
Safety Data Sheet

1. Chemical product and company identification

Product name : Chromium(VI) oxide

SDS code : A7-02

Company/undertaking identification :

HAYASHI PURE CHEMICAL IND.,LTD.

Address : 3-2-12 Uchihiranomachi, Chuo-ku, Osaka, Osaka, Japan

Telephone : 06-6910-7305

E-mail : shiyaku_kikaku@hpc-j.co.jp

URL : <https://www.hpc-j.co.jp/>

Emergency number : 06-6910-7305

Recommended use : For research and experimental use only.

Restrictions on use : Do not use on a human body or for animal medicines, foods, household products, cosmetics, etc.

2. Hazards identification

GHS classification

Physical hazards	Explosives	No classification	
	Flammable gases	No classification	
	Aerosol	No classification	
	Oxidizing gases	No classification	
	Gases under pressure	No classification	
	Flammable liquids	No classification	
	Flammable solids	No classification	
	Self-reactive substances and mixtures	No classification	
	Pyrophoric liquids	No classification	
	Pyrophoric solids	No classification	
	Self-heating substances and mixtures	No classification	
	Substances and mixtures which in contact with water emit flammable gases	No classification	
	Oxidizing liquids	No classification	
	Oxidizing solids	Category 2	
	Organic peroxides	No classification	
	Corrosive to metals	classification not possible	
	Desensitized explosives	classification not possible	
	Health hazards	Acute toxicity (oral)	Category 3
		Acute toxicity (dermal)	Category 2
Acute toxicity (inhalation:gas)		No classification	
Acute toxicity (inhalation:vapors)		No classification	
Acute toxicity (inhalation:dust/mist)		Category 2	
Skin corrosion/irritation		Category 1	
Serious eye damage/eye irritation		Category 1	
Respiratory sensitization		Category 1	
Skin sensitization		Category 1	
Germ cell mutagenicity		Category 1B	
Carcinogenicity	Category 1A		
Reproductive toxicity	Category 1B		
Specific target organ toxicity (single exposure)	Category 1 (central nervous system, respiratory system, cardiovascular system, blood system, liver, kidneys)		

	Specific target organ toxicity (repeated exposure)	Category 1 (respiratory system)
	Aspiration hazard	classification not possible
Environmental hazards	Hazardous to the aquatic environment, short-term (acute)	Category 1
	Hazardous to the aquatic environment, long-term (chronic)	Category 1
	Hazardous to the ozone layer	classification not possible

Hazard
pictograms
(GHS JP)

GHS03



GHS05



GHS06



GHS08



GHS09

Signal word (GHS JP)

: Danger

Hazard statements (GHS JP)

: May intensify fire; oxidizer (H272)
 Toxic if swallowed (H301)
 Fatal in contact with skin or if inhaled (H310+H330)
 Causes severe skin burns and eye damage (H314)
 May cause an allergic skin reaction (H317)
 May cause an allergy or asthma symptoms or breathing difficulties if inhaled (H334)
 May cause genetic defects (H340)
 May cause cancer (H350)
 May damage fertility or the unborn child (H360)
 Causes damage to organs (central nervous system, respiratory system, cardiovascular system, blood system, liver, kidneys) (H370)
 Causes damage to organs (respiratory system) through prolonged or repeated exposure (H372)
 Very toxic to aquatic life with long lasting effects (H410)

Precautionary statements (GHS JP)

Prevention

: Obtain special instructions before use. (P201)
 Do not handle until all safety precautions have been read and understood. (P202)
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. (P210)
 Keep away from clothing and other combustible materials. (P220)
 Do not breathe dust/fume/gas/mist/vapors/spray. (P260)
 Do not get in eyes, on skin, or on clothing. (P262)
 Wash hands, forearms and face thoroughly after handling. (P264)
 Do not eat, drink or smoke when using this product. (P270)
 Use only outdoors or in a well-ventilated area. (P271)
 Contaminated work clothing should not be allowed out of the workplace. (P272)
 Avoid release to the environment. (P273)
 Wear protective gloves/protective clothing/eye protection/face protection. (P280)
 Wear respiratory protection. (P284)

Response

: IF SWALLOWED: Immediately call a POISON CENTER or doctor. (P301+P310)
 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. (P301+P330+P331)
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. (P303+P361+P353)
 IF INHALED: Remove person to fresh air and keep comfortable for breathing (P304+P340)
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338)
 IF exposed or concerned: Call a POISON CENTER or doctor. (P308+P311)
 Immediately call a POISON CENTER or doctor. (P310)
 Get medical advice/attention if you feel unwell. (P314)
 If skin irritation or rash occurs: Get medical advice/attention. (P333+P313)
 If experiencing respiratory symptoms: Call a POISON CENTER or doctor. (P342+P311)

- Take off immediately all contaminated clothing and wash it before reuse. (P361+P364)
In case of fire: Use specify appropriate media to extinguish. (P370+P378)
Collect spillage. (P391)
- Storage : Store in a well-ventilated place. Keep container tightly closed. (P403+P233)
Store locked up. (P405)
- Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. (P501)

3. Composition/information on ingredients

- Distinction of substance or mixture : Substance
Synonyms : Chromic acid anhydride, Chromium trioxide

Name	Concentration or Concentration range	Formula	Kanpo number		CAS RN
			CSCL no	ISHL no	
Chromium oxide (VI)	$\geq 95.0\%$, $\leq 100\%$	CrO ₃	(1)-284	Existing Chemical Substance	1333-82-0

The above concentration or concentration range are not product specification.
All percentages listed in the above concentration or concentration range are wt%, unless otherwise specified.

4. First aid measures

First aid measures

- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
Get immediate medical advice/attention.
- First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing.
Gently wash with plenty of soap and water.
Get immediate medical advice/attention.
- First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical advice/attention.
- First-aid measures after ingestion : Rinse mouth.
Get immediate medical advice/attention.

5. Fire fighting measures

- Suitable extinguishing media : Water spray
- Unsuitable extinguishing media : Foam, Dry powder, Do not use a heavy water stream.
- Fire hazard : This product is unburnable.
May intensify fire; oxidizer.
- Explosion hazard : May induce explosion of containers by heating.
- Hazardous decomposition products in case of fire : In case of fire, product may produce irritative or toxic fumes/gases.
- Firefighting instructions : If ignited, for the initial fire-fighting, cut off combustion sources, extinguish fire at a stroke using appropriate fire-extinguishers.
In the case of peripheral fire, quickly remove movable containers to safe places.
If unable to be moved containers, sprinkle water to containers and surrounding equipment, etc. to cool.
Avoid (reject) fire-fighting water to enter environment.
Even after extinguishing fire, thoroughly cool containers by using plenty of water.
- Protection during firefighting : Wear appropriate fire-resistant clothing including self contained-compressed air breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

- General measures : Before entering, ventilate the area.
Do not let unauthorized persons come close to the area.
Immediately place the leakage area in isolation, with taking proper distances for all directions.
Wear appropriate personal protective devices to prevent inhalation and contact with eye, skin, and clothing, and never attempt to work on the lee.

Environmental precautions

- Environmental precautions : Avoid release to the environment.
Prevent entry to sewers and public waters.

Methods and Equipment for Containment and Cleaning up

- Methods for cleaning up : Take care not to generate dust, sweep it up as much as possible, collect it in an empty container that can be sealed, and move it to a safe place.
Wash out the spilled area with large amounts of water.

7. Handling and storage

Handling

- Technical measures : Work with appropriate personal protective equipment to prevent inhalation or contact to eyes, skin, and clothing.
Handle with care to prevent leakage, overflowing, or scattering, minimize generation of mist or vapor, and thoroughly ventilate.
- Precautions for safe handling : Do not eat, drink or smoke when using this product.
Thoroughly wash your hands and gargle after handling.
Ensure good ventilation of the work station.
Do not contact, breathe or swallow.
- Prevents handling of incompatible substances or mixtures : Avoid prolonged or repeated exposure.

Storage

- Storage conditions : Store locked up.
Store in a well-ventilated place, away from direct sunlight. Keep container tightly closed and keep away from fire and heat sources.
- Material used in packaging/containers : Light shielding airtight container.
- Technical measures : Comply with applicable regulations.
- Storage temperature : Cool and dark place

8. Exposure controls / Personal protection equipment

Exposure limit values	
Chromium oxide (VI)	
Japan administration level	0.05mg/m ³ (as Cr)
Exposure limits (JSOH)	0.05mg/m ³ (as Cr)
Exposure limits (ACGIH)	TWA 0.0002 mg/m ³ (l),STEL 0.0005 mg/m ³ (l) (Hexavalent chromium compounds, as Cr(VI));TWA 0.0002 mg/m ³ (l),STEL 0.0005 mg/m ³ (l) (Skin) (Hexavalent chromium compounds, as Cr(VI) Water-soluble compounds)

- Appropriate engineering controls : Cover up tightly the generation source at the handling place or install local exhaust equipment or overall ventilation equipment. Install safety showers and eye-fountains near a handling place. Clearly indicate the location.

Protective equipment

- Respiratory protection : Dustproof mask
- Hand protection : Protective gloves
- Eye protection : Protective glasses (general glasses, glasses with side-shields, goggles)
- Skin and body protection : Protective clothing, Protective boots, Protective apron

9. Physical and chemical properties

- Physical state : Solid
- Appearance : Crystals ~ Flakes

Color	: dark purplish red
Odor	: characteristic odor
pH	: No data available
Melting point	: 196 °C
Freezing point	: No data available
Boiling point	: Decomposes at 250°C
Flash point	: Not inflammable
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative density	: No data available
Density	: 2.7 g/cm ³
Relative gas density	: No data available
Solubility	: Soluble in water. Soluble in alcohol. Soluble in sulfuric acid.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Explosive limits (vol %)	: No data available
Viscosity, kinematic	: No data available
Particle characteristics	: No data available

10. Stability and reactivity

Reactivity	: No data available
Chemical stability	: Stable under normal handling conditions. Deliquescent. Hygroscopic.
Possibility of hazardous reactions	: Be strong oxidizing agent, reacts violently with combustible substances and reducing agents, and poses a risk of fire and explosion. It decomposes into chromium(III) oxide and oxygen at about 250°C, increasing the risk of fire. The aqueous solution is a strong acid and reacts with bases to be corrosive. May ignite when mixed with aniline, pyridine, red phosphorus, acetone, etc.
Conditions to avoid	: Sunlight, moisture, heat. Impurity contamination. Contact with reducing agents, bases and combustible substances.
Incompatible materials	: Reducing agents, Bases, Combustible substances
Hazardous decomposition products	: Oxygen, Chromium compounds

11. Toxicological information

The information in this section is based on the "GHS Classification Results" by NITE.

Chromium oxide (VI)	
Acute toxicity (oral)	Category 3
Acute toxicity (dermal)	Category 2
Acute toxicity (gas)	No classification
Acute toxicity (vapour)	No classification
Acute toxicity (inhalation:dust/mist)	Category 2
Skin corrosion/irritation	Category 1
Serious eye damage/irritation	Category 1
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1B
STOT-single exposure	Category 1
STOT-repeated exposure	Category 1
Aspiration hazard	classification not possible

12. Ecological information

The information in this section is based on the "GHS Classification Results" by NITE.

Chromium oxide (VI)	
Hazardous to Aquatic Environment - Acute Hazard	Category 1
Hazardous to Aquatic Environment - Chronic Hazard	Category 1
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Hazardous to the ozone layer	classification not possible

13. Disposal considerations

- Ecology - waste materials : With the detail information of the waste, subcontract its disposal to a waste disposer authorized by a Prefectural Governor.
- Contaminated container and packaging : Empty the packaging completely prior to disposal.
Empty containers should be taken for recycle, recovery or waste in accordance with local regulation.

14. Transport information

International Regulations

Transport by sea(IMDG)

- UN-No. (IMDG) : 1463
 Proper Shipping Name (IMDG) : CHROMIUM TRIOXIDE, ANHYDROUS
 Packing group (IMDG) : II
 Transport hazard class(es) (IMDG) : 5.1 (6.1, 8)
 Hazard labels (IMDG) : 5.1,6.1,8
 Class (IMDG) : 5.1
 Subsidiary hazard (IMDG) : 6.1, 8
 Division (IMDG) : 5.1
 Limited quantities (IMDG) : 1 kg
 Excepted quantities (IMDG) : E2
 Packing instructions (IMDG) : P002
 Packing provisions (IMDG) : PP31
 IBC packing instructions (IMDG) : IBC08
 IBC special provisions (IMDG) : B21, B4
 Tank instructions (IMDG) : T3
 Tank special provisions (IMDG) : TP33
 Stowage category (IMDG) : A
 Properties and observations (IMDG) : Dark-purplish red deliquescent crystals. Soluble in water. Mixtures with combustible material may ignite spontaneously and may even explode. In the presence of moisture, corrosive to most metals. Causes burns to skin, eyes and mucous membranes.
- MFAG-No : 141

Air transport(IATA)

- UN-No. (IATA) : 1463
 Proper Shipping Name (IATA) : Chromium trioxide, anhydrous
 Packing group (IATA) : II
 Transport hazard class(es) (IATA) : 5.1 (6.1, 8)
 Hazard labels (IATA) : 5.1, 6.1, 8
 Class (IATA) : 5.1
 Subsidiary hazards (IATA) : 6.1, 8
 Division (IATA) : 5.1
 PCA Excepted quantities (IATA) : E2
 PCA Limited quantities (IATA) : Y544
 PCA limited quantity max net quantity (IATA) : 2.5kg
 PCA packing instructions (IATA) : 558
 PCA max net quantity (IATA) : 5kg
 CAO packing instructions (IATA) : 562
 CAO max net quantity (IATA) : 25kg
 ERG code (IATA) : 5CP
 Marine pollutant : Applicable

Regulations in Japan

Regulatory information by sea	:	Conform to the provisions of the Ship Safety Law.
Regulatory information by air	:	Conform to the provisions of the Civil Aeronautics Law.
MFAG-No	:	141
Special transport precautions	:	When transporting, load containers so that they do not tip over, damage, drop or collapse. Make sure there is no leak in containers.

15. Regulatory information**National law**

Chemical Substances Control Law	:	Priority Assessment Chemical Substances (Law Article 2, Para.5)
Industrial Safety and Health Law	:	Group 2 Specified Chemical Substance, Group 2 Substance Under Supervision (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.2 Para.1, Item 2,5) Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1) Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9) Chromium and its compounds (Ordinance number : 142) Specified Chemical Substances, Special Control Substances (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.38-3) Substances on Special medical examination, Current handling workers (Act, Art.66, Para.2, Enforcement Order, Art.22 Item 1) Substances on Special medical examination, Past handling workers (Act, Art.66, Para.2, Enforcement Order, Art.22 Item 2)
Japanese Poisonous and Deleterious Substances Control Law	:	Deleterious Substances (Law Art.2, Attached Table 2) Chromium trioxide
Water Pollution Prevention Law	:	Hazardous Substances (Act, Art.2, Enforcement Order Art.2, Ministerial Ordinance to Provide for Effluent Standards, Art.1)
Fire Service Law	:	Group 1, Oxidizing Solids; Oxides of Chromium, Lead or Iodine (Act, Art.2 Para.7, Cabinet Order Concerning the Control of Hazardous Materials, Art.1, Para.1)
Air Pollution Control Law	:	Hazardous Air Pollutants, Priority Substances (Central Environment Council Report No. 9)
Foreign Exchange and Foreign Trade Control Act	:	Export Trade Control Ordinance appendix 1-16
Ship Safety Act	:	Oxidizing substances and organic peroxides/Oxidizing substances (Dangerous Goods Notification Schedule first second and third Article Dangerous Goods Regulations)
Civil Aeronautics Law	:	Oxidizing substances and organic peroxides/Oxidizing substances (Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)
Port Regulation Law	:	Oxidizing substances and organic peroxides/Oxidizing substances (Article 21, Paragraph 2 of Law, Article 12 rule, notice attached table that defines the type of dangerous goods)
Road Act	:	Restriction for Vehicle Traffic (Enforcement Order Art.19-13, Publication of Japan Highway Public Corp.)
Waste Management on Public Cleansing Law	:	Specially Controlled Industrial Wastes (Act Art.2, para 5, Enforcement Order Art.2-4)
Waterworks Law	:	Hazardous Substances (Act Article 4 paragraph 2), Standard for Water Quality (Ministry Order No.101 of 2003)
Sewerage Law	:	Substances for Water Quality Standard (Act Art.12-2 Para.2, Enforcement Order Art.9-4)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)	:	Class 1 Designated Chemical Substances, Specified Class 1 Designated Chemical Substances (Act Art.2 para. 2, Enforcement Order Art.1 Appended Table No.1, Enforcement Order Art.4) Chromium(VI) compounds as chromium(52%) 【After amendment of April 2023】 Class 1 Designated Chemical Substances, Specified Class 1 Designated Chemical Substances (Act, Art.2, Para.2, Enforcement Order, Art.1 Appended Table 1, Enforcement Order, Art.4) Chromium(VI) compounds as chromium(52%)

- Labor Standards Act : Chemical Substances Causing Occupational Illnesses (Act Art.75, Para.2, Ordinance Attached Table 1-2, Item 4-1, MHLW Notification No.36 of 1978)
- Soil Contamination Countermeasures Law : Designated Hazardous Substances (Act Art.2 Para.3, Enforcement Order Art.1)

16. Other information

- Data sources : Handbook of 17423 Chemical Products, The Chemical Daily Co, Ltd. International Chemical Safety Cards. National Institute of Technology and Evaluation (NITE). 2020 Emergency Response Guidebook (ERG 2020).
- Other information : The SDS is copyrighted material of Hayashi Pure Chemical Ind, Ltd. This Safety Data Sheet is intended to be provided for business operators who handle chemical substance products of the relevant product and is not intended to assure safety in any way. The Safety Data Sheet does not verify all the information on the applicable chemical substance in the present time. With the recognition in that unknown danger constantly exists in the relevant chemical substance, the product shall be used in the principle of self-responsibility of the user with the highest priority to safety from transport and unpacking to disposal. When the relevant chemical substance is used, the user him/herself shall collect safety information and shall investigate laws and regulations at the place, organizations, countries, etc. where the substance is actually used and give the highest priority to them. The Company shall take no responsibility for investigating state and local regulations and the user shall handle this problem on his/her own responsibility. In the event that SDS in Japanese and SDS translated into other languages exist, the document described in Japanese is prior to all other documents whether or not there is any difference in contents, and documents in other languages shall be references.