

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 22-Feb-2024
 Revision Number 2.08

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Cobalt, Powder, -180um, 99.5%
Product Code	038-18392

Supplier FUJIFILM Wako Pure Chemical Corporation
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Recommended uses For research use only

Restrictions on use Seek expert judgment when using for purposes other than those recommended.

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Flammable solids	Category 1
Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 1
Serious eye damage/eye irritation	Category 2B
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 1
Category 1 respiratory system	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 respiratory system, heart, thyroid gland, blood system, Male reproductive organ	
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

Pictograms



Signal word

Danger

Hazard statements

- H228 - Flammable solid
- H320 - Causes eye irritation
- H302 - Harmful if swallowed
- H330 - Fatal if inhaled
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H351 - Suspected of causing cancer
- H360 - May damage fertility or the unborn child
- H317 - May cause an allergic skin reaction
- H410 - Very toxic to aquatic life with long lasting effects

H400 - Very toxic to aquatic life

H370 - Causes damage to the following organs: respiratory system

H372 - Causes damage to the following organs through prolonged or repeated exposure: respiratory system, heart, thyroid gland, blood system, Male reproductive organ

Precautionary statements-(Prevention)

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- In case of inadequate ventilation wear respiratory protection
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves
- Do not breathe dust/fume/gas/mist/vapors/spray
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Avoid release to the environment
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- Ground/bond container and receiving equipment
- Use explosion-proof electrical/ ventilating / lighting / equipment

Precautionary statements-(Response)

- IF exposed: Call a POISON CENTER or doctor/physician
- 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 ON SKIN: Wash with plenty of soap and water
- If skin irritation or rash occurs: Get medical advice/attention
- Wash contaminated clothing before reuse
- IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
- If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth
- In case of fire: Use suitable extinguishing media for extinction
- Collect spillage

Precautionary statements-(Storage)

- Store locked up

Precautionary statements-(Disposal)

- Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Substance

Formula Co

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Cobalt	98.0	58.933	-	N/A	7440-48-4

Note on ISHL No.: * in the table means announced chemical substances.

Section 4: FIRST AID MEASURES

Inhalation

Remove to fresh air. If symptoms persist, call a physician.

Skin contact

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders

Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Extinguishing powder, Sand

Unsuitable extinguishing media

Do not use straight streams

Specific hazards arising from the chemical product

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Special extinguishing method

No information available

Special protective actions for fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up

Sweep up and gather scattered particles, and collect it in an empty airtight container.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling**Technical measures**

Flammable. Avoids contact with acids. Use with local exhaust ventilation.

Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity)

Storage**Safe storage conditions****Storage conditions**

Store away from sunlight in well-ventilated place at room temperature (preferably cool).
Keep container tightly closed.

Safe packaging material

Glass

Incompatible substances Acids

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Cobalt 7440-48-4	TWA: 0.05 mg/m ³ OEL ISHL/ACL: 0.02 mg/m ³	ISHL/ACL: 0.02 mg/m ³	TWA: 0.02 mg/m ³ inhalable particulate matter

Personal protective equipment

Respiratory protection Dust mask (JIS T 8151)
Hand protection chemical protective gloves (JIS T 8116)
Eye protection protective eyeglasses or chemical safety goggles (JIS T 8147)
Skin and body protection Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

If this product is classified as "Chemical Substances Hazardous to Skin, etc.", use appropriate protective equipment to them.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form

Color gray- grayish brown

Appearance powder

Odor

no data available

Melting point/freezing point

1493 °C

Boiling point, initial boiling point and boiling range

2870 °C

Flammability

Flammable solid

Evaporation rate:

no data available

Flammability (solid, gas):

no data available

Upper/lower flammability or explosive limits

Upper:

no data available

Lower:

no data available

Flash point

no data available

Auto-ignition temperature:

no data available

Decomposition temperature:

no data available

pH

no data available

Viscosity (coefficient of viscosity)

no data available

Dynamic viscosity

no data available

Solubilities

dil. nitric acid : soluble .

n-Octanol/water partition coefficient:(log Pow)

no data available

Vapour pressure

no data available

Specific Gravity / Relative density

8.9

Vapour density

no data available

Particle characteristics

Particle size; <180um (Average)

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity

no data available

Chemical stability

Stable under recommended storage conditions.

Hazardous reactions

None under normal processing

Conditions to avoid

Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark

Incompatible materials

Acids

Hazardous decomposition products

Metal oxides

Section 11: TOXICOLOGICAL INFORMATION**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Cobalt	6171 mg/kg (Rat)	N/A	> 10 mg/L (Rat) 1 h

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Cobalt	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
Cobalt	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin irritation/corrosion

Chemical Name	Skin corrosion/irritation source information
Cobalt	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Cobalt	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Cobalt	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Cobalt	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Cobalt	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Cobalt 7440-48-4	Reasonably Anticipated	Group 2B	A3	Group 2B

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Cobalt	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Cobalt	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Cobalt	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Cobalt	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Cobalt	N/A	LC50:Brachydanio rerio 100 mg/L 96 h	N/A

Other data

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
Cobalt	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Persistence and degradability	No information available
Bioaccumulative potential	No information available
Mobility in soil	No information available
Hazard to the ozone layer	No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

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

Contaminated container and contaminated packaging

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

Section 14: TRANSPORT INFORMATION

ADR/RID

UN number	UN3089
Proper shipping name:	Metal powder, flammable, n.o.s. (Cobalt)
UN classification	4.1
Subsidiary hazard class	
Packing group	II
Marine pollutant	Yes

IMDG

UN number	UN3089
Proper shipping name:	Metal powder, flammable, n.o.s. (Cobalt)
UN classification	4.1
Subsidiary hazard class	
Packing group	II
Marine pollutant (Sea)	Yes
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA

UN number	UN3089
Proper shipping name:	Metal powder, flammable, n.o.s. (Cobalt)
UN classification	4.1
Subsidiary hazard class	
Packing group	II
Environmentally Hazardous Substance	Yes

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act

Category II iron powder, dangerous grade 2

Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57) Notifiable Substances (Law Art.57-2) Group 2 Specified Chemical Substance Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1) Dangerous Substances - Ignitable Substance (Enforcement Order Attached Table 1 Item 2)
Industrial Safety and Health Act (2024-)	【2024.4.1~】 Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
Regulations for the carriage and storage of dangerous goods in ship	Flammable Solids - Flammable Solids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law	Flammable Solids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
Pollutant Release and Transfer Register Law (2023.4.1-)	Class 1
Class 1 - No.	132
Export Trade Control Order	Not applicable
Air Pollution Control Law	Hazardous Air Pollutants

Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2)	Pollutant Release and Transfer Register Law (2023.4.1-)
Cobalt 7440-48-4 (98.0)	-	Applicable	Applicable

Section 16: OTHER INFORMATION

Key literature references and sources for data etc.

NITE: National Institute of Technology and Evaluation (JAPAN)
<http://www.safe.nite.go.jp/japan/db.html>
 IATA dangerous Goods Regulations
 RTECS:Registry of Toxic Effects of Chemical Substances
 Japan Industrial Safety and Health Association GHS Model SDS
 Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.
 Chemical Dictionary, Kyouritsu Publishing Co., Ltd.
 etc

Record of SDS revisions The following contents were revised. Regulatory information.

Disclaimer

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z 7252:2019. *JIS: Japanese Industrial Standards

End of Safety Data Sheet