Allied Chemical
An Allied Company

POTASSIUM BICHROMATE

PRODUCT SAFETY DATA SHEET

JUN 24 1985

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME OR SYNONYM)	☒ C.A.S. NO. ☐ ALLIED PRODUCT CODE #
Potassium Bichromate	7778-50-9

CHEMICAL NAME
Potassium Dichromate

FORMULA	MOLECULAR WEIGHT
$K_2Cr_2O_7$	294.19

ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)
Allied Chemical
P.O. Box 1139R
Morristown, N.J. 07960

CONTACT	PHONE NUMBER	ISSUED DATE	REVISED DATE
Director, Product Safety	(201) 455-4157	June, 1980	Jan., 1983

B. FIRST AID MEASURES

EMERGENCY PHONE NUMBER
(201) 455-2000

Skin: Wash with plenty of water without delay. Remove contaminated clothing.
Eyes: Promptly flush with plenty of water, continuing for at least 15 minutes, and get medical attention.
Ingestion: If conscious, immediately have victim drink water; then induce vomiting by touching finger to the back of the throat.
Get prompt medical attention for ingestion, inhalation, irritation, chemical or thermal burns or "chrome sores."

C. HAZARDS INFORMATION

HEALTH

INHALATION
Inhalation of bichromate dusts or mists can cause ulceration and perforation of the nasal septum, as well as irritation to the respiratory system. Also, see Section K.

INGESTION
Can be harmful or fatal. Toxic effects may not appear right away. A systemic poison; bichromates are primarily toxic to kidneys, liver, and gastrointestinal tract. LD_{50} (rat): 107 mg/kg. Reference (e).

SKIN
Dusts and solutions can cause irritation. Contact with breaks in the skin can cause "chrome sores" (skin ulcers). Bichromates are skin sensitizers. Skin absorption has been reported. Also, see Section K.

EYES
Dusts, mists, or solutions can cause severe irritation and conjunctivitis.

PERMISSIBLE CONCENTRATION: AIR (SEE SECTION J)		BIOLOGICAL
TLV = 0.05 mg/m³ (as Cr)	OSHA TWA = 0.1 mg/m³ (as CrO_3)	40-50 microgram (Cr)/liter in urine (sampled at end of day).

UNUSUAL CHRONIC TOXICITY
See Section K.

HAZARDS (Cont.)

FIRE AND EXPLOSION

FLASH POINT °C	AUTO IGNITION TEMPERATURE °C	FLAMMABLE LIMITS IN AIR (% BY VOL.)
Not Flammable	NA	LOWER NA UPPER NA
OPEN CUP ☐ CLOSED CUP		

UNUSUAL FIRE AND EXPLOSION HAZARDS

Decomposes at about 500°C (930°F) to release oxygen, which may promote the burning of combustibles. An oxidizer — may react rapidly enough to ignite some materials, and with finely divided combustibles, the combustion can be violent.

PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED

Water spray (may require flooding amounts).

FIRE EXTINGUISHING AGENTS TO AVOID

NA

SPECIAL FIRE FIGHTING PRECAUTIONS

Water runoff may contain hexavalent chromium and should not be allowed to enter sewers or waterways. Use NIOSH-approved self-contained breathing apparatus and full protective clothing if exposure to chromium dust or mist is possible. Cool fire-exposed containers with water spray.

VENTILATION

Sufficient to reduce chromium concentration below current permissible levels. Packaging and unloading areas and open processing equipment should be equipped with mechanical exhaust systems.

NORMAL HANDLING

Avoid contact with skin, eyes, and clothing. Avoid breathing dust or mist from solutions. Wash thoroughly after handling and use good personal hygiene and good housekeeping. Handle carefully in a manner that minimizes dusting and splashes.

STORAGE

Store in dry, well-ventilated area in suitable tightly closed containers. Avoid contact with reducing agents.

SPILL OR LEAK

Shovel up dry chemical and place in empty metal drum with a cover. Cautiously spray residue with plenty of water. Recover resulting solution or slurry for proper disposal. (See Section I for disposal methods). Keep out of sewer. Any release of the product to the environment may be subject to federal or state reporting requirements. Check with appropriate agencies.

SPECIAL PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS

Wear clean clothing daily. If clothing becomes contaminated, clean clothing should be obtained immediately. Contaminated clothing should not be laundered at home. Workers exposed to chromium chemicals should avoid leather shoes and gloves as they can become impregnated with the material. Label signal word: DANGER!

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION

Where required, use NIOSH-approved high-efficiency dust respirator, or high-efficiency dust and mist respirator, as applicable. For some exposures, a NIOSH-approved self-contained breathing apparatus or supplied-air respirator may be necessary. See references (b), (d).

EYES

Wear hood (or other head covering) and chemical safety goggles. Do not wear contact lenses. For increased protection, wear face shield.

SKIN AND BODY

Rubber boots and gloves, and long-sleeve shirt and trousers for routine product use. Head and neck should be covered.

OTHER CLOTHING AND EQUIPMENT

For exposure to concentrated solutions may require more complete protection than indicated above. Provide eyewash and quick drench facilities.

F. PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS):	APPEARANCE AND ODOR	
☐ LIQUID ☒ SOLID ☐ GAS ☐ _____	Orange-red crystals and powder. Odorless.	
BOILING POINT °C Decomposes 500°C MELTING POINT 398°C	SPECIFIC GRAVITY (H_2O = 1) 2.69	VAPOR DENSITY (AIR = 1) NA
SOLUBILITY IN WATER (% by Weight) 6.5% solution at 10°C	pH 1% solution; pH = 4.0 10% solution; pH = 3.6	VAPOR PRESSURE (mm Hg at 20° C) ☐ (PSIG) ☐ NA
EVAPORATION RATE (Butyl Acetate = 1) ☐ (Ether = 1) ☐ NA	% VOLATILES BY VOLUME (At 20° C) NA	

G. REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
☐ UNSTABLE ☒ STABLE	

INCOMPATIBILITY (MATERIALS TO AVOID)

Reducing agents — reaction can be violent.

HAZARDOUS DECOMPOSITION PRODUCTS

Decomposes at high temperatures (approx. 500°C) yielding oxygen, potassium chromate and chromium oxide (Cr^{+3}).

HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
☐ MAY OCCUR ☒ WILL NOT OCCUR	

H. HAZARDOUS INGREDIENTS (Mixtures Only)

MATERIAL OR COMPONENT/C.A.S. #	WT. %	HAZARD DATA (SEE SECT. J)
NA		

ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY

Aquatic Toxicity:
739 ppm/24 hr./bluegill/TL_m/fresh water
17.8 ppm/*/silver salmon/toxic/salt water

*Time period not specified.

OCTANOL/WATER PARTITION COEFFICIENT

PA HAZARDOUS SUBSTANCE? [X] YES [ ] NO IF SO, REPORTABLE QUANTITY: 1000 # — 40 CFR 116-117

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS)

Hexavalent chromium cannot be discharged directly to waterways. Disposal method may depend on regulations. Treatment methods are outlined in literature available from Allied Chemical. Disposal by a contractor or in an approved chemical wastes landfill may be necessary. Empty bags should also be disposed of by a waste disposal contractor or in an approved chemical wastes landfill.

RCRA STATUS OF UNUSED MATERIAL:
EPA Hazardous Waste No. D007, if discarded. — 40 CFR 261.24

REFERENCES

PERMISSIBLE CONCENTRATION REFERENCES

OSHA standard, 29 CFR 1910.1000 (1982).
TLV from the 1982 ACGIH list, "Threshold Limit Values for Chemical Substances. . .".

REGULATORY STANDARDS — D.O.T. CLASSIFICATION: ORM-A NA1479 — 49 CFR

GENERAL
(a) Criteria for a Recommended Standard. . . .Occupational Exposure to Chromium (VI). Published by NIOSH (U.S. Dept. of HHS), 1975., PB 248595, NTIS.
(b) Petrilli, F.L. et al, Appl. Environ. Microbiol. 1977, 33 (4), 805-9 (Eng).
(c) Newbold, R.F. et al, Mutat. Res. 1979, 67 (1), 55-63 (Eng).
(d) NIOSH/OSHA "Occupational Health Guideline for Chromic Acid and Chromates," 1978.
(e) Allied Chemical test data, unpublished.
(f) CHRIS Manual, U.S. Coast Guard, Sodium Dichromate.

ADDITIONAL INFORMATION

For manufacturing use only. Not for food or drug use.

Absorption through broken, burned or intact skin can cause systemic poisoning affecting kidney and liver functions, and can be fatal. Chronic exposure can also cause such poisoning.

Recent studies indicate an increased incidence of respiratory cancers among long-term employees of the chromate producing industry. The NIOSH criteria document for hexavalent chromium recommends that all chromium (VI) compounds be considered suspect carcinogens except Chromic Acid and its ammonium, sodium, potassium and lithium salts. Nevertheless, some investigators believe that these soluble hexavalent compounds may present a carcinogenic risk under special circumstances. As long as these uncertainties exist, good practice dictates precautions to minimize workers exposure.

Caution should also be observed in operations where this chemical is mixed with other chemicals. Certain chemical mixtures may cause potentially carcinogenic insoluble hexavalent chromium compounds to be formed. See references (a), (d).

Hexavalent chromium compounds in the form of chromates and dichromates have been found to be mutagenic in bacterial and mammalian cells, including those of the Chinese hamster. References (b) and (c).

Information (hazards, precautions, first aid, etc.) is abbreviated. More complete information can be found in the general references listed.