

Purafil Solutions for Ethylene Removal

The Problem: Ethylene

The destructive properties of ethylene gas have presented a costly problem to industries involved in the handling and storage of cut flowers, plants, fruits, and vegetables.

Sources of Ethylene

Ethylene is an ever-present pollutant resulting from internal combustion engines, improperly vented greenhouse heaters, and industrial waste. Plants themselves also produce ethylene during or as a result of the following processes:

- Ripening
- Gaseous respiration
- Mechanical injury and disease
- Production of flower and plant tissue

Ethylene Sensitivity

Concentrations of ethylene ranging from a few parts per billion (ppb) to a few parts per million (ppm) can reduce plant vigor, shorten the life of various plant parts, and reduce stock quality. Apples, apricots, cantaloupe, nectarines, and pears are highly sensitive to ethylene and produce ethylene at a high rate, while berries, carrots, and onions have low sensitivity levels and low rates of ethylene production. The sensitivity of plants to ethylene varies as listed below:

- 0.1 ppm is considered the threshold level for ethylene action on plants.
- Bananas stay “green” when ethylene concentrations are below 0.2 ppm.
- Exposures of 0.01-0.08 ppm of ethylene can trigger carnation blooms.

- Douglas Fir and Western Hemlock seedlings appear sensitive to ethylene concentrations as low as 0.05 ppm.

The Solution: Purafil

As the leading manufacturer of gas-phase air filtration systems, Purafil, Inc. has specialized in ethylene control for over 30 years.

Responding to the need for a new media with a higher removal capacity for ethylene, Purafil developed Purafil® Select media. Through a technological breakthrough, this patented media improves upon any comparable media by offering the highest level of active ingredient, potassium permanganate (KMnO₄). Standard KMnO₄ media only use 4% of the active ingredient; our unique manufacturing process allows an 8% impregnation level,

Harmful Ethylene Effects Prevented with Purafil Systems

- leaf and bloom senescence
- premature ripening of fruits and vegetables
- fading and wilting of flowers
- leaf abscission
- early sprouting in root vegetables
- bitterness in vegetables
- loss of green color in leafy vegetables, cabbage,
- cucumbers, peppers, and squash

When you see signs of ethylene damage, think of Purafil. Our ethylene control systems can help you reduce losses, extend life, please customers, and save money.

For over 30 years, Purafil, Inc. has been the leading manufacturer of gas-phase air filtration systems that eliminate corrosive, hazardous, odorous, and toxic gases. Purafil maintains nearly 20,000 installations worldwide and is certified with ISO 9001 International Quality Standards. Call Purafil at (770) 662-8545 or (800) 222-6367 for immediate assistance with your air quality concerns.



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while maintaining an optimum pore geometry within the pellet for the highest removal capacity.

In addition, Purafil® Select media does not desorb. Through an irreversible chemical reaction, Purafil® Select removes ethylene from the air by turning the gas into harmless solids that remain trapped inside the pellets.

Whether you need to control ethylene in display cases, transport vessels, warehouses, or other storage areas, we have the system to meet your needs.

Isolette Sorber Sachet

The Isolette Sorber is more than just a traditional sachet. Highly permeable, the sachet allows for quick ethylene uptake. Each sachet contains 10 grams of Purafil® Select media and offers twice the ethylene removal capacity of other sachets. Use Isolette Sorbers during shipping to reduce ethylene concentrations and maintain freshness.



Recirculation Air System



As air passes through the system, ethylene concentrations are reduced to below threshold levels.

Available in several size configurations meet individual space and air-flow requirements, Purafil's Recirculation Air System (RA) recirculates air in storage warehouse applications. The RA is a modular system housing Purafil® Select media in MediaPAK™ disposable

Applying Purafil for the Control of Ethylene

Controlled Atmosphere Storage

To maintain the quality of horticultural products and extend their storage time, Purafil systems prevent the buildup of ethylene produced in controlled atmosphere storage. While refrigeration and humidity control will slow ripening and decay, they will not halt ethylene production. A recirculation air system from Purafil reduces ethylene concentrations to below threshold levels.

Ripening Rooms

If the ripening room is located in the storage area, Purafil recommends venting ethylene from the ripening room after the exposure period is complete. Even after venting, a Purafil recirculating air unit can help to reduce ethylene concentrations and halt the ripening process. Installing Purafil systems in outlying rooms can also help to prevent ethylene from being released into storage, production, and service areas.

Shipping & Storage

Purafil systems preserve the freshness of produce and flowers during shipping and storage by reducing ethylene concentrations in display cases, transport vessels, warehouses and other containers.

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