



CAIROX® POTASSIUM PERMANGANATE TECHNICAL GRADE

CAS Registry No. 7722-64-7 Municipal Drinking Water Data Sheet

CAIROX technical grade is recommended where potassium permanganate is fed as a solution and where particle size is not critical.

TECHNICAL GRADE

Assay: Guaranteed 98% $KMnO_4$

Particle Size:

20% maximum retained on #425 U.S. Standard Sieve (formerly #40)
7% maximum through #75 micron U.S. Standard Sieve (formerly #200)

Standards & Specifications:

CAIROX potassium permanganate is certified by the National Sanitation Foundation (NSF) to NSF/ANSI Standard 60: Drinking Water Treatment Chemicals – Health Effects

Technical grade meets:

AWWA Standard B603
NSF Maximum Use Level 50 mg/L



CHEMICAL/PHYSICAL DATA

Formula: $KMnO_4$
Formula Weight: 158.0 g/mol
Form: Granular Crystalline
Specific Gravity:
 Solid 2.703 g/cm³
 3% Solution 1.020 g/mL by weight, 20°C/4°C
Bulk Density: Approximately 100 lb/ft³
Decomposition: May start at 150°C/302°F

SOLUBILITY IN DISTILLED WATER

TEMPERATURE		SOLUBILITY	
°C	°F	g/L	oz/gal
0	32	27.8	3.7
20	68	65.0	8.6
40	104	125.2	16.7
60	140	230.0	30.7
70	158	286.4	38.3
75	167	323.5	43.2

DESCRIPTION

Crystals or granules are dark purple with a metallic sheen, sometimes with a dark bronze-like appearance. CAIROX potassium permanganate is odorless.

HANDLING, STORAGE & COMPATIBILITY

Protect containers against physical damage. When handling CAIROX potassium permanganate, respirators should be worn to avoid irritation of or damage to mucous membranes. Eye protection should also be worn when handling CAIROX potassium permanganate as a solid or in solution.

Store in accordance with NFPA 400 Hazardous Materials Code requirements in the United States.

CAIROX potassium permanganate is stable and will keep indefinitely if stored in a cool, dry area in closed containers. Concrete floors are preferred to wooden decks. To clean up spills and leaks, follow the steps recommended in the Safety Data Sheet (SDS). Be sure to use goggles, rubber gloves, and respirator when cleaning up a spill or leak.

Avoid contact with acids, peroxides, and all combustible organic or readily oxidizable materials including inorganic oxidizable materials and metal powders. With hydrochloric acid, chlorine gas is liberated. CAIROX potassium permanganate is not combustible, but will support combustion. It may decompose if exposed to intense heat. **Fires may be controlled and extinguished by using large quantities of water. Refer to the SDS for more information.**

APPLICATIONS

Listed below are some of the many applications of potassium permanganate. Permanganate is a powerful oxidizing agent. The optimum condition under which it is to be used can be easily established through technical service evaluations or laboratory testing.

- Oxidation & Synthesis
- Water Treatment
- Municipal Wastewater Treatment
- Industrial Wastewater Treatment
- Metal Surface Treatment
- Equipment Cleaning
- Purification of Gases
- Mining & Metallurgical
- Slag Quenching
- Food Processing



SHIPPING

CAIROX® potassium permanganate is classified according to the U.S Department of Transportation (HMR 49 CFR Part 172) as an oxidizer.

Proper Shipping Name: Potassium Permanganate (RQ-100 lb/45.4 kg)
Hazard Class: Oxidizer
Identification Number: UN 1490
Label Requirements: Oxidizer
Packaging Requirements: 49 CFR Parts 100 to 199

Permanganate products are not registered as a pesticide under the Federal Insecticide, Fungicide and Rodenticide Act administered by U.S. EPA or similar state laws. Use as a pesticide is not government approved.

SHIPPING CONTAINERS

25 kg pail (55.125 lb.) net, with handle, made of HDPE, weighs 2.9 lbs. (1.3 kg). It is tapered to allow nested storage of empty drums, stands approximately 15.9 in. (40.4 cm) high and has a maximum diameter of 12.4 in. 31.5 cm).

150 kg drum (330.75 lb.) net, made of 22-gauge steel, weighs 25.3 lbs. (11.5 kg). It stands approximately 28.4 in. (72.2 cm) high and is approximately 19.7 in. (50.0 cm) in diameter.

Packaging Weight Tolerance +/- 1%

Other containers may be available.

CORROSIVE PROPERTIES

CAIROX potassium 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 must be compatible with either the acid or alkali also being used.

In neutral and alkaline solutions, potassium permanganate is not corrosive to iron, mild steel, or stainless steel; however, chloride corrosion of metals may be accelerated when an oxidant such as permanganate is present in solution. Plastics such as polypropylene, polyvinyl chloride Type I (PVC I), epoxy resins, fiberglass reinforced plastic (FRP), Penton, Lucite®, Viton™ A, and Hypalon are suitable. Teflon™ FEP and TFE, and Tefzel™ ETFE are best. **Refer to Material Compatibility Chart.**

Aluminum, zinc, copper, lead, and alloys containing these metals may be (slightly) affected by CAIROX potassium permanganate solutions. **Actual studies should be made under the conditions in which permanganate will be used.**



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