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Safety Data Sheet

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

Product identifier:
Product name: Cobalt oxide,gray,powder
SDS No. : 1765E-3
Recommended use of the chemical and restrictions on use
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

Classification of the substance or mixture
HEALTH HAZARDS
Acute toxicity (Oral): Category 3
Respiratory sensitization: Category 1
Skin sensitization: Category 1
Carcinogenicity: Category 2
Specific target organ toxicity - single exposure: Category 1 (liver)
Specific target organ toxicity - single exposure: Category 2 (heart)
Specific target organ toxicity - repeated exposure: Category 1 (blood system, thyroid, respiratory system)
(Note) GHS classification without description: Not classified/Classification not possible
Label elements
Hazard pictograms:



Signal word: Danger
Hazard statements
H301 Toxic if swallowed
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H317 May cause an allergic skin reaction
H351 Suspected of causing cancer
H370 Causes damage to organs (liver)
H371 May cause damage to organs (heart)
H372 Causes damage to organs through prolonged or repeated exposure (blood system, thyroid, respiratory system)
Precautionary statements
Prevention
P203 Obtain, read and follow all safety instructions before use.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P284 In case of inadequate ventilation wear respiratory protection.
P264 Wash hands 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.
P270 Do not eat, drink or smoke when using this product.

Response

P308 + P316 IF exposed or concerned: Get emergency medical help immediately.
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.
P342 + P316 If experiencing respiratory symptoms: Get emergency medical help immediately.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P333 + P317 If skin irritation or rash occurs: Get medical help.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P330 IF SWALLOWED: Rinse mouth.
P301 + P316 IF SWALLOWED: Get emergency medical help immediately.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Specific danger/hazard

Health hazard

See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Substance/mixture:

Mixture

Ingredient name	Content (%)	CAS RN	ENCS	Chemical formula
tri-Cobalt tetra-oxide	65	1308-06-1	1-267	Co3O4
Cobalt oxide	35	1307-96-6	1-267	CoO

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

Section 4. First aid measures

Descriptions of first aid measures

General measures

IF exposed or concerned, get medical advice.
Get medical help if you feel unwell.
IF exposed or concerned: Get emergency medical help immediately.

IF INHALED

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Get emergency medical help immediately.
Get medical help if you feel unwell.

IF ON SKIN

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water or shower.

IF ON SKIN: Wash with plenty of water.
If skin irritation or rash occurs: Get medical help.

IF IN EYES

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 help.

IF SWALLOWED

Rinse mouth.
IF SWALLOWED: Get emergency medical help immediately.
IF SWALLOWED: Get medical help if you feel unwell.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

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

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.
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

Liquid: Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.
Solid: Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Engineering measures
(Measures to prevent operator exposure)
Do not breathe dust/fume/gas/mist/vapors/spray.
(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.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and contaminated parts thoroughly after handling.
When using do not eat, drink or smoke.
Avoidance of contact
See Section 10: Stability and Reactivity.
Advice on general occupational hygiene
Wash hands 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 contaminated clothing and wash it before reuse.
Conditions for safe storage, including any incompatibilities
Conditions for safe storage
Keep container tightly closed.
Store locked up. (P405)
Store in a cool, dry place. Do not store in direct sunlight.
Storage in accordance with local/national regulation.
Safe packaging material
Use closed unbreakable containers.

Section 8. Exposure controls/personal protection

Control parameters
Permissible concentration
Administrative Control Levels and Concentration standard value
(tri-Cobalt tetra-oxide)
Japan control value 0.02mg-Co/m3
(Cobalt oxide)
Japan control value 0.02mg-Co/m3
Occupational exposure limit values
The Japan Society for Occupational Health
(tri-Cobalt tetra-oxide)
0.05mg-Co/m3
(Cobalt oxide)
0.05mg-Co/m3
ACGIH
(tri-Cobalt tetra-oxide)
TWA: 0.02mg-Co/m3(I) (Pulm func changes)

(Cobalt oxide)
TWA: 0.02mg-Co/m3(I) (Pulm func changes)
Notation
(tri-Cobalt tetra-oxide)
DSEN; RSEN
(Cobalt oxide)
DSEN; RSEN

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
Recommend to use protective equipment in conformity with the standards.
Use appropriate protective equipment in accordance with local/national regulation.

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/face 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

Physical state: Powder
Color: Black-gray to black
Odor: None
Melting point/Freezing point data is not available.
Boiling point, initial boiling point, or boiling range data is not available.
Flammability 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: Insoluble
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 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

(As Cobalt(III) oxide)

Reacts violently with hydrogen peroxide. Reacts with reducing agents. (ICSC 0785)

(Cobalt oxide)

Reacts with hydrogen peroxide. (ICSC 1551)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Reducing agents, Hydrogen peroxide

Hazardous decomposition products

Cobalt compounds

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]

(tri-Cobalt tetra-oxide)

rat LD50: > 5000 mg/kg (OECD TG 401) (source: NITE)

(Cobalt oxide)

rat LD50: 159 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Data for components of the product]

[NITE-CHRIP]

(tri-Cobalt tetra-oxide)

dust: rat LC50: > 5.06 mg/L (4-hour) (OECD TG 436) (source: NITE)

Skin corrosion/irritation data is not available.

Serious eye damage/irritation data is not available.

Respiratory or skin sensitization

Respiratory sensitization

[Product]

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

[Data for components of the product]

[NITE-CHRIP]

(tri-Cobalt tetra-oxide)

Category 1A (source: NITE)

(Cobalt oxide)

Category 1 (source: NITE)

Skin sensitization

[Product]
Category 1, May cause an allergic skin reaction
[Data for components of the product]
[NITE-CHRIP]
(tri-Cobalt tetra-oxide)
Category 1A (source: NITE)
(Cobalt oxide)
Category 1 (source: NITE)

Mutagenic effects data is not available.

Carcinogenicity

[Product]
Category 2, Suspected of causing cancer
[Data for components of the product]
[NITE-CHRIP]
(Cobalt oxide)
Category 2 (source: NITE)
[IARC]
(tri-Cobalt tetra-oxide)
Group 3 : Not classifiable as to its carcinogenicity to humans
(Cobalt oxide)
Group 2B : Possibly carcinogenic to humans
[ACGIH]
(tri-Cobalt tetra-oxide)
A3(as Co): Confirmed Animal Carcinogen with Unknown Relevance to Humans
(Cobalt oxide)
A3(as Co): Confirmed Animal Carcinogen with Unknown Relevance to Humans
[JSOH]
(tri-Cobalt tetra-oxide)
Group 2B: The agents which are probably or possibly carcinogenic to humans
(Cobalt oxide)
Group 2B: The agents which are probably or possibly carcinogenic to humans

Reproductive toxicity data is not available.

Specific target organ toxicity – single exposure

[Product]
Category 1, Causes damage to organs
Category 2, May cause damage to organs
[Data for components of the product]
[NITE-CHRIP]
(Cobalt oxide)
Category 1 (liver), Category 2 (heart) (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]
(tri-Cobalt tetra-oxide)
Category 1 (respiratory system) (source: NITE)
(Cobalt oxide)
Category 1 (blood system, thyroid, respiratory system) (source: NITE)

Aspiration hazard data is not available.

Information on other hazards

May cause lung disorders by massive inhalation of powdered substance.
-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Data for components of the product]

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

[NITE-CHRIP]

(tri-Cobalt tetra-oxide)

Algae (Chlorella pyrenoidosa) 96-hour EC50: 0.52 mg Co/L (OPPTS 850.5400) (test substance: Cobalt(II) dichloride (CAS RN: 7646-79-9)) (a converted value equivalent to this substance: 2.1 mg/L (>water solubility)) (source: NITE)

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

[NITE-CHRIP]

(tri-Cobalt tetra-oxide)

Algae (Chlorella pyrenoidosa) 96-hour NOEC: 0.038 mg Co/L (OPPTS 850.5400) (test substance: Cobalt(II) dichloride (CAS RN: 7646-79-9)) (a converted value equivalent to this substance: 0.15 mg/L (>water solubility)) (source: NITE)

Water solubility

(tri-Cobalt tetra-oxide)

0.0468 mg/L (21.5℃) (OECD TG 105) (source: NITE)

(Cobalt oxide)

none (source: ICSC, 2004)

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

Waste treatment methods

Waste from residues

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

Section 14. Transport Information

UNRTDG

UN number : UN3288

UN Proper Shipping Name : TOXIC SOLID, INORGANIC, N.O.S.

Transport hazard class(es) : 6.1

Packing group : III

IMDG Code (International Maritime Dangerous Goods Regulations)
UN number : UN3288
UN Proper Shipping Name : TOXIC SOLID, INORGANIC, N.O.S.
Transport hazard class(es) : 6.1
Packing group : III
IATA (Dangerous Goods Regulations)
UN number : UN3288
UN Proper Shipping Name : TOXIC SOLID, INORGANIC, N.O.S.
Transport hazard class(es) : 6.1
Hazard labels : Toxic
Packing group : III
Environmental hazards
Marine pollutants (yes/no) : no
Environmentally hazardous substance/mixture (yes/no) : no
ERG GUIDE No.: 151

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
Cobalt oxide; tri-Cobalt tetra-oxide
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 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)
Supplier's data/information
General Disclaimer
© KISHIDA CHEMICAL CO., LTD.
Unauthorized translation or modification is prohibited.
Please provide SDS to customers for selling or transferring.
All chemicals have unknown hazard. Handle the product with care.
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).