

POTASSIUM CHROMATE

GHS Safety Data Sheet

Version No : 2.0

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

POTASSIUM CHROMATE

OTHER NAMES

K₂-Cr-04, "K₂-Cr-04.4H₂O tetrahydrate", "chromic acid, dipotassium salt", "chromate of potassium", "dipotassium chromate", "potassium monochromate", "potassium chromate (VI)", "potassium chromate (VI)", "potassium chromate anhydrous", "chromate de potassium", APS, TECH00000385, TECH00001174, UL00001173

PROPER SHIPPING NAME

TOXIC SOLID, INORGANIC, N.O.S.
(contains potassium chromate)

PRODUCT USE

Used in passivating treatments to protect steel from corrosion.
As a component of some timber treatments.
In the manufacture of other chromates. In leather tanning.
In the manufacture of aniline black; textile mordant.
Laboratory reagent.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,

MUMBAI- 400030.INDIA.

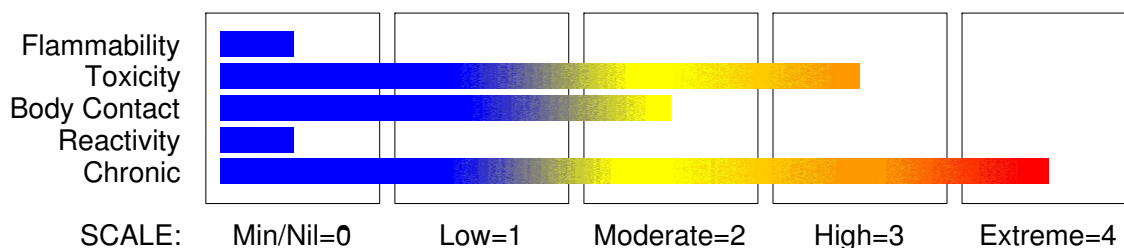
technical@sdfine.com

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HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 3
Carcinogen Category 1B
Chronic Aquatic Hazard Category 1
Eye Irritation Category 2A
Germ Cell Mutagen Category 1B
Respiratory Irritation Category 3
Respiratory Sensitizer Category 1
Skin Corrosion/Irritation Category 2
Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H335 H301 H315 H319 H334 H317 H340 H350 H410

May cause respiratory irritation

Toxic if swallowed

Causes skin irritation

Causes serious eye irritation

May cause allergic or asthmatic symptoms or breathing difficulties if inhaled

May cause allergic skin reaction

May cause genetic defects

May cause cancer by inhalation

Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

Prevention

Contaminated clothing should not be allowed out of the workplace.

Obtain special instructions before use.

In case of inadequate ventilation wear respiratory protection.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not handle until all safety precautions have been read and understood.

Do not eat, drink or smoke when using this product.

Use personal protective equipment as required.

Wash hands thoroughly after handling.

Response

Wear eye/face protection.

If eye irritation persists, get medical advice/attention.

If skin irritation or rash occurs, seek medical advice/attention.

If exposed or concerned: Get medical attention advice.

IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position

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Section 2 - HAZARDS IDENTIFICATION

comfortable for breathing.

If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.

Remove/Take off immediately all contaminated clothing

Wash/Decontaminate removed clothing before reuse.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Specific treatment: refer to Label or MSDS.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation occurs, seek medical advice/attention.

IF ON SKIN: Gently wash with plenty of soap and water.

Wash contaminated clothing before reuse.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
potassium chromate	7789-00-6	>99

Section 4 - FIRST AID MEASURES

SWALLOWED

Rinse mouth out with plenty of water.

· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.

· For advice, contact a Poisons Information Centre or a doctor.

Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

· Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.

· Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

· In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.

· If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.

· If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

Transport to hospital or doctor and seek immediate medical attention.

EYE

If this product comes in contact with the eyes:

· Immediately hold eyelids apart and flush the eye continuously with running water.

· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

· Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.

· Transport to hospital or doctor without delay.

· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

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Section 4 - FIRST AID MEASURES

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

For burns:

Immerse in cold running water (15 mins). Bandage lightly.

MEDICAL ATTENTION.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

For acute or short term repeated exposures to dichromates and chromates:

- Absorption occurs from the alimentary tract and lungs.
 - The kidney excretes about 60% of absorbed chromate within 8 hours of ingestion. Urinary excretion may take up to 14 days.
 - Establish airway, breathing and circulation. Assist ventilation.
 - Induce emesis with Ipecac Syrup if patient is not convulsing, in coma or obtunded and if the gag reflex is present.
 - Otherwise use gastric lavage with endotracheal intubation.
 - Fluid balance is critical. Peritoneal dialysis, haemodialysis or exchange transfusion may be effective although available data is limited.
 - British Anti-Lewisite, ascorbic acid, folic acid and EDTA are probably not effective.
 - There are no antidotes.
 - Primary irritation, including chrome ulceration, may be treated with ointments comprising calcium-sodium-EDTA. This, together with the use of frequently renewed dressings, will ensure rapid healing of any ulcer which may develop.
- The mechanism of action involves the reduction of Cr (VI) to Cr(III) and subsequent chelation; the irritant effect of Cr(III)/ protein complexes is thus avoided. [ILO Encyclopedia]
[Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Flooding quantities of water only.

Water spray or fog.

Foam.

Dry agent.

Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

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Section 5 - FIRE FIGHTING MEASURES

- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Will not burn but increases intensity of fire.
 - Heating may cause expansion or decomposition leading to violent rupture of containers.
 - Heat affected containers remain hazardous.
 - Contact with combustibles such as wood, paper, oil or finely divided metal may produce spontaneous combustion or violent decomposition.
 - May emit irritating, poisonous or corrosive fumes.
- Decomposes on heating and produces toxic fumes of: metal oxides.

FIRE INCOMPATIBILITY

Oxidising agents as a class are not necessarily combustible themselves, but can increase the risk and intensity of fire in many other substances.

Personal Protective Equipment

- Breathing apparatus.
- Gas tight chemical resistant suit.
- Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up, shovel up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

- Environmental hazard - contain spillage.
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralise/decontaminate residue.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
potassium chromate 50 mg/m³

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Section 6 - ACCIDENTAL RELEASE MEASURES

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

potassium chromate 3.5 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

potassium chromate 0.35 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

potassium chromate 0.15 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X



X



+



X



X



+

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Glass container.

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Section 7 - HANDLING AND STORAGE

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Store away from incompatible materials.

Avoid contact with aluminium, magnesium, charcoal, fluorine, sulfur, many combustible substances and reducing agents.

Keep storage area free of debris, waste and combustibles.

Segregate from.

May ignite flammable or combustible materials (eg. petroleum products, paper, wood, sulfur, aluminium and plastics).

Combustion may be violent in the case of finely divided materials; sawdust.

Explosion may occur on reaction with chemicals such as acetic anhydride; anhydrous hydroxylamine, hydrazine and others.

STORAGE REQUIREMENTS

Keep dry.

- Store in original containers.
- Keep containers securely sealed as supplied.
- Store in a cool, well ventilated area.
- Keep dry.
- Store under cover and away from sunlight.
- Store away from flammable or combustible materials, debris and waste. Contact may cause fire or violent reaction.
- Store away from incompatible materials and foodstuff containers.
- DO NOT stack on wooden floors or pallets.
- Protect containers from physical damage.
- Check regularly for leaks.
- Observe manufacturer's storage and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- potassium chromate: CAS:7789- 00- 6

MATERIAL DATA

Some jurisdictions require that health surveillance be carried on workers occupationally exposed to inorganic chromium. Such surveillance should emphasise

- demography, occupational and medical history and health advice
- physical examination with emphasis on the respiratory system and skin
- weekly skin inspection of hands and forearms by a "responsible person".

WARNING: This substance is classified by the NOHSC as Category 2 Probable Human Carcinogen.

PERSONAL PROTECTION



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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Impervious gloves.
Wear chemical protective gloves, eg. PVC.
Wear safety footwear.

OTHER

Overalls.
• Impervious apron.
• Eyewash unit.
Ensure there is ready access to a safety shower.
Avoid generating and breathing dust.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.
None required when handling small quantities.
OTHERWISE:.
General exhaust is adequate under normal operating conditions.
If exposure to workplace dust is not controlled, respiratory protection is required; wear SAA approved dust respirator.
Provide adequate ventilation in warehouse or closed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Yellow, odourless crystals; soluble in water. Insoluble in alcohol.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Poisonous, oxidising agent and corrosive to skin.
Available in anhydrous form and as tetrahydrate which dehydrates at 63C.
Contact with many combustible organic materials may cause fire.

PHYSICAL PROPERTIES

Solid.

Mixes with water.

Molecular Weight: 194.19 anhydrous

Melting Range (°C): 968- 975

Solubility in water (g/L): Miscible

pH (1% solution): 8.6- 9.8@5% soln.

Volatile Component (%vol): <1.0 water

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: Divided solid

Boiling Range (°C): Decomposes.

Specific Gravity (water=1): 2.73 @ 18 C.

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not applicable

Evaporation Rate: Not applicable

Flash Point (°C): Not combustible

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

Ingestion may result in nausea, abdominal irritation, pain and vomiting.

Chromate salts are corrosive because of their oxidising potency and produce tissue injury similar to acid burns. Ingestion may produce violent gastroenteritis, severe circulatory collapse and toxic nephritis. Peripheral vascular shock may also ensue.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.

Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

SKIN

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of

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POTASSIUM CHROMATE

Section 11 - TOXICOLOGICAL INFORMATION

animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.

Not normally a hazard due to non-volatile nature of product.

Respiratory sensitisation may result in allergic/asthma like responses; from coughing and minor breathing difficulties to bronchitis with wheezing, gasping.

CHRONIC HEALTH EFFECTS

Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population.

Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking.

Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals.

There is sufficient evidence to provide a strong presumption that human exposure to the material may result in the development of heritable genetic damage, generally on the basis of

- appropriate animal studies,
- other relevant information.

Principal routes of exposure are usually by skin contact, eye contact and inhalation of generated dust.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

Skin contact may result in severe irritation particularly to broken skin. Ulceration known as "chrome ulcers" may develop. Chrome ulcers and skin cancer are significantly related.

Sensitisation may give severe responses to very low levels of exposure, in situations where exposure may occur.

Chronic inhalation exposure may result in nasal ulceration and/or perforation of nasal septum.

Chromium VI exposures have been related to higher incidence of lung cancer.

TOXICITY AND IRRITATION

TOXICITY

Oral (human) LDLo: 430 mg/kg

Oral (rat) LD50: 50-500 mg/kg

WARNING: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS.

IRRITATION

Skin (human): Highly irritating & corrosive [CCINFO-Baker]
[CHRIS]

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Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant: Not Determined

Daphnia magna EC50 (48hr.) (mg/l): 19.2

The material is classified as an ecotoxin* because the Daphnia EC50 (48 hours) is less than or equal to 0.1 mg/l

* Classification of Substances as Ecotoxic (Dangerous to the Environment)

Appendix 8, Table 1

Compiler's Guide for the Preparation of International Chemical Safety Cards: 1993

Commission of the European Communities.

DO NOT discharge into sewer or waterways.

Environmental impact rating: 2 based on ecotoxicity data (Scale 0-4, 4 most hazardous)

Ecotoxicity data:

Fish toxicity: LC50: 81 mg/L/96hr (Mummichog Fundulus heteroclitus)

Invertebrate toxicity: EC50 (Immobilisation): 260 microgram/l/48hr (Water flea Daphnia pulex)

Phytotoxicity: IC: 0.5 microgram/l/48hr chlorophyll production (Coon tail Ceratophyllum demersum)

Other toxicity: LC50: 100 mg/l/96hr (Frog Rana hexadactyla)

Fate and Transport: Bioconcentration : BCF (Residue) 12 meq/l/10hr

Green algae Chlorella ellipsoidea 20 microeq/l

Environmental summary: Moderately toxic to aquatic life.

Chromium in the oxidation state +3 (the trivalent form) is poorly absorbed by cells found in microorganisms, plants and animals. Chromate anions (CrO₄⁻, oxidation state +6, the hexavalent form) are readily transported into cells and toxicity is closely linked to the higher oxidation state.

Chromium Ecotoxicology:

Toxicity in Aquatic Organisms:

Chromium is harmful to aquatic organisms in very low concentrations. Fish food organisms are very sensitive to low levels of chromium. Chromium is toxic to fish although less so in warm water. Marked decreases in toxicity are found with increasing pH or water hardness; changes in salinity have little if any effect. Chromium appears to make fish more susceptible to infection. High concentrations can damage and/or accumulate in various fish tissues and in invertebrates such as snails and worms.

Reproduction of Daphnia is affected by exposure to 0.01 mg/kg hexavalent chromium/litre

Toxicity of chromium in fresh-water organisms (50% mortality)*

Compound	Category	Exposure	Toxicity Range (mg/litre)	Most sensitive species
hexavalent chrome	invertebrate	acute	0.067- 59.9	scud
		long- term	-	-
	vertebrate	acute	17.6- 249	fathead minnow
trivalent chrome	invertebrate	long- term	0.265- 2.0	rainbow trout
		acute	2.0- 64.0	cladoceran
	vertebrate	long- term	0.066	cladoceran
		acute	33.0- 71.9	guppy
	invertebrate	long- term	1.0	fathead minnow

* from Environmental Health Criteria 61: WHO Publication.

Toxicity in Microorganisms:

In general, toxicity for most microorganisms occurs in the range of 0.05-5 mg chromium/kg of medium. Trivalent chromium is less toxic than the hexavalent form. The main signs of toxicity are inhibition of growth and the inhibition of various metabolic processes such as photosynthesis or protein synthesis. Gram-negative soil bacteria are generally more sensitive to hexavalent chromium (1-12 mg/kg) than the gram-positive types. Toxicity to

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Section 12 - ECOLOGICAL INFORMATION

trivalent chromium is not observed at similar levels. The toxicity of low levels of hexavalent chromium (1 mg/kg) indicates that soil microbial transformation, such as nitrification, may be affected. Chromium should not be introduced to municipal sewage treatment facilities.

Toxicity in Plants: Chromium in high concentrations can be toxic for plants. The main feature of chromium intoxication is chlorosis, which is similar to iron deficiency. Chromium affects carbohydrate metabolism and leaf chlorophyll concentration decreases with hexavalent chromium concentration (0.01-1 mg/l). The hexavalent form appears to more toxic than the trivalent species.

Biological half-life: The elimination curve for chromium, as measured by whole-body counting, has an exponential form. In rats, three different components of the curve have been identified, with half-lives of 0.5, 5.9 and 83.4 days, respectively.

Water Standards: Chromium is identified as a hazardous substance in the Federal (U.S.) Water Pollution Control Act and further regulated by Clean Air Water Act Amendments (US). These regulations apply to discharge. The US Primary drinking water Maximum Contaminant Level (MCL), for chromium, is 0.05 mg/l (total chromium).

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.

Consult manufacturer for recycling options.

Consult State Land Waste Management Authority for disposal.

Treat and neutralise at an effluent treatment plant.

Reduce Cr (VI) to Cr (III) using meta-bisulfite, neutralise with lime and reclaim sludge.

Bury residue in an authorised landfill.

Decontaminate empty containers.

Puncture containers to prevent re-use.

WASTE DISPOSAL PROCEDURES

- Wear eye protection, protective clothing and nitrile rubber gloves, to control personal contact from small quantities of potassium chromate. Add at least 100mL of water for each 2g quantity of potassium chromate. Prepare 9mL of concentrated sulfuric acid to 46mL of cold water. Add 55mL of the sulfuric acid to the chromate solution. The colour of the solution is orange. With stirring add 10g of sodium carbonate. The solution is blue and cloudy. Once the sodium thiosulfate has disappeared, neutralise with sodium carbonate. Allow a blue grey flocculent to form. Filter the mixture or allow to stand for one week. Decant the supernatant liquid. Wash the liquid portion into the drain with water. Wash the solid residue with hot water to remove the sodium sulfate. Dry, package and label the solid residue and remove to a secured landfill site [Armour 1996].

SPILLAGE DISPOSAL

- Wear nitrile rubber gloves, protective clothing and eye protection to control personal contact from potassium chromate. Cover and contain the spill with a 1:1:1 mixture by weight of sodium carbonate or calcium carbonate, bentonite and sand. Scoop the mixture into a container of water. Acidify the solution with 3M sulphuric acid to obtain a pH of 1. With stirring add solid sodium thiosulfate until the solution turns cloudy and blue coloured. Neutralise with sodium carbonate. Allow a blue grey flocculent to form. Allow the mixture to stand for one week or filter immediately. The supernatant can be decanted into the drain. Allow the remaining liquid to evaporate or filter it again. Wash the solid residue with hot water to remove the solid sodium sulfate. Dry, package and

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Section 13 - DISPOSAL CONSIDERATIONS

label the solid residue and send to a secure landfill site. Wash the area of the spill with copious amounts of water and detergent. Contaminated clothing should be removed and washed thoroughly to remove any oxidant [Armour 1996].

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC
HAZCHEM: 2X

UNDG:

Dangerous Goods Class:	6.1	Subrisk:	None
UN Number:	3288	Packing Group:	III
Shipping Name: TOXIC SOLID, INORGANIC, N.O.S. (contains potassium chromate)			

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	3288	Packing Group:	III
ERG Code:	6L		
Shipping name: TOXIC SOLID, INORGANIC, N.O.S. (contains potassium chromate)			

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	3288	Packing Group:	III
EMS Number:	F- A, S- A	Marine Pollutant:	Not Determined
Shipping name: TOXIC SOLID, INORGANIC, N.O.S. (contains potassium chromate)			

Section 15 - REGULATORY INFORMATION

REGULATIONS

potassium chromate (CAS: 7789-00-6) is found on the following regulatory lists;
International Agency for Research on Cancer (IARC) Carcinogens

Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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