 1,000 ft of the facility.

⁶ Seltnerich N. Odor Control in the Cannabis Industry: Lessons from the New Kid on the Block. Environ Health Perspect. 2022 Jun;130(6):62001. doi: 10.1289/EHP11449. Epub 2022 Jun 27. PMID: 35759387; PMCID: PMC9236214

- **Complaint Tracking:** Implementing a comprehensive system to efficiently log, investigate, and address odor complaints. SCS provides an app-based complaint tracking system that includes heat mapping to identify and highlight odor hot-spots within the project vicinity and communities.

3. Monitoring & Compliance Strategies

- **Regular Inspections:** Conducting routine odor audits and system maintenance.
- **Data-Driven Approaches:** Using meteorological data, lab olfactometry and chemical measurement technology to analyze odor trends.
- **Regulatory Adherence:** Developing and following local odor thresholds and industry best practices to ensure compliance.

Benefits of Proactive Odor Management

Implementing robust odor control strategies not only minimizes complaints but also enhances industry credibility and promotes operational sustainability. Key benefits include:

- **Enhanced Community Relations:** Demonstrating proactive odor management fosters goodwill and reduces legal disputes.
- **Regulatory Compliance:** Ensuring compliance with established odor standards to prevent fines and operational disruptions.
- **Operational Efficiency:** Maintaining optimal air quality and workplace conditions benefits employees and product quality, also helping remove air-propagated spores and bacteria.

In some jurisdictions, such as Humboldt County, California, operators who invest in odor control technologies may qualify for tax incentives, which further encourage compliance⁷. The cannabis industry supports these incentives and advocates for continued regulatory development in this area.

Conclusion

As cannabis legalization expands, the importance of responsible odor management becomes increasingly critical. By integrating scientific measurement techniques like olfactometry, investing in proven mitigation technologies, and engaging with local communities, cannabis operators can create a more sustainable and complaint-free industry. Implementing a robust odor control plan is not merely a regulatory requirement—it's a strategic advantage that ensures long-term success in the evolving cannabis marketplace.

⁷ Humboldt County Taxation Office. (2022). *Tax Incentives for Odor Mitigation in Cannabis Cultivation*. Eureka, CA. <https://humboldtgov.org>