

TECHNICAL BULLETIN INFORMATION



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
 alcohol..... antifreeze
 methyl alcohol.....

Aldehydes

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

Alkaloids

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

Amines

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

Aromatics

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

Esters

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

Ethers

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

Mercaptans

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

Olefins

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

Organic Acids

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

Oxides

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

Sulfides

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