

School Material Safety Data Sheet

Genium Publishing Corporation
1145 Catalyn Street
Schenectady, NY 12303-1836 USA
(518) 377-8855



No. 63

POTASSIUM
DICHROMATE
February 1987

SECTION 1. INTRODUCTORY INFORMATION

MATERIAL NAME AND FORMULA: POTASSIUM DICHROMATE; $K_2Cr_2O_7$
SYNONYMS: Potassium Bichromate; Chromic Acid, Dipotassium Salt; Bichromate of Potash; Red Potassium Chromate

CAS NUMBER: 7778-50-9

INGREDIENTS: Potassium Dichromate, >99% (Purity may vary with grade. Check manufacturer's specifications for exact composition information.)

DOT CLASSIFICATION: ORM-A

EPA CLASSIFICATION: Hazardous Waste, #D001 and #D007

MANUFACTURERS: Always request Material Safety Data Sheets from your chemical supplier. These should indicate the manufacturer of the substance and include an emergency phone number to call. The Manufacturers section of this book contains a listing of some of the larger manufacturers and available emergency numbers.

DESCRIPTION: Bright orange-red crystals with no odor. It has a bitter metallic taste. Do not taste it! Soluble in water; insoluble in alcohol.



PRELIMINARY INFORMATION: Potassium dichromate is considered toxic by ingestion or inhalation. It can be a dangerous fire risk in contact with organic materials. It is a very reactive oxidizer. A chemical reagent with a variety of applications in a chemistry lab.

SECTION 2. USE AND STORAGE INFORMATION

- PRELIMINARY PLANNING CONSIDERATIONS -

- Safety glasses or goggles and protective clothing (rubberized apron, etc.) should be worn for all experiments.
- Be sure eyewash station and safety shower are in good working order and readily available.
- Always provide for safe disposal of all chemical waste generated in the lab. Check applicable regulations prior to use.
- Rubber gloves are recommended when working with this material to avoid repeated or prolonged contact.
- This is a strong oxidizing agent.
- Use with adequate ventilation.

- USAGE PRECAUTIONS AND PROCEDURES -

- **READ THE LABEL** and follow all precautions.
- Maintain good housekeeping practices to avoid unintentional mixing with incompatible materials. Clean up spills promptly.
- For safety, contact lenses should not be worn in the laboratory; soft lenses may absorb irritants, and all lenses may concentrate them. Particles can also adhere to contact lenses and cause corneal damage.
- After working with this material, always wash hands and face before eating, drinking, or smoking.
- Keep this material off your clothes and belongings.
- Avoid creating airborne dust conditions. Do not inhale dust or mist. Avoid skin and eye contact. Do not ingest!

- ADDITIONAL INFORMATION -

- $K_2Cr_2O_7$ does not polymerize. This material is stable at room temperature under normal conditions.
- Incompatible with hydrazine and hydroxylamine (reacts explosively). Also with reducing agents and flammable and combustible materials.
- Contact with reducing agents and flammable and combustible materials such as paper, wood, organics, and certain metals can cause ignition, particularly when heated.

- PREFERRED STORAGE LOCATION AND METHODS -

- Storage area should be cool and well ventilated. Containers should be tightly closed.
- Do not store chemicals alphabetically by name; store by chemical family, instead, to keep compatibles together.
- All chemical containers should be protected from physical damage and kept out of direct sunlight.
- Smoking should not be permitted in areas where chemicals are stored.
- Purchase only amounts equivalent to one year's needs.
- Store with compatible materials on sturdy, noncombustible shelving. Store away from flammable and combustible materials and easily oxidizable substances.

SECTION 3. SPILLS AND DISPOSAL PROCEDURES

IF MATERIAL IS SPILLED:

- Ventilate area of spill.
- Cleanup personnel should wear personal protective equipment as necessary to prevent skin or eye contact and inhalation of dust or solution mist.
- For liquid (solution) spills, cover material with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop into an appropriate container (with secure lid) for disposal in accordance with existing regulations. Dike with inert absorbent material, as needed, to contain and limit spill area.
- Carefully scoop up spilled material and collect in a suitable (metal) container (with secure lid) for disposal or reclamation. Avoid creating airborne dust conditions. Cleanup methods such as vacuuming (with appropriate filter) or wet mopping will minimize dust dispersion.
- Mop up residues with water; recover resulting solution for proper disposal if amount is significant.

DISPOSAL OF SMALL QUANTITIES:

- Waste containing this material may require disposal as a hazardous waste in an approved chemical landfill. Contact your supplier for suggested procedures. For disposal of larger amounts, contact a licensed disposal company.

FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL

SECTION 4: HEALTH HAZARDS

Current and ACGIH TLV: 8-hr. TWA: 0.05 mg/m^3 as Cr (VI)
Current OSHA PEL Ceiling: 0.1 mg/m^3
NIOSH recommends a TWA of 0.025 mg/m^3 and a ceiling of 0.050 mg/m^3 as Cr (VI)

Dog, Oral, LDLo: 2829 mg/kg
Guinea Pig, Oral, LDLo: 163 mg/kg
Child, Oral, LDLo: 26 mg/kg

- Inhalation of dichromate dust and mist can irritate the nose, throat, bronchial tubes, and lungs. Prolonged or repeated exposure may result in ulceration and perforation of the nasal septum. Kidney and liver damage have also been reported.
- Skin contact is associated with both contact dermatitis and allergic skin rashes. Ulceration of the skin ("chrome ulcers") may also occur, especially if the skin is broken.
- Increased incidences of respiratory cancer have been reported in the chromate-producing industry. The IARC has classified "chromium and certain chromium compounds" as being carcinogenic to humans. The specific chromium compounds responsible for the carcinogenic effects are not identified. In its 1975 criteria document on chromium (VI), NIOSH identified potassium dichromate as a "noncarcinogenic chromium (VI)."

SECTION 5: FIRST AID PROCEDURES

Eye contact:

- Flush eyes promptly with plenty of running water for at least 15 minutes, including under the eyelids.
- Get prompt medical attention.*

Skin contact:

- Remove contaminated clothing promptly. Prevent further contact with the material.
- Wash exposed areas of skin with soap and water.
- Get medical attention if irritation persists.*

Inhalation:

- Remove victim to fresh air; restore and/or support breathing as necessary.
- Get medical help for coughing or breathing difficulty.*

Ingestion:

- Get prompt medical attention.*
- Give several glasses of water to drink. Induce vomiting -- but ONLY if victim is conscious and alert.
- Never give anything by mouth to a person who is unconscious or convulsing.

* Get medical help (in school, paramedic, or community) for further treatment, observation, and support after first aid.

SECTION 6: FIRE PROCEDURES AND DATA

- Potassium dichromate is a strong oxidizing agent and can promote and intensify combustion, particularly when heated.
- Extinguishing media: Use media appropriate to surrounding fire conditions.
- If water is suitable for extinguishing the burning material, flood fire with water. Prevent runoff to sewers and waterways.
- For major fires, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus is recommended.
- A water spray may be used to cool fire-exposed containers and disperse vapors.

THERMAL DECOMPOSITION PRODUCTS: Oxygen, chromium oxide, and potassium chromate (@ 932°F (500°C)).

FLASH POINT AND METHOD(S) ... Not Applicable

AUTOIGNITION TEMPERATURE ... Not Applicable

FLAMMABILITY LIMITS IN AIR (vol. %) : Not Applicable

SECTION 7: PHYSICAL DATA

BOILING POINT (@ 1 atm) ... 932°F (500°C) (Decomposes)
VAPOR PRESSURE (@ 25°C , mm Hg) ... Negligible
SOLUBILITY IN WATER (@ 0°C) ... 4.9 g/100 cc (102 g/100 cc @ 100°C)
pH OF AQUEOUS SOLUTION (1 %) ... 4.0 (10% ... 3.6)

SPECIFIC GRAVITY (@ 25°C) ... 2.676
MELTING POINT ... 748.4°F (398°C)
FORMULA WEIGHT ... 294.21

DATA SOURCES: Genium's Industrial MSDS #168 (1/86) and references 2, 4, 5, 7-9, 12, 19, 25, 57, 58, 61, 82, 501, 506, 509, 510.
(see glossary for titles)

Judgements as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, Genium Publishing Corp. extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

N

Approvals:

Author

Indust. Hygiene/Safety

Medical Review

15