CLIP, Chemical Laboratory Information Profile

"Only when you know the hazards, can you take the necessary precautionary measures."

Potassium Permanganate $KMnO_4$ CAS No.: 7722-64-7

Physical Properties

Purple crystals
Vapor pressure at 20 °C: negligible
Melting point: (decomposes) 240 °C

Exposure Limits

OSHA PEL: NE
ACGIH TLV: NE

Hazardous Characteristics

Overall toxicity	Flammability	Destructive to skin/eye	Absorbed through skin?	Sensitizer?	Self-reactive?	Incompatible with:
2	0	2	No	No	No	Combustibles, powdered metals and nonmetals, other reducing agents, certain strong oxidizing agents, concentrated acids such as HCl, HF, H_2SO_4, and others.*

0: None (or very low); 1: Slight; 2: Moderate; 3: High; 4: Severe.

***Reactivity Hazards**

The reaction of potassium permanganate with reducing agents and other reagents is often violent. Mixtures with antimony or with ethanol explode spontaneously. Glycerine or formaldehyde and potassium permanganate, on the other hand, spontaneously ignite. When mixed, potassium permanganate and ammonium nitrate explode after a delay. Other salts of ammonia that are oxidizing agents, for example NH_4ClO_4, can be expected to react similarly. Potassium permanganate reacts violently with hydrogen peroxide and with concentrated hydrogen halide and other concentrated acids. See Bretherick's *Handbook of Reactive Chemical Hazards* for details and for other incompatibilities.

Cited as known to be or reasonably anticipated to be carcinogenic in NTP-9? No

Identified as a reproductive toxin in Frazier and Hage, *Reproductive Hazards of the Workplace*? No

Typical symptoms of acute exposures:

On the skin, redness, pain. In the eyes, redness, pain, blurred vision. If inhaled, sore throat, coughing, shortness of breath. If ingested, sore throat, abdominal pain, vomiting, diarrhea.

Principal target organ(s) or system(s):

Eyes, skin, respiratory system.

Storage Requirements

Store in a cool, dry, well-ventilated location, away from flammables, combustibles, and other reducing agents.

Additional Remarks

When heated, potassium permanganate evolves oxygen, thus increasing the fire/explosion hazard. Symptoms of lung edema are not manifest immediately in victims who have inhaled potassium permanganate dust or mist from solutions; some hours may elapse first; physical effort can exaggerate these symptoms. Rest is essential for persons exposed to excess dust or mist.

Notes

ReadMe

This Chemical Laboratory Information Profile is ***not*** a Material Safety Data Sheet. It is a brief summary for teachers and their students that describes some of the hazards of this chemical as it is typically used in laboratories. On the basis of your knowledge of these hazards and before using or handling this chemical, *you need to select the precautions and first-aid procedures to be followed.* For that information as well as for other useful information, refer to Material Safety Data Sheets, container labels, and references in the scientific literature that pertain to this chemical.

Reproductive Toxins

Some substances that in fact are reproductive toxins are not yet recognized as such. For the best readily available and up-to-date information, refer to "DART/ETIC". See the TOXNET home page at *http://www.sis.nlm.nih.gov* and click on "Toxicology search". *Note that some of the data in DART/ETIC have not been peer-reviewed.* See also Linda M. Frazier and Marvin L. Hage, *Reproductive Hazards of the Workplace*; Wiley, 1998; and T. H. Shepard, *Catalog of Teratogenic Agents*, 9th ed.; Johns Hopkins University Press, 1998.

Abbreviations

ACGIH TLV—American Conference of Governmental Industrial Hygienists–Threshold Limit Value. C—Ceiling. CAS—Chemical Abstracts Service. mg/m^3—milligrams per cubic meter. NA—Not applicable. NE—Not established. NI—No information. NTP-9—National Toxicology Program, Ninth Annual Report on Carcinogens. OSHA PEL—Occupational Safety and Health Administration–Permissible Exposure Limit. ppm—parts per million. STEL/C—Short-term exposure limit and ceiling.

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