

**TECHNICAL BULLETIN
ACCESSORY INFORMATION**



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POTASSIUM PERMANGANATE ODOROXIDANT

Potassium Permanganate odoroxidant is a unique product for use in air purification. Consisting of activated alumina and potassium permanganate, Potassium Permanganate destroys odors and gas phase through the processes of absorption, adsorption, and chemical oxidation.

Potassium Permanganate is classed as non-toxic upon oral, dermal, and inhalation exposure, and as a non-irritant of the skin, according to the system of classification defined under the Federal Hazardous Substances Labeling Act. No special precautions are required for safe usage in these respects.

The odoroxidant pellets employ two of the oldest proven methods of gas contaminant control: sorption and oxidation. It begins operation by both adsorbing and absorbing molecules. Then, with the potassium permanganate as an oxidizing agent, proceeds to chemically destroy the collected contaminants. This chemical oxidation is termed Controlled oxidation because of its containment in the pellet form; and because it does not involve high temperatures or burning, unlike combustible oxidation methods. In this way, the system is unique. It has consequently given rise to the use of "odoroxidant" as a generic name to describe the nature of the system (or product), and to suggest its primary characteristic.

The odoroxidant, then, destroys contaminants chemically through the oxidation process. Molecules are reduced to odorless, non-toxic by-products, with no odor desorption to be experienced because of the completeness of the destructive process. A wide range of individual odors has been found to be subject to such molecular breakdown representative chemicals reactive with the odoroxidant are listed in the following TABLE.

**REPRESENTATIVE CHEMICALS REACTIVE
POTASSIUM PERMANGANATE**

Alcohols

isopropyl alcohol..... rubbing alcohol
methyl alcohol..... antifreeze

Aldehydes

acetaldehyde..... sharp, acrid odor
butyraldehyde..... sharp, acrid odor
formaldehyde..... sharp, acrid odor

Alkaloids

indole..... putrefaction of proteins
nicotine..... tobacco smoke
skatole..... putrefaction of proteins-feces

Amines

cadaverine..... bacterial decomposition of proteins
putrescine..... bacterial decomposition of proteins
trimethylamine..... fish odor

Aromatics

ethyl benzene..... paint solvent odor
xylene..... gasoline odor

Esters

amyl acetate..... banana odor
dioctyl phthalate..... plasticizer
ethyl acetate..... nail polish remover

Ethers

butyl ether..... organic solvent
ethyl ether..... anesthetic
propyl ether..... organic solvent

Mercaptans

butyl mercaptan..... stench (skunk odor)
ethyl mercaptan..... stench (similar to butyl mercaptan)
methyl mercaptan..... odorant in natural gas

Olefins

acetylene..... industrial gas, odorless
butylene..... industrial gas, odorless
ethylene..... industrial gas, odorless

Organic Acids

acetic acid..... vinegar
butyric acid..... odor of rancid butter
caprylic acid..... decomposition of animal fats & oils
isovaleric acid..... decomposition of animal fats & oils
propionic acid..... sharp odor (similar to vinegar)

Oxides

carbon monoxide..... odorless, toxic gas
nitrogen dioxide..... toxic, irritating gas
nitrogen oxide..... toxic, irritating gas
sulfur dioxide..... toxic, irritating gas

Sulfides

allyl disulfide..... garlic oil
carbon disulfide..... organic solvent (odor similar to hydrogen sulfide)
hydrogen sulfide..... rotten eggs