



Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Oxidants scrubber

SDS No. : 5808E-3

Relevant identified uses of the substance or mixture and uses advised against

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Oxidizing solids: Category 2

Corrosive to metals: Category 1

HEALTH HAZARDS

Acute toxicity (Oral): Category 3

Acute toxicity (Dermal): Category 2

Acute toxicity (Inhalation): 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 (blood system, cardiovascular system, liver, central nervous system, respiratory system, kidneys)

Specific target organ toxicity – repeated exposure: Category 1 (respiratory system)

ENVIRONMENT HAZARDS

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

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

(Note) GHS classification without description: Not classified/Classification not possible

Label elements



Signal word: Danger

HAZARD STATEMENT

H272 May intensify fire; oxidizer



- H290 May be corrosive to metals
- H301 Toxic if swallowed
- H310 Fatal in contact with skin
- H330 Fatal if inhaled
- H314 Causes severe skin burns and eye damage
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H317 May cause an allergic skin reaction
- H340 May cause genetic defects
- H350 May cause cancer
- H360 May damage fertility or the unborn child
- H370 Causes damage to organs (blood system, cardiovascular system, liver, central nervous system, respiratory system, kidneys)
- H372 Causes damage to organs through prolonged or repeated exposure (respiratory system)
- H410 Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

- P202 Do not handle until all safety precautions have been read and understood.
- P273 Avoid release to the environment.
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P220 Keep away from clothing and other combustible materials.
- P234 Keep only in original packaging.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P284 In case of inadequate ventilation wear respiratory protection.
- P271 Use only outdoors or in a well-ventilated area.
- P262 Do not get in eyes, on skin, or on clothing.
- P264 Wash contaminated parts thoroughly after handling.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P280 Use personal protective equipment as required.
- P270 Do not eat, drink or smoke when using this product.

Response

- P370 + P378 In case of fire: Use appropriate media to extinguish.
- P390 Absorb spillage to prevent material-damage.
- P391 Collect spillage.
- P314 Get medical advice/attention if you feel unwell.
- P308 + P313 IF exposed or concerned: Get medical advice/attention.
- P310 Immediately call a POISON CENTER/doctor/physician.
- P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor/physician.
- P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
- 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.



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P330 IF SWALLOWED: Rinse mouth.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

P403 Store in a well-ventilated place. P233 Keep container tightly closed.

P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

Ingredient name	Content (%)	CAS No.	Chemicals No, Japan	Chemical formula
Chromium(VI) oxide	29-37	1333-82-0	1-284	CrO3
Sulfuric acid	15-19	7664-93-9	1-430	H2SO4
Water	7.0-10	7732-18-5	-	H2O
Glass fiber	36-44	-	-	-

Note : The figures shown above are not the specifications of the product.

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

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

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Do NOT induce vomiting.

Immediately call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.



Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

In case of fire, use water mist or loaded liquid, foam, dry sand to extinguish.

*Fire Service Act Group 1 Hazardous Materials

Unsuitable extinguishing media

Carbon Dioxide/ Halon Extinguishing System

Dry Chemical Extinguishing System- Using Hydrogen Carbonates , etc./Others (except for phosphates etc., Hydrogen Carbonates etc.)

Fire Extinguisher Discharging Carbon Dioxide/Halogenide

Fire Extinguisher Discharging Dry Extinguishing agents-Using Hydrogen Carbonates, etc./Others (except for phosphates etc., Carbonates etc.)

*Cabinet Order Concerning the Control of Hazardous Materials (Attached Table 5) Other Group 1 Hazardous Materials

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Absorb spillage to prevent material-damage.

Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.



(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep away from clothing and other combustible materials.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

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

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash hands et al thoroughly after handling.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity".

Advice on general occupational hygiene

Do not get in eyes, on skin, or on clothing.

Wash contaminated parts thoroughly after handling.

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

Contaminated work clothing should not be allowed out of the workplace.

Take off immediately all contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store locked up. (P405)

Store in a cool, dry place. Do not store in direct sunlight.

Keep container protect from light.

Storage in accordance with local/national regulation.

Container and packaging materials for safe handling

Keep only in original packaging.

Store in a corrosion resistant/specified container with a resistant inner liner.

Glass

etc.

Section 8. Exposure controls/personal protection

Control parameters

Adopted value

(Chromium(VI) oxide)

ACGIH(2018) TWA: 0.0002mg-Cr(VI)/m3(I);

STEL: 0.0005mg-Cr(VI)/m3(I) (Lung & sinonasal cancer; resp tract irr; asthma)

(Sulfuric acid)

ACGIH(2004) TWA: 0.2mg/m3(T) (Pulm func)

Notation

(Chromium(VI) oxide)

Skin; DSEN; RSEN

Exposure controls

Appropriate engineering controls



Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Recommend to use protective equipment in conformity with the standards.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Scip

Color: Pink

Odor data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water data is not available.

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density data is not available.

Relative vapor density (Air=1) data is not available.

Particle characteristics data is not available.

Other information

Other information is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(Chromium(VI) oxide)



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Decomposes above 250°C. This produces chromic oxide and oxygen. This increases fire hazard. The substance is a strong oxidant. It reacts violently with combustible and reducing materials. This generates fire and explosion hazard. The solution in water is a strong acid. It reacts violently with bases and is corrosive. (ICSC 1194)

(Sulfuric acid)

Decomposes on heating. This produces toxic and corrosive gases including sulfur oxides. The substance is a strong oxidant. It reacts with combustible and reducing materials and organic materials. This generates fire and explosion hazard. The substance is a strong acid. It reacts violently with bases and is corrosive to most common metals forming a flammable/explosive gas (hydrogen). Reacts violently with water. This generates heat and fire or explosion hazard. Attacks many plastics. (ICSC 0362)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Bases, Reducing agents, Combustible materials, Organic materials, Metals

Hazardous decomposition products

Sulfur oxides, Chromic oxide, Hydrogen

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Category 3, Toxic if swallowed

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

rat LD50=52 – 113mg/kg (EU-RAR, 2005)

(Sulfuric acid)

rat LD50=2140mg/kg (AICIS IMAP, 2015)

Acute toxicity (Dermal)

[Product]

Category 2, Fatal in contact with skin

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

rabbit LD50=57.7mg/kg (cal.) (CICAD 78, 2013)

Acute toxicity (Inhalation)

[Product]

Category 2, Fatal if inhaled

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

mist: rat LC50=0.217mg/L/4hr (EU-RAR, 2005)

(Sulfuric acid)

mist: rat LC50=0.375mg/L/4hr (OECD TG 403) (AICIS IMAP, 2015)

Irritant properties

Skin corrosion/irritation



[Product]

Category 1, Causes severe skin burns and eye damage

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

corrosive (ATSDR, 2012)

(Sulfuric acid)

corrosive and irritation (AICIS IMAP, 2015)

Serious eye damage/irritation

[Product]

Category 1, Causes serious eye damage

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

human conjunctival injection, necrosis, corneal edema and corneal opacity (EU-RAER, 2005)

(Sulfuric acid)

corrosive and irritation (AICIS IMAP, 2015)

Sensitization

Respiratory sensitization

[Product]

Category 1, May cause allergy or asthma symptoms or breathing difficulties if inhaled

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

cat. 1; ATSDR, 2012

Skin sensitization

[Product]

Category 1, May cause an allergic skin reaction

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

cat. 1; ATSDR, 2012

Germ cell mutagenicity

[Product]

Category 1B, May cause genetic defects

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

cat. 1B; EU-RAR, 2005

Carcinogenicity

[Product]

Category 1A, May cause cancer

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

cat.1A; IARC Gr.1 (IARC, 1990 (Cr(VI) compounds) et al.)

[IARC]

(Chromium(VI) oxide)

Group 1 : Carcinogenic to humans

(Sulfuric acid)



Group 1 : Carcinogenic to humans

[ACGIH]

(Chromium(VI) oxide)

A1(as Cr(VI))(2018) : Confirmed Human Carcinogen

(Sulfuric acid)

A2(2004) : Suspected Human Carcinogen

[NTP]

(Chromium(VI) oxide)

Known : Known to be Human Carcinogens

(Sulfuric acid)

Known : Known to be Human Carcinogens

[EU]

(Chromium(VI) oxide)

Category 1A; Substances known to have carcinogenic potential for humans

Reproductive toxicity

[Product]

Category 1B, May damage fertility or the unborn child

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

cat. 1B; Water-soluble chromium (VI)

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

blood system, cardiovascular system, liver, central nervous system, respiratory system,

kidneys (ATSDR, 2012)

(Sulfuric acid)

respiratory system (DFG MAK, 2001)

STOT-repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

respiratory system (CICAD 78, 2013)

(Sulfuric acid)

respiratory system (AICIS IMAP, 2015)

Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]



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Category 1, Very toxic to aquatic life

Category 1, Very toxic to aquatic life with long lasting effects

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[GHS Cat. Japan, base data]

(Chromium(VI) oxide)

Crustacea (Ceriodaphnia dubia) LC50=0.145mg/L/48hr (Aquire, 2015)

(Sulfuric acid)

Fish (bluegill) LC50(pH3.25-3.5)=16-28mg/L/96hr (OECD SIDS, 2001)

Hazardous to the aquatic environment, long-term (chronic)

[GHS Cat. Japan, base data]

(Sulfuric acid)

Fish (Gambusia affinis) NOEC(pH6.0)=0.025mg/L/45days (OECD SIDS, 2001)

Water solubility

(Chromium(VI) oxide)

good (ICSC, 2013)

(Sulfuric acid)

miscible (ICSC, 2000)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container as industrial waste. Accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : 3087

UN Proper Shipping Name :

OXIDIZING SOLID, TOXIC, N.O.S.

Class or division (Transport hazard class) : 5.1

Subsidiary hazard(s) : 6.1

Packing group : II

ERG GUIDE No.: 141

Special provisions No.: 274

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 3087

UN Proper Shipping Name :

OXIDIZING SOLID, TOXIC, N.O.S.



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Class or division (Transport hazard class) : 5.1

Subsidiary hazard(s) : 6.1

Packing group : II

Special provisions No.: 274; 900

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 3087

UN Proper Shipping Name :

OXIDIZING SOLID, TOXIC, N.O.S.

Class or division (Transport hazard class) : 5.1

Subsidiary hazard(s) : 6.1

Hazard labels : Oxidizer & Toxic

Packing group : II

Special provisions No.: A3

Environmental hazards

Marine pollutants (yes/no) : yes

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

Noxious Liquid Substances ; Cat. Y

Sulfuric acid

Non Noxious Liquid Substances ; Cat. OS

Water

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Chromium(VI) oxide; Water; Sulfuric acid

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN

IMDG Code, 2020 Edition (Incorporating Amendment 40-20)

IATA Dangerous Goods Regulations (64th Edition) 2023

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2023 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE



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published in 2022).