



**AIR FILTRATION FOR
CANNABIS FACILITIES**

A high-angle photograph of a cannabis cultivation facility. The plants are densely packed and supported by a white PVC trellis system. A white mesh netting is stretched across the trellis to support the plants. The lighting is bright, highlighting the green leaves and developing buds of the cannabis plants.

**Validated and Proven
Camfil Offers the Most Advanced
Filtration Technology for Odor Control**

CLEAN AIR SOLUTIONS

PURE AIR MATTERS

Validated Solutions to Address Critical Concerns for the Cannabis Cultivation

Cannabis Air Filtration

In 2012, Camfil began leveraging over 50 years of expertise from virtually every industrial segment worldwide to provide effective odor control solutions for large scale medical marijuana facilities in Canada. Since then, Camfil has delivered odor filtration systems in propagation, cultivation, processing, extraction, and dispensary facilities in states and provinces where cannabis is legal. Camfil's validated filtration solutions help operators adhere to odor control ordinances and maintain positive relationships with surrounding community members.

Particulates

Pollen, pests and microbes entering with outside air spreading during growing and processing stages can decimate yields. Dust and allergens generated during processing can cause respiratory issues for workers. These particles, ranging in size from .3 to 30µm, can be captured with appropriately specified filters using the ASHRAE Standard 52.2 with Appendix J classification system. Capturing particles below 0.3 µm requires certified HEPA filters be installed in specialized holding frames.

Target Particles	Capture Efficiency
Pollen, Pest	MERV 9A
Powdery Mildew, Allergens, Dust	MERV 11A
Bacteria and Pathogens	HEPA

The effectiveness and potentially harmful side effects of technologies that claim to kill microbes have not been fully substantiated for this industry. Microbes—whether dead, alive, or in a weakened state—are essentially no different than any other airborne particles that should be captured to ensure maximum crop yield in all applications.

Odors

Cannabis emits odors that are gaseous compounds called terpenes. Although the compounds do not pose a health risk to humans, terpenes are considered a nuisance, and facilities are often required to implement an odor control system in order to receive and maintain operating permits.

Effective solutions for the removal of gaseous contaminants must be validated in accordance with ASHRAE 145.2 and ISO 10121-2. Both of these test standards validate the performance of Gas Phase Air Cleaning devices under actual operating conditions. Performance claims made without this compliance are questionable.

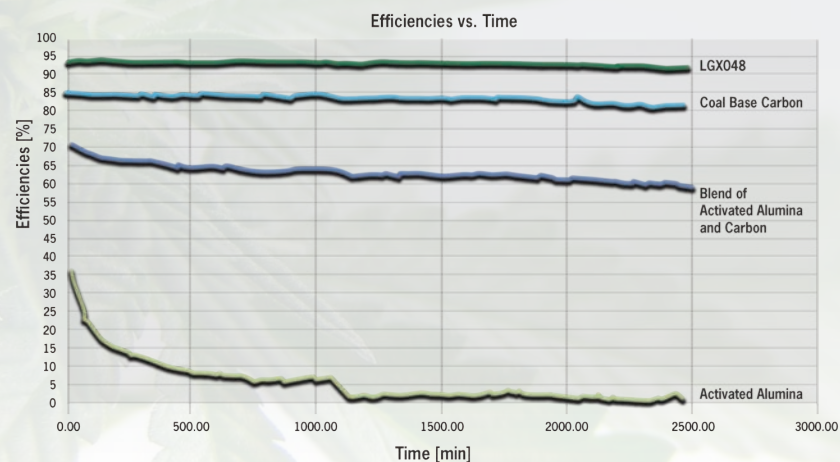


In Camfil's molecular media test rig in Trosa, Sweden, various filtration technologies are challenged with different gases at realistic concentrations against a wide range of temperature, humidity, and airflows.



Validated Media Solution

The pungent odor-causing terpene gas, beta-myrcene, was tested on the four most commonly applied molecular filtration media for cannabis. Camfil's activated coconut shell carbon, LGX-048, proved to be superior in both removal efficiency and lifetime.

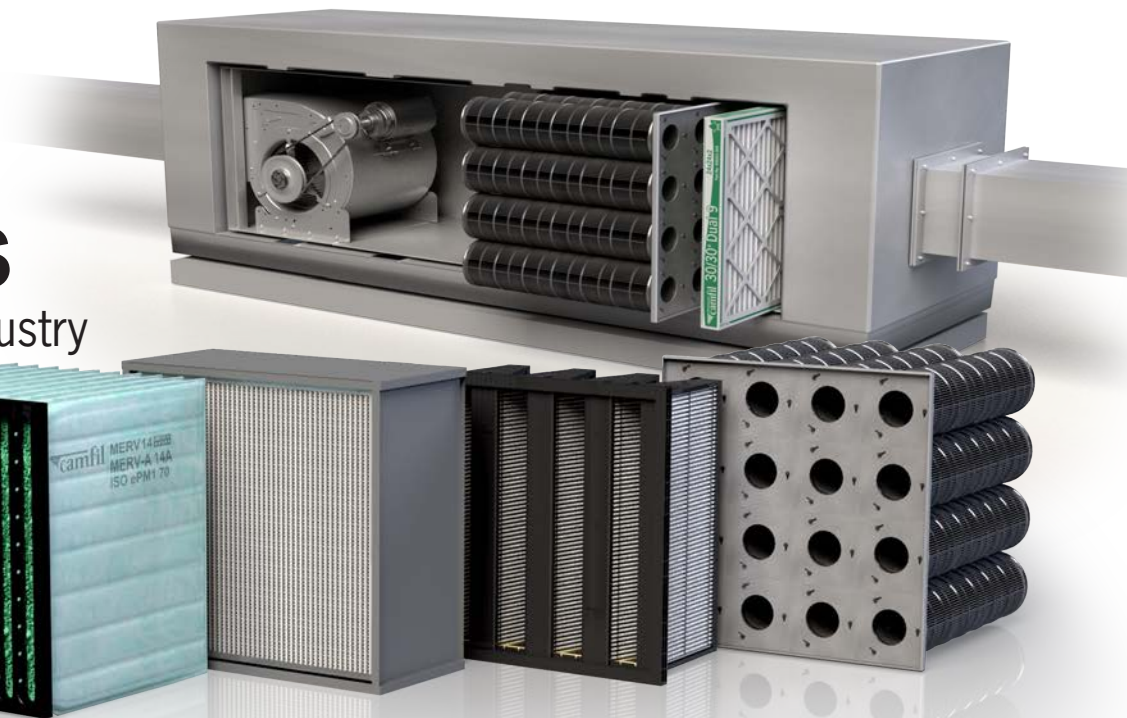


Optimizing Filter Lifetime with Camfil's Media Analysis

In order to maximize the life of molecular filters, Camfil offers media analysis in our Washington, NC lab. Camfil recommends molecular filtration media be tested every three months for butane activity in order to determine the lifetime decay curve for a specific system.

CAMFIL'S CLEAN AIR SOLUTIONS

For the Cannabis Industry



30/30® Dual 9

MERV 9/9A mechanical particle capture, guaranteed to maintain efficiency and last longer. Dual-layered media combines two filtration stages into one package.

Applications

Pollen and pests. Prefilter to extend HEPA and molecular filter lifetime.

Hi-Flo® ES

Extended surface, full media exposure pocket filter in MERV 11A efficiencies and higher. Guaranteed to maintain efficiency and last longer. Designed for use without a prefilter.

Applications

Powdery mildew, allergens and dust in make-up air and recirculation.

XH Absolute HEPA

High capacity HEPA/ULPA grade filter — 99.97% to 99.999% on 0.3 micron particles. Each filter individually certified to ensure performance for most critical of applications.

Applications

Bacteria and other submicron pathogens in makeup air and recirculation.

CityCarb I

MERV 15/14A and Rapid Adsorption Dynamics® molecular filter. Multiple panels of pleated media with activated carbon for odor removal and ozone control.

Applications

Dispensaries, light odor concentrations, VOCs, mildew and allergens in make-up, recirculation and exhaust air.

CamCarb CG Cylinders

Inherently leak-free, loose-fill molecular filters. Maximum adsorbent exposure for the highest capture efficiency.

Applications

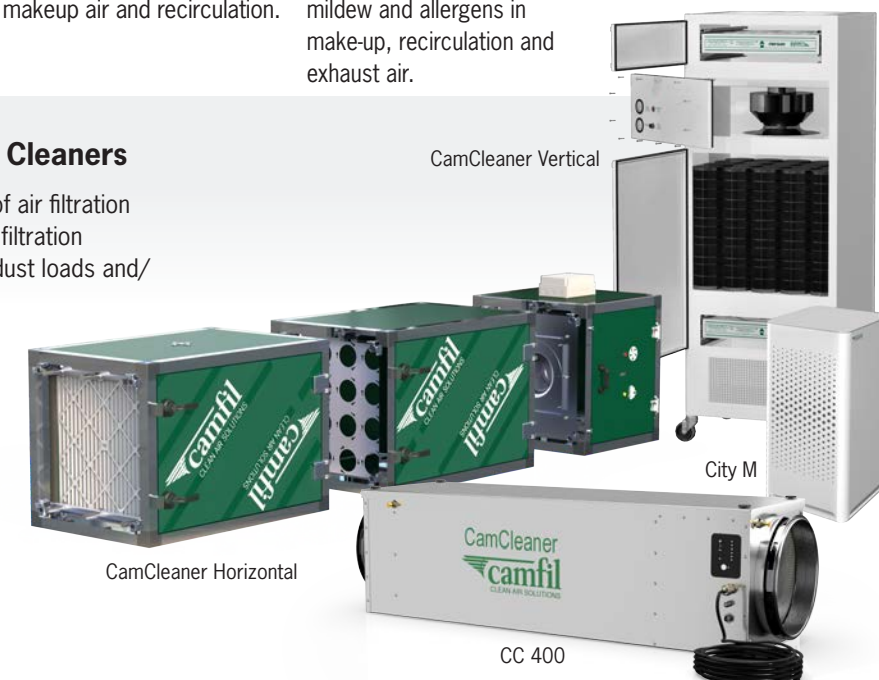
Heavier odor concentrations in recirculation and exhaust air.

CamCleaner Horizontal and Vertical Air Cleaners

Camfil's modular air cleaners accept multiple stages of air filtration and offer a broad variety of particulate and molecular filtration options to accommodate applications that have high dust loads and/or odor concentrations.

City M Air Cleaner

The City M portable unit includes two filter packages, each containing a cleanroom-grade HEPA filter and a molecular gaseous contaminant filter that provide up to 256 CFM for small rooms and dispensaries with light particulate and odor concentrations.



Camfil – a global leader in air filters and clean air solutions.

For more than half a century, Camfil has been helping people breathe cleaner air. As a leading manufacturer of premium clean air solutions, we provide commercial and industrial systems for air filtration and air pollution control that improve worker and equipment productivity, minimize energy use, and benefit human health and the environment.

We firmly believe that the best solutions for our customers are the best solutions for our planet, too. That's why every step of the way – from design to delivery and across the product life cycle – we consider the impact of what we do on people and on the world around us. Through a fresh approach to problem-solving, innovative design, precise process control and a strong customer focus we aim to conserve more, use less and find better ways – so we can all breathe easier.

The Camfil Group is headquartered in Stockholm, Sweden, and has 33 manufacturing sites, six R&D centers, local sales offices in 30 countries, and about 4,800 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world. To discover how Camfil can help you to protect people, processes and the environment, visit us at www.camfil.com.



1 North Corporate Drive | Riverdale, NJ 07457
Phone: 973.616.7300 | Toll-free 888.599.6620
camfil@camfil.com
www.camfil.us

www.camfil.us

For further information, please contact your nearest Camfil office.