HALBLEITER MATERIAL

Material Safety Data Sheet

Cobalt Metal Powder

Report No.: VIH240828001-1
Version: 2.1
Preparation Date: 28/08/2024
Revision Date: 28/08/2024

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

1.1 Product identifier

Product Name	Cobalt Metal
Product No.	2700PD
Formula	Co
CAS No.	7440-48-4
Synonyms	N/A

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

Identified uses	Laboratory chemicals, Scientific research
Uses advised against	Consulting manufacturers

1.3 Details of the supplier of the safety data sheet

Company Name	VI HALBLEITERMATERIAL GmbH
Street	Bergener Straße 14.,
City	Hannover
State	Niedersachsen
Zip Code	30625
Country	Germany
Tel	0049 1626484175
Email	info@vimaterial.de
Website	https://vimaterial.de/

1.4 Emergency telephone number

Emergency Phone #	0049 1626484175

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Physical hazards

Flammable solids	Category 1 (H228)

Health hazards

Acute toxicity (oral)	Category 4 (H302)
Acute toxicity (inhal.)	Category 1 (H330)
Serious eye damage/eye irritation	Category 2 (H319)
Respiratory sensitisation	Category 1 (H334)
Skin sensitisation	Category 1 (H317)
Germ cell mutagenicity	Category 2 (H341)
Carcinogenicity	Category 1B (H350)
Reproductive toxicity	Category 1B (H360F)

Environmental hazards

Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

Full text of Hazard Statements: see section 16

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal Word	Danger
Pictograms	

Hazard Statements

H228	Flammable solid
H302	Harmful if swallowed
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H330	Fatal if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H360F	May damage fertility
H410	Very toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P260	Do not breathe dust
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing.
Response	
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P302 + P352	IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present andeasy to do. Continue rinsing
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor

Additional EU labelling

Restricted to professional users

2.3 Other hazards

Dust explosion hazards.

This product does not contain any substances classified as PBT or vPvB

This product does not contain any known or suspected endocrine disruptors.

3. Composition/information on ingredients

3.1 Substances

Chemical Family	Metal

Component	CAS No.	EC No.	Concentration
Cobalt (Co)	7440-48-4	231-158-0	<=100%

4. First aid measures

4.1 Description of first aid measures

General Treatment	If symptoms persist, call a physician. Show this Safety Data Sheet to

	the medical personnel.
Inhalation	Remove victim to fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.
Skin	Take off immediately all contaminated clothing. Rinse skin with water/ shower. Seek medical attention.
Eyes	Rinse with pure water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention.
Ingestion	Do NOT induce vomiting. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

4.3 Indication of any immediate medical attention and special treatment needed

1	Based on the symptoms that appear, provide targeted treatment.
2	Be aware that symptoms may be delayed.

5. Firefighting Measures

5.1 Extinguishing Media

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	Water, foam

5.2 Special hazards arising from the substance or mixture

1	Cobalt/cobalt oxides
2	Flammable.
3	Danger of dust explosion.

5.3 Advice for firefighters

1	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
2	Fight fire from a safe distance and with adequate protection.
	Do not allow firefighting water to enter drains or water courses.
3	Collect contaminated firefighting water separately.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Remove persons to safety. Use personal protective equipment as required. Avoid dust formation. Ensure adequate ventilation.
For emergency responders	Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental Precautions

1	Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill	Covering of drains, Take up mechanically.
Advice on how to clean up a spill	Sweep up and shovel. Take care not to raise dust.
Other information relating to spills and releases	Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

7. Handling and Storage

7.1 Precautions for safe handling

Recommendations	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Ventilation requirements	Keep containers tightly closed in a dry, cool and well-ventilated place
Storage class	Class 4.1B

Incompatible materials	See section 10.5

7.3 Specific end use(s)

Use in laboratories.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits

Component	CAS No.	Country	TWA [mg/m³]	STEL [mg/m³]
Cobalt, powder	7440-48-4	UK	0,1	0,3
Cobalt, powder	7440-48-4	CH	0,05	-
Cobalt, powder	7440-48-4	Ireland	0,02	0,3

Notes:
TWA: Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)
STEL: Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15- minute period (unless otherwise specified)

Biological limit values:

Parameter	CAS No.	Country	Identifier	Value	Material	Source
Cobalt	7440-48-4	CH	BAT	30 µg/l	urine	SUVA
Cobalt	7440-48-4	CH	BAT	nmol/l	urine	SUVA

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

Exposure scenario	Route of exposure	Population	DNEL / DMEL value
chronic - local effects	human, inhalatory	worker (industry)	DNEL=40 µg/m³

Predicted No-Effect Concentration (PNEC)

Exposure scenario	Organism	Environmental compartment	PNEC value
short-term (single instance)	aquatic organisms	freshwater	PNEC=0,62 µg/
short-term (single instance)	aquatic organisms	marine water	PNEC=2,36 µg/l
short-term (single instance)	aquatic organisms	sewage treatment plant (STP)	PNEC=0,37 mg/l
short-term (single instance)	aquatic organisms	freshwater sediment	PNEC=53,8 mg/kg
short-term (single instance)	aquatic organisms	marine sediment	PNEC=69,8 mg/kg
short-term (single instance)	terrestrial organisms	soil	PNEC=10,9 mg/kg

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) (European standard - EN166) and face protection.

Skin protection

-Hand Protection

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.)

-Other protection measures

Wear appropriate protective gloves and clothing to prevent skin exposure. Wash hands thoroughly after handling.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

9. Physical and Chemical Characteristics

9.1 Information on basic physical and chemical properties

Physical State	Powder

Colour	Metallic gray
Odor	Odorless
Melting Point/Range	1.495 °C
Boiling Point/Range	2.900 °C
Flammability (liquid)	Not applicable
Flammability (solid, gas)	No data available
Explosion limits	No data available
Flash Point	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
pH	No data available
Viscosity	Not applicable
Water Solubility	Insoluble
Solubility in other solvents	No data available
Partition Coefficient (n-octanol/water)	No data available
Vapor Pressure	No data available
Density / Specific Gravity	8,9 g/cm^3
Vapor Density	Not applicable
Particle characteristics	No data available

9.2 Other information

Molecular formula	Co
Molecular weight	58,93 g/mol
Evaporation Rate	Not applicable - Solid

10. Stability and reactivity

10.1 Reactivity

None known, based on information available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous Polymerization: No information available

Hazardous Reactions: Danger of explosion: Acetylene, Ammonium compounds, Halogenated hydrocarbons, strong oxidiser, Hydrogen peroxide.

10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Oxidizing agents, Mineral acids Acetylene, Hydrazinium nitrate, Strong oxidizing agents, Material readily reacts with acids generating flammable and/or explosive hydrogen gas.

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

11. Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	Oral:	LD50 - Rat - 6,171 mg/kg
	Dermal:	No data available.
	Inhalation:	LD50 - Rat - 10 mg/L (Rat) 1 h
Skin corrosion/irritation	No data available.	
Serious eye damage/irritation	Causes serious eye irritation.	
Respiratory or skin sensitization	Respiratory	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	Skin	May cause an allergic skin reaction.
Germ cell mutagenicity	Suspected of causing genetic defects.	
Carcinogenicity	May cause cancer.	
Reproductive toxicity	May damage fertility.	
STOT - single exposure	No data available.	
STOT - repeated exposure	No data available.	
Aspiration hazard	Not applicable. Solid	

11.2 Information on other hazards

There is no additional information.

12. Ecological Information

12.1 Toxicity

Toxicity to fish	LC50 - Danio rerio (zebra fish) - 100,01 mg/l - 96 h

12.2 Persistence and degradability

Persistence	No data available.
Degradability	No data available.

12.3 Bioaccumulative potential

Bioaccumulative potential	No data available.

12.4 Mobility in soil

Mobility in soil	No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment.

12.6 Endocrine disrupting properties

Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors.

12.7 Other adverse effects

Persistent Organic Pollutant	No data available.
Ozone Depletion Potential	No data available.

13. Disposal Considerations

13.1 Waste treatment methods

Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

14. Transport information

IMDG

14.1. UN number	UN 3089
14.2. UN Proper shipping name	METAL POWDER, FLAMMABLE, N.O.S. (COBALT POWDER)
14.3. Transport hazard class(es)	4.1
14.4. Packaging group	II

ADR/RID/ADN

14.1. UN number	UN 3089
14.2. UN Proper shipping name	METAL POWDER, FLAMMABLE, N.O.S. (COBALT POWDER)
14.3. Transport hazard class(es)	4.1
14.4. Packaging group	II

ICAO-IATA/DGR

14.1. UN number	UN 3089
14.2. UN Proper shipping name	Metal powder, flammable, n.o.s. (cobalt powder)
14.3. Transport hazard class(es)	4.1
14.4. Packaging group	II

14.5. Environmental hazards	Hazardous to the aquatic environment
14.6. Special precautions for user	No special precautions required
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

15. Regulatory information

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

This Safety Data Sheet is prepared in accordance with Commission Regulation (EC) 1907/2006, amended by Commission Regulation (EU) 2020/878.

Authorisations/Restrictions

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation:	Not applicable
Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances:	Use restricted. See entry 30. (see link for restriction details) Use restricted. See entry 28. (see link for restriction details) Use restricted. See entry 75. (see link for restriction details)
REACH Regulation (EC1907/2006) article 59 -Candidate List of	Not applicable

Substances of Very HighConcern (SVHC)	
Regulation (EC) 1005/2009 on substances that deplete the ozone layer:	Not applicable
Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021:	Not applicable

REACH links

https://echa.europa.eu/substances-restricted-under-reach

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

16. Other information

Revision information

Preparation date	28/08/2024
Revision date	28/08/2024
Revision reason	Creation.

Abbreviations and acronyms

CAS	Chemical Abstracts Service
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	Regulation concerning the International Carriage of Dangerous Goods by Rail
IATA	International Air Transportation Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
TWA	Time Weighted Average
STOT	Specific target organ toxicity
PBT	Persistent, Bioaccumulative, Toxic
vPvB	Very Persistent, very Bioaccumulative
WEL	Workplace exposure limit

References

[1] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

[2] ECHA - European Chemicals Agency, website: https://echa.europa.eu/

[3] eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

[4] Germany GESTIS-database on hazard substance, website:

http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

[5] HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

[6] IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

[7] IPCS - The International Chemical Safety Cards (ICSC), website:
http://www.ilo.org/dyn/icsc/showcard.home

[8] ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:
http://www.phmsa.dot.gov/hazmat/library/erg

List of relevant phrases (code and full text as stated in chapter 2 and 3)

H228	Flammable solid
H302	Harmful if swallowed
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H330	Fatal if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H360F	May damage fertility
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects.

Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products. For further information please contact info@vimaterial.de.