

Safety Data Sheet

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

Product identifier:

Product name: Cadmium oxide

Reference number(SDS): 32070jis_E1-4

Product type:

Reagent

Recommended use of the chemical and restrictions on use

Recommended uses: Research and Development

Restrictions on uses: Do not use for other purposes.

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

Section 2. Hazards identification

Classification of the substance or mixture**HEALTH HAZARDS**

Acute toxicity (Oral): Category 3

Acute toxicity (Inhalation): Category 1

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 1

Germ cell mutagenicity: Category 2

Carcinogenicity: Category 1A

Reproductive toxicity: Category 2

Specific target organ toxicity – single exposure: Category 1 (respiratory organs, gastrointestinal system)

Specific target organ toxicity – repeated exposure: Category 1 (respiratory organs, kidney, bone, Cardiovascular 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**Hazard pictograms:**

Signal word: Danger

Hazard statements

H301-Toxic if swallowed

H330-Fatal if inhaled

H315-Causes skin irritation

H318-Causes serious eye damage

H341-Suspected of causing genetic defects

H350-May cause cancer

H361–Suspected of damaging fertility or the unborn child

H370–Causes damage to organs

H372–Causes damage to organs through prolonged or repeated exposure

H400–Very toxic to aquatic life

H410–Very toxic to aquatic life with long lasting effects

Precautionary statements

Prevention

Obtain, read and follow all safety instructions before use.

Avoid release to the environment.

Do not breathe dust/mist.

In case of inadequate ventilation wear respiratory protection.

Use only outdoors or in a well-ventilated area.

Wash hands thoroughly after handling.

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

Wash hands thoroughly after handling. Do not touch eyes.

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

Response

Collect spillage.

IF exposed or concerned: Get emergency medical help immediately.

Get emergency medical help immediately.

IF exposed or concerned, get medical advice.

Get medical help if you feel unwell.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN: Wash with plenty of water.

If skin irritation occurs: Get medical help.

Take off contaminated clothing and wash it before reuse.

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

IF SWALLOWED: Rinse mouth. Get emergency medical help immediately.

Storage

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

Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3. Composition/information on ingredients

Substance/mixture:

Substance

Ingredient name: Cadmium oxide

Content (%):100

Chemical formula: CdO

ENCS:1-202

CAS No.:1306-19-0

MW:128.41

EC No.:215-146-2

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

Components contributing to the hazard

Carcinogenic (Article 57a) in REACH SVHC candidate list

Cadmium oxide

Specific target organ toxicity after repeated exposure (Article 57(f) – human health) in REACH SVHC candidate list

Cadmium oxide

Section 4. First aid measures

Descriptions of first aid measures

General measures

- IF exposed or concerned, get medical advice.
- IF exposed or concerned: Get emergency medical help immediately.
- Keep victim warm and quiet.
- Call emergency medical service.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

IF INHALED

- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Get emergency medical help immediately.
- IF INHALED: Get medical help.

IF ON SKIN

- IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
- IF ON SKIN: Wash with plenty of water.
- If skin irritation or rash occurs: Get medical help.
- If skin irritation occurs: Get medical help.
- Remove and isolate contaminated clothing and shoes.
- For minor skin contact, avoid spreading material on unaffected skin.

IF IN EYES

- IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Get medical help.
- If eye irritation persists: Get medical help.

IF SWALLOWED

- Rinse mouth.
- IF SWALLOWED: Get emergency medical help immediately.
- IF SWALLOWED: Get medical help.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough. Laboured breathing. Shortness of breath. Abdominal cramps. Diarrhoea. Nausea. Vomiting.

(Symptoms when skin and/or eye contact)

Conjunctival redness of the eyes. Pain of the eyes.

Indication of any immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
- Specific treatment is urgent.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

- Use appropriate extinguishing media suitable for surrounding facilities.
- The product is non-flammable.

Unsuitable extinguishing media

- Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

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

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Special extinguishing method

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

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

EVACUATION : Spill: See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Environmental precautions

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, etc.), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

Prevent entry into waterways, sewers, basements or confined areas.

Do not get water inside containers.

Keep out of low areas.

Reference to other sections

Refer to section 8

Refer to section 13

Section 7. Handling and storage

Engineering measures

(Measures to prevent operator exposure)

Do not breathe dust/mist.

(Measures to prevent fire and explosion)

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

(Local ventilation/general ventilation)

Exhaust/ventilator should be available.

(Precautions)

Avoid contact with skin.

Avoid contact with eyes.

Advice on safe handling

Obtain, read and follow all safety instructions before use.

Use only outdoors or in a well-ventilated area.

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

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Avoidance of contact

See Section 10: Stability and Reactivity.

Advice on general occupational hygiene

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

Wash hands thoroughly after handling. Do not touch eyes.

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

Take off contaminated clothing and wash it before reuse.

Conditions for safe storage

Keep container tightly closed.

Keep cool.

Store in accordance with local/regional/national/international regulations regulation.

Store locked up.

Protect from sunlight. Store in a well-ventilated place.

Incompatible substances

Refer to Section 10. Stability and reactivity.

Safe packaging material

Keep only in original packaging.

Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See

Section 8 for exposure controls and personal protection recommendations.

Section 8. Exposure controls/personal protection

Permissible concentration

Control value and Concentration standard value under ISHA

Japan control value 0.05mg-Cd/m³

Occupational exposure limit values

JSOH

0.05mg-Cd/m³

ACGIH

TWA: 0.01mg-Cd/m³; TWA: 0.002mg-Cd/m³(R) (Kidney dam)

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, such as personal protective equipment

Respiratory protection

Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).

Recommended respiratory protection: Dust mask

Hand protection

Wear protective gloves. Recommended material(s): nitrile

Inspect before use and replace worn or damaged gloves.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Chemical-resistant, impervious gloves complying with an approved standard (e.g. JIS T8116) should be used.

Eye/face protection

Wear safety glasses with side-shields.

Wear eye/face protection in accordance with approved standards (e.g. JIS T8147).

Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

Personal protective equipment for the body and skin should be selected based on the task being performed and the risks involved.

Section 9. Physical and Chemical Properties**Information on basic physical and chemical properties**

Physical state: Crystals or amorphous powder

Color: Yellowish brown~Red-brown~Dark-brown

Odor: Odorless

Odor threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point and boiling range: 1559°C(sublimation point(crystals))

Flammability: Non-flammable

Lower and upper explosion limit data is not available.

Flash point: Non-flammable

Auto-ignition temperature data is not available.

Decomposition temperature: 900~1000°C (amorphous)

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Insoluble

(Soluble in dilute acid.)

Solubility in solvent data is not available.

Partition coefficient n-octanol/water data is not available.

Vapor pressure data is not available.

Density and/or relative density: 6.9 g/cm³(amorphous); 8.15g/cm³(crystals)

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

Particle characteristics data is not available.

Section 10. Stability and Reactivity**Reactivity**

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Reacts violently with magnesium when heated. This generates fire and explosion hazard.

Conditions to avoid

Avoid direct sunlight, fire, flame, high temperature.

Contact with incompatible materials.

Incompatible materials

Magnesium.

Hazardous decomposition products

Cadmium oxides.

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]

[NITE-CHRIP]

rat LD50: 72 – 296 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Acute toxicity (Inhalation)

[Product]

Category 1, Fatal if inhaled

[Data for components of the product]

[NITE-CHRIP]

fume: human LC: 0.012 mg/L (4-hour) (source: NITE)

Skin corrosion/irritation

[Product]

Category 2, Causes skin irritation

[Data for components of the product]

[NITE-CHRIP]

Category 2 (source: NITE)

Serious eye damage/irritation

[Product]

Category 1, Causes serious eye damage

[Data for components of the product]

[NITE-CHRIP]

Category 1 (source: NITE)

Respiratory or skin sensitization

Respiratory sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Germ cell mutagenicity

[Product]

Category 2, Suspected of causing genetic defects

[Data for components of the product]

[NITE-CHRIP]

Category 2 (source: NITE)

Carcinogenicity

[Product]

Category 1A, May cause cancer

[Data for components of the product]

[NITE-CHRIP]

Category 1A (source: NITE)

[IARC]

Group 1 : Carcinogenic to humans

[ACGIH]

A2(as Cd): Suspected Human Carcinogen

[JSOH]

Group 1: The agents which are carcinogenic to humans

[EU]

Category 1B; Substances presumed to have carcinogenic potential for humans

Reproductive toxicity

[Product]

Category 2, Suspected of damaging fertility or the unborn child

[Data for components of the product]

[NITE-CHRIP]

Category 2 (source: NITE)

Specific target organ toxicity – single exposure

[Product]

Category 1, Causes damage to organs

[Data for components of the product]

[NITE-CHRIP]

Category 1 (digestive system, respiratory system) (source: NITE)

Specific target organ toxicity – repeated exposure

[Product]

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

[Data for components of the product]

[NITE-CHRIP]

Category 1 (cardiovascular system, respiratory system, bone, kidneys) (source: NITE)

Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Section 12. Ecological Information

Ecotoxicity

Aquatic toxicity

[Product]

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)

[NITE-CHRIP]

Crustacea (*Daphnia magna*) 48-hour EC50: 0.75 mg/L (OECD TG 202, GLP) (source: NITE)

Algae (*Raphidocelis subcapitata*) 72-hour ErC50: 0.079 mg/L (modified ISO 6341) (source: NITE)

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

[NITE-CHRIP]

Algae (*Raphidocelis subcapitata*) 72-hour NOErC: 0.0109 mg/L (modified ISO 6341) (source: NITE)

Water solubility

[Data for components of the product]

none (source: ICSC, 2005)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

[Data for components of the product]

BCF (Cd): ≤ 57 (CSCL guidelines) (*Cyprinus carpio*, 6-week) (source: NITE)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Waste treatment methods

Waste from residues

Disposal should be in accordance with local, national, and international laws and regulations.

Comply with relevant laws and regulations as well as local municipal standards.

Avoid release to the environment.

Do not dump into sewers, on the ground or into any body of water.

Contaminated packing

Disposal should be in accordance with local, national, and international laws and regulations.

Comply with relevant laws and regulations as well as local municipal standards.

Dispose of container after using the contents completely.

Section 14. Transport Information

UNRTDG

UN number : UN2570

UN Proper Shipping Name : CADMIUM COMPOUND without CADMIUM SULFIDE

Transport hazard class(es) : 6.1

Packing group : III

Special provisions No.: 223; 274

IMDG Code (International Maritime Dangerous Goods Regulations)

UN number : UN2570

UN Proper Shipping Name : CADMIUM COMPOUND without CADMIUM SULFIDE

Transport hazard class(es) : 6.1

Packing group : III

Special provisions No.: 223; 274

IATA (Dangerous Goods Regulations)

UN number : UN2570

UN Proper Shipping Name : CADMIUM COMPOUND without CADMIUM SULFIDE

Transport hazard class(es) : 6.1

Hazard labels : Toxic

Packing group : III

Special provisions No.: A3; A5

Marine pollutants (yes/no) : yes

Special precautions for user

No information available.

Maritime transport in bulk according to IMO instruments

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

MARPOL Annex V – HME (Harmful to the Marine Environment)

Carcinogenicity: cat.1, 1A, 1B

Cadmium oxide

Specific target organ toxicity – repeated exposure: cat.1

Cadmium oxide

Hazardous to the aquatic environment – short-term (acute): cat.1

Cadmium oxide

Hazardous to the aquatic environment – long-term (chronic): cat.1, 2

Cadmium oxide

ERG GUIDE No.: 154

Section 15. Regulatory Information

Labor Standards Act, Japan

Chemical substances or compounds (including alloys) causing disease (item (iv)-1 of Appended Table 1-2 of Regulation)

Cadmium and its compounds

List of substances subject to authorisation (REACH, Annex XIV)/SVHC – candidate list

Carcinogenic (Article 57a)

Cadmium oxide

Specific target organ toxicity after repeated exposure (Article 57(f) – human health)

Cadmium oxide

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

Chemicals listed in TSCA Inventory

1306-19-0

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)

Cadmium oxide

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

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

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

Section 16. Other information

GHS classification and labelling

H301–Acute toxicity, Category 3: H301 Toxic if swallowed

H330–Acute toxicity, Category 1: H330 Fatal if inhaled

H315–Skin corrosion/irritation, Category 2: H315 Causes skin irritation

H318–Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage

H341–Germ cell mutagenicity, Category 2: H341 Suspected of causing genetic defects

H350–Carcinogenicity, Category 1A: H350 May cause cancer

H361–Reproductive toxicity, Category 2: H361 Suspected of damaging fertility or the unborn child

H370–Specific target organ toxicity – single exposure, Category 1: H370 Causes damage to organs

H372–Specific target organ toxicity – Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure

H400–Hazardous to the aquatic environment, short-term (acute), Category 1: H400 Very toxic to aquatic life

H410–Hazardous to the aquatic environment, long-term (chronic), Category 1: H410 Very toxic to aquatic life with long lasting effects

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 23rd edit., 2023 UN

IMDG Code, 2024 Edition (Incorporating Amendment 42-24)

IATA Dangerous Goods Regulations (67th Edition) 2026

2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2026 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2025

JIS Z 7253 : 2025

Recommendation of occupational exposure limits (2024–2025) (JSOH)

Notification No. 0111-1 (January 11, 2022), Chemical Hazards Control Division, Industrial

Safety and Health Department, Labour Standards Bureau, MHLW in Japan

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.39

(<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIIP"

(https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/systemTop)

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May. 2024, METI)

Abbreviations and acronyms

ACGIH – American Conference of Governmental Industrial Hygienists;

anh – anhydride;

ATE – Acute Toxicity Estimate;

BCF – Bioconcentration Factor;

BOD – Biochemical Oxygen Demand;

Cat. – Category;

Ceiling-C – Ceiling value;

COD – Chemical Oxygen Demand;

CSCL – Chemical Substances Control Law in Japan;

DSEN – Dermal Sensitization;

EC No. – The European Community number;

EC50 – Effective Concentration 50;

ENCS – Existing and New Chemical Substances Inventory under CSCL

EPA – US Environmental Protection Agency;

EU – European Union;

GHS – Globally Harmonized System of Classification and Labelling of Chemicals;

IARC – International Agency for Research on Cancer;

IATA – International Air Transport Association;

IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;

IMDG Code – International Maritime Dangerous Goods Code;

ISHA – Industrial Safety and Health Act in Japan;

JSOH – Japan Society for Occupational Health;

LC50 – Lethal Concentration 50;

LD50 – Lethal Dose 50;

logPow – n-Octanol/water Partition Coefficient;

MARPOL – International Convention for the Prevention of Pollution from Ships;

METI – Ministry of Economy, Trade and Industry in Japan;

MHLW – Ministry of Health, Labour and Welfare in Japan;

MOE – Ministry of the Environment in Japan

NOEC – No Observed Effect Concentration;

NTP – US National Toxicology Program;

REACH – Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No.1907/2006;

RSEN – Respiratory Sensitization;

Skin – Danger of cutaneous absorption;

STEL – Short-term Exposure Limit;

STOT – Specific target organ toxicity;

SVHC – Substance of Very High Concern under REACH;

TWA – time-weighted average;

UN – United Nations;

UNRTDG – United Nations Recommendations on the Transport of Dangerous Goods;

General Disclaimer

The information relates to this specific material. It may not be valid for this material, if used in combination with any other materials or in any process. It is the user's responsibility to satisfy him-selves as to the suitability and completeness of this information for his own particular use.

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 Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2024).