

# OTTO CHEMIE PVT LTD

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-----ISO 9001: 2015-----

## MATERIAL SAFETY DATA SHEET

### 1. Identification

#### 1.1 GHS Product identifier

Potassium chromate, GR 99%+  
Code P 2187

### 2. Hazard identification

#### 2.1 Classification of the substance or mixture

Skin irritation, Category 2

Eye irritation, Category 2

Skin sensitization, Category 1

Specific target organ toxicity (single exposure), Category 3

Germ cell mutagenicity, Category 1B

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

Carcinogenicity, Category 1B

#### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H315 Causes skin irritation  
H319 Causes serious eye irritation  
H317 May cause an allergic skin reaction  
H335 May cause respiratory irritation  
H340 May cause genetic defects  
H410 Very toxic to aquatic life with long lasting effects  
H350i

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P271 Use only outdoors or in a well-ventilated area.  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P273 Avoid release to the environment.

Response

P302+P352 IF ON SKIN: Wash with plenty of water/...  
P321 Specific treatment (see ... on this label).  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P391 Collect spillage.

Storage P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
Disposal P501 Dispose of contents/container to ...  
2.3 Other hazards which do not result in classification  
none

### 3. Composition/information on ingredients

#### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
potassium chromate	potassium chromate	7789-00-6	none	100%

### 4. First-aid measures

#### 4.1 Description of necessary first-aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

##### If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

##### In case of skin contact

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer for medical attention.

##### In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

##### If swallowed

Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention.

#### 4.2 Most important symptoms/effects, acute and delayed

Inhalation causes local irritation of mucous membranes; continuing nose irritation can result in perforation of nasal septum. Ingestion may cause violent gastroenteritis, circulatory collapse, vertigo, coma, and toxic nephritis; ingestion of excessive quantities can be fatal. Contact with eyes causes severe irritation and conjunctivitis. Repeated or prolonged exposure to dust, mist, or solutions may cause dermatitis; contact with breaks in the skin may cause "chrome sores" appearing as slow-healing, hard-rimmed ulcers which leave the area vulnerable to infection. (USCG, 1999)

#### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Inorganic Acids and Related Compounds/

### 5. Fire-fighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### 5.2 Specific hazards arising from the chemical

Behavior in Fire: May increase intensity of fire if in contact with combustible materials. Cool containers and spilled material with plenty of water. (USCG, 1999)

#### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 6. Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

#### 6.2 Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Sweep spilled substance into containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

#### 6.3 Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided; Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

### 7. Handling and storage

#### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

#### 7.2 Conditions for safe storage, including any incompatibilities

Provision to contain effluent from fire extinguishing. Dry. Well closed. Separated from combustible substances, reducing agents and food and feedstuffs. Store in an area without drain or sewer access. Keep container tightly closed in a dry and well-ventilated place.

Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

## 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

Recommended Exposure Limit: 8-hour Time-Weighted Average: 0.5 mg Cr/cu m. /Chromium metal, chromium(II) and chromium(III) compounds/

Recommended Exposure Limit: 8-hour Time-Weighted Average: 0.0002 mg Cr(VI)/cu m. NIOSH considers all Cr(VI) compounds (including chromic acid, tert-butyl chromate, zinc chromate, and chromyl chloride) to be potential occupational carcinogens. /All hexavalent chromium (Cr(VI) compounds/

NIOSH usually recommends that occupational exposures to carcinogens be limited to the lowest feasible concentration. /Chromic acid and chromates/

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

Wear dust mask when handling large quantities.

#### Thermal hazards

no data available

## 9. Physical and chemical properties

Physical state	lemon-yellow crystals
Colour	Yellow orthorhombic crystals
Odour	Odorless
Melting point/ freezing point	975\°C
Boiling point or initial boiling point and boiling range	1000\°C
Flammability	Not combustible but enhances combustion of other substances.
Lower and upper explosion limit / flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	Aqueous solution is alkaline to litmus or phenolphthalein
Kinematic viscosity	no data available
Solubility	In water: 640 g/L (20 \°C)
Partition coefficient n-octanol/water (log value)	no data available
Vapour pressure	Zero
Density and/or relative density	2.732
Relative vapour density	6.7 (vs air)
Particle characteristics	no data available

## 10. Stability and reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Non-combustible Oxidizing agents, such as POTASSIUM CHROMATE, can react with reducing agents to generate heat and products that may be gaseous (causing pressurization of closed containers). The products may themselves be capable of further reactions (such as combustion in the air). The chemical reduction of materials in this group can be rapid or even explosive, but often requires initiation (heat, spark, catalyst, addition of a solvent). Explosive mixtures of inorganic oxidizing agents with reducing agents often persist unchanged for long periods if initiation is prevented. Such systems are typically mixtures of solids, but may involve any combination of physical states. Some inorganic oxidizing agents are salts of metals that are soluble in water; dissolution dilutes but does not nullify the oxidizing power of such materials. Organic compounds, in general, have some reducing power and can in

principle react with compounds in this class. Actual reactivity varies greatly with the identity of the organic compound. Inorganic oxidizing agents can react violently with active metals, cyanides, esters, and thiocyanates.

#### 10.4 Conditions to avoid

no data available

#### 10.5 Incompatible materials

Incompatible materials: Organic materials, powdered metals, strong oxidizing agents

#### 10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /potassium oxide/.

### 11. Toxicological information

#### Acute toxicity

Oral: LD50 Mouse oral 180 mg/kg

Inhalation: no data available

Dermal: no data available

#### Skin corrosion/irritation

no data available

#### Serious eye damage/irritation

no data available

#### Respiratory or skin sensitization

no data available

#### Germ cell mutagenicity

no data available

#### Carcinogenicity

**WEIGHT OF EVIDENCE CHARACTERIZATION:** Under the current guidelines (1986), Cr(VI) is classified as Group A - known human carcinogen by the inhalation route of exposure. Carcinogenicity by the oral route of exposure cannot be determined and is classified as Group D. Under the proposed guidelines (1996), Cr(VI) would be characterized as a known human carcinogen by the inhalation route of exposure on the following basis. Hexavalent chromium is known to be carcinogenic in humans by the inhalation route of exposure. Results of occupational epidemiological studies of chromium-exposed workers are consistent across investigators and study populations. Dose-response relationships have been established for chromium exposure and lung cancer. Chromium-exposed workers are exposed to both Cr(III) and Cr(VI) compounds. Because only Cr(VI) has been found to be carcinogenic in animal studies, however, it was concluded that only Cr(VI) should be classified as a human carcinogen. Animal data are consistent with the human carcinogenicity data on hexavalent chromium. Hexavalent chromium compounds are carcinogenic in animal bioassays, producing the following tumor types: intramuscular injection site tumors in rats and mice, intrapleural implant site tumors for various Cr(VI) compounds in rats, intrabronchial implantation site tumors for various Cr(VI) compounds in rats and subcutaneous injection site sarcomas in rats. *In vitro* data are suggestive of a potential mode of action for hexavalent chromium carcinogenesis. Hexavalent chromium carcinogenesis may result from the formation of mutagenic oxidative DNA lesions following intracellular reduction to the trivalent form. Cr(VI) readily passes through cell membranes and is rapidly reduced intracellularly to generate reactive Cr(V) and Cr(IV) intermediates and reactive oxygen species. A number of potentially mutagenic DNA lesions are formed during the reduction of Cr(VI). Hexavalent chromium is mutagenic in bacterial assays, yeasts and V79 cells, and Cr(VI) compounds decrease the fidelity of DNA synthesis *in vitro* and produce unscheduled DNA synthesis as a consequence of DNA damage. Chromate has been shown to transform both primary cells and cell lines. **HUMAN CARCINOGENICITY DATA:**

Occupational exposure to chromium compounds has been studied in the chromate production, chromeplating and chrome pigment, ferrochromium production, gold mining, leather tanning and chrome alloy production industries. Workers in the chromate industry are exposed to both trivalent and hexavalent compounds of chromium. Epidemiological studies of chromate production plants in Japan, Great Britain, West Germany, and the United States have revealed a correlation between occupational exposure to chromium and lung cancer, but the specific form of chromium responsible for the induction of cancer was not identified ... Studies of chrome pigment workers have consistently demonstrated an association between occupational chromium exposure (primarily Cr(VI)) and lung cancer. Several studies of the chromeplating industry have demonstrated a positive relationship between cancer and exposure to chromium compounds. **ANIMAL CARCINOGENICITY DATA:** Animal data are consistent with the findings of human epidemiological studies of hexavalent chromium ... /Chromium (VI)/

#### Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

### 12. Ecological information

#### 12.1 Toxicity

Toxicity to fish: EC50; Species: Danio rerio (Zebra danio) embryo 48 hr postfertilization, wild-type; Conditions: freshwater, static, 28°C; Concentration: 1995000 ug/L for 48 hr; Effect: behavior, decreased swimming

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Cladoceran) 19.2 and 7.39 ug/L as chromium for 48 and 96 hr, respectively; Both with a water hardness of 50 mg/L as calcium carbonate. Effect: immobilization.

Toxicity to algae: EC50; Species: Chlorella vulgaris (Green Algae) Exponential Growth Phase, 5x10<sup>4</sup> cells/mL; Conditions: freshwater, static, 20°C; Concentration: 548 ug/L for 96 hr; Effect: growth, increased whole organism size

Toxicity to microorganisms: no data available

#### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

Using potassium chromate as the source for chromium, a BCF of 1.0 (based on chromium) was determined for the whole body of *Salmo gairdneri* (rainbow trout) over a 30 days duration period(1). According to a classification scheme(2), this BCF range suggests that bioconcentration in aquatic organisms is low(SRC).

### 12.4 Mobility in soil

no data available

### 12.5 Other adverse effects

no data available

## 13. Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## 14. Transport information

### 14.1 UN Number

ADR/RID: UN3288

IMDG: UN3288

IATA: UN3288

### 14.2 UN Proper Shipping Name

ADR/RID: TOXIC SOLID, INORGANIC, N.O.S.

IMDG: TOXIC SOLID, INORGANIC, N.O.S.

IATA: TOXIC SOLID, INORGANIC, N.O.S.

### 14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

### 14.4 Packing group, if applicable

ADR/RID: III

IMDG: III

IATA: III

### 14.5 Environmental hazards

ADR/RID: yes

IMDG: yes

IATA: yes

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

## 15. Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
potassium chromate	potassium chromate	7789-00-6	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

## Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.