



CARUSOL® PLUS liquid permanganate is an effective oxidant recommended for wastewater applications that require a concentrated permanganate solution. Applications include: hydrogen sulfide odor control, mercaptan odor control, toxic pollutant destruction, and toxicity reduction.

PRODUCT SPECIFICATIONS

Assay	19.0 - 21.5% as oxidant
pH	10.5-11.5
Solubility in Water	Miscible with water in all proportions

CHEMICAL/PHYSICAL DATA

Formula	Mixed oxidant
Appearance	Dark purple solution
Specific Gravity	1.20-1.26
Freezing Point	21° F

APPLICATIONS

Municipal Wastewater Treatment

- Hydrogen sulfide odor control
- Improved sludge dewatering
- Toxic pollutant destruction
- Toxicity reduction

Industrial Wastewater Treatment

- Hydrogen sulfide odor control
- Toxicity reduction

BENEFITS

- Concentrated liquid oxidant
- More precise dosing of chemical
- Feed equipment is simplified
- Consistent concentration

SHIPPING CONTAINERS

275-gallon (1041 L) IBC (Intermediate Bulk Container) (UN Specification: UN31HA1/Y1.9/100). They are also marked "MX" for multi-trip IBC. Weighs 123 lb. (55.8 kg). The net weight is 2547 lb. (1160 kg). The IBC contains 263 gallons of product. The IBC dimensions are 45.3 in. (114.9 cm) high, 47.3 in. (120.0 cm) long, and 39.4 in. (100.0 cm) wide. The IBC has a two inch butterfly valve with NPT threads in bottom sump and a vented top cap.

Bulk Shipping Quantities from 3000-4200 gallons are available.

HANDLING, STORAGE, AND INCOMPATIBILITY

Like any strong oxidant, CARUSOL PLUS liquid permanganate should be handled with care. Protective equipment during handling should include face shields and/or goggles, rubber or plastic gloves, and rubber or plastic apron. If clothing becomes spotted, wash off immediately; spontaneous ignition can occur with cloth or paper. In cases where significant exposure exists, use of the appropriate NIOSH-MSHA dust or mist respirator is recommended.

Store in accordance with NFPA (National Fire Protection Association) Code 430 requirements for Class II Oxidizers. The product should be stored in a cool, dry area in closed containers. Concrete floors are preferred. Avoid wooden decks. Spillage should be collected and disposed of properly. Contain and dilute spillage to approximately 5% with water, and then reduce with sodium thiosulfate or a sodium bisulfite solution. Deposit sludge in an approved landfill or, where permitted, drain into sewer with large quantities of water.

As an oxidant, the product itself is non-combustible, but will accelerate the burning of combustible materials. Therefore, contact with all combustible materials and/or chemicals must be avoided. These include, but are not limited to: wood, cloth, organic chemicals, and charcoal. Avoid contact with acids, peroxides, sulfites, oxalates, and all other oxidizable inorganic chemicals. During contact with hydrochloric acid, chlorine is liberated. Consult the SDS for additional safety information.



SHIPPING

CARUSOL® PLUS liquid permanganate is classified and listed as an oxidizer by PHMSA (Pipeline and Hazardous Materials Safety Administration), Department of Transportation, in 49 CFR Subchapter C, HMR (Hazardous Materials Regulation), Part 172.101 HMT (Hazardous Materials Table).

Proper Shipping Name:	Oxidizing Liquid, Corrosive, n.o.s. (Contains sodium permanganate, sodium hypochlorite).
Hazard Class:	5.1
Identification Number:	UN 3098
Packaging Group:	II
Label Requirements:	Oxidizer, 5.1, 8
Packaging Requirements:	49 CFR Parts 171 to 180
Sections:	173.152, 173.202, 173.242

COMPATIBILITY

CARUSOL PLUS liquid permanganate is compatible with many metals and synthetic materials. Natural rubbers and fibers are often incompatible. Solution pH and temperature are also important factors. The material selected for use with liquid permanganate must also be compatible with any kind of chemical being used in conjunction with this product.

In neutral and alkaline solutions, liquid permanganate is not corrosive to 316 stainless steel. Plastics and elastomers such as Teflon (PTFE), silicone, Hypalon, polypropylene, HDPE and PVC Schedule 80 are also compatible with this permanganate.

Aluminum, zinc, copper, lead, and alloys containing these metals may be affected by this product. Actual corrosion or compatibility studies should be made under the conditions in which liquid permanganate will be used prior to application.

LABORATORY SUPPORT

Carus Corporation has technical assistance available to answer questions, evaluate treatment alternatives, and perform laboratory testing. Our laboratory capabilities include: consulting, treatability studies, feasibility studies, and analytical services.

FIELD SERVICES

As an integral part of our technical support, Carus provides extensive on-site treatment assistance. We offer full application services, including technical expertise, supervision, testing, and feed equipment design and installation in order to accomplish a successful evaluation and/or application.

ENGINEERED SYSTEMS AND EQUIPMENT SERVICES

Various options and accessories are available to meet a wide range of applications. Custom-engineered feed systems are complete, pre-engineered and prepackaged systems. System designs are customized to meet specific applications and customer needs. CARUSOL® liquid permanganate eliminates the need to prepare solutions from dry powder and can be fed with simple dosing pumps.

CARUS CORPORATION

During its more than 100-year history, Carus' ongoing emphasis on research and development, technical support, and customer service has enabled the company to become the world leader in permanganate, manganese, oxidation, and base-metal catalyst technologies.