

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt powder

Revision Date: 8/15/2025

Version: 3

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY / UNDERTAKING

1.1 Product identifier

Product name Cobalt powder

Product code NM-0007

Nanoform 20 nm

CAS 7440-48-4

EC-Number: 231-158-0

REACH No. A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified uses Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Supplier IoLiTec
Ionic Liquids Technologies GmbH
Im Zukunftspark 9
D – 74076 Heilbronn
Germany

Telephone +49 (0)7131-89839-0

Fax +49 (0)7131-89839-109

Email msds@iolitec.de

1.4 Emergency telephone number

Emergency telephone +49 (0)151-41255671

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2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable solids, (Category 1)

Carcinogenicity, (Category 1B)

Germ cell mutagenicity, (Category 2)

Reproductive toxicity, (Category 1B)

Respiratory sensitisation, (Category 1)

Skin sensitisation, (Category 1)

Aquatic Chronic, (Category 4)

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008, GHS)

Pictogram



Signal word

Danger

Additional labeling element

Restricted for professional users.

H-phrases

H228

Flammable solid.

H317

May cause an allergic skin reaction.

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.

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H413	May cause long lasting harmful effects to aquatic life.
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P phrases

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. - No smoking.
P240	Ground and bond container and receiving equipment.
P261	Avoid breathing dust/fume/gas/mist/vapors/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P370 + P378	In case of fire: Use sand or fire extinguisher class D for extinction.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P405	Store locked up.
P422	Store contents under inert gas.

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P501

Dispose of contents/container in accordance with Local Authority requirements. Recover and reclaim or recycle, if practical. Do not dispose in communal waste water.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Cobalt powder 20 nm

CAS: 7440-48-4

EC-Number: 231-158-0

Ingredient name

Cobalt powder 20 nm

Contents

99.8%

Classification

Flam. Solid 1, Carc. 1B, Muta. 2, Repr. 1B,
Resp. Sens. 1, Skin Sens. 1, Aquatic Chronic 4

Formula

Co

Molecular Weight

58.93 g/mol

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No components need to be disclosed according to the applicable regulations.

4 FIRST AID MEASURES

4.1 Description of first aid measures

General

Contaminated clothing should be removed and washed before being reused.

[Contaminated clothing should not be allowed out of the work place.](#)

Inhalation

Move the exposed person to fresh air at once. If respiratory problems, provide artificial respiration/oxygen. [Get medical attention if you feel unwell.](#)

Ingestion

Immediately rinse mouth and provide fresh air. Do not induce vomiting. Get medical attention immediately.

Skin

Wash the skin immediately with soap and water. [Get medical attention if you feel unwell.](#)

Eyes

Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. [Get medical attention if you feel unwell.](#)

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

5 FIRE FIGHTING MEASURES

5.1 Extinguishing media

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Use: Dry chemical powder. Do not use water.

5.2. Special hazards arising from the substance or mixture

Flammable powder. Emission of toxic metal oxide fumes under fire conditions possible.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing as combustion may produce hazardous fumes.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective clothing and avoid inhalation of vapor, skin or eye contact.

6.2 Environmental precautions

Avoid washing into water courses. Avoid contaminating public drains or water supply.

6.3 Methods and materials for containment and cleaning up

Avoid contact with skin or inhalation of spillage, dust or vapor. Avoid dust formation. Collect and reclaim or dispose in sealed containers in license waste. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate.

6.4 Reference to other sections

For disposal see section 13.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Keep away from heat, sparks and open flame. Do not use in confined spaces without adequate ventilation and/or respirator

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store at moderate temperatures in dry, well-ventilated area. Air sensitive. Handle and store under inert gas. Chemical storage.

Storage class

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Storage class (TRGS 510): LGK 4.1B

Special storage criteria

Store away from oxidizing and acidic materials.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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

Body Protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143)

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respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Physical state	Powder
b) Color	Black
c) Odor	No characteristic odor
d) Melting point/freezing point	1495°C
e) Initial boiling point	2900°C
f) Flammability	Highly flammable
g) Upper/lower explosive limits	no data available
h) Flash point	no data available
i) Autoignition temperature	no data available
j) Decomposition temperature	no data available
k) pH	no data available
l) Kinematic viscosity	no data available
m) Water solubility	Insoluble
n) Partition coefficient	no data available
o) Vapor pressure	no data available
p) Density	8.92 g/cm ³ at 20°C
q) Relative vapor density	no data available
r) Particle characteristics	20 nm APS
s) Explosive properties	no data available
t) Oxidizing properties	no data available

9.2 Other safety information

No data available.

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10 STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

No particular stability concerns if handled according to specifications.

10.3 Possibility of hazardous reactions

Powder may cause fire.

10.4 Conditions to avoid

Oxidizing materials, acids, air, Interhalogens.

10.5 Incompatible materials

Strong oxidizing agents, Oxidizing materials, acids, air, Interhalogens.

10.6 Hazardous decomposition products

Toxic metal oxide fume.

11 TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes

Acute toxicity

LD50 oral-rat 6170 mg/kg

Skin corrosion/irritation

Skin sensitisation, Category 1

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

Skin sensitisation, Category 1

Germ cell mutagenicity

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Germ cell mutagenicity, (Category 2)

Carcinogenicity

Carcinogenicity, (Category 1B)

Reproductive toxicity

Reproductive toxicity, (Category 1B)

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Potential health effects

Inhalation no data available.

Ingestion Causes respiratory sensitization.

Skin Skin sensitisation.

Eyes No data available.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

11.2 Additional Information

Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU)2018/605 at levels of 0.1% or higher.

RTECS:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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12 ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish NOEC - Danio rerio (zebra fish) - 100 mg/l - 96 h

(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates flow-through test LC50 -

Chironomus sp. - 429 mg/l - 96 h Remarks: (in analogy to similar products)

Toxicity to algae ErC50 - Dunaliella tertiolecta (marine algae) - 71,31 mg/l - 96 h

Remarks: (in analogy to similar products)

Toxicity to bacteria EC50 - activated sludge - 120 mg/l - 0,5 h

(OECD Test Guideline 209)

Toxicity to fish(Chronic toxicity) NOEC - Pimephales promelas (fathead minnow) - 0,21

mg/l - 34 d (OECD Test Guideline 210) Remarks: (in analogy to similar product)

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

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12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU)2018/605 at levels of 0.1% or higher.

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12.7 Other adverse effects

No data available.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Contact specialist disposal companies. Dispose of in accordance with Local Authority requirements. Recover and reclaim or recycle, if practical. [Do not dispose in communal waste water.](#)

14 TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 3089

IMDG: 3089

IATA: 3089

14.2 UN proper shipping name

ADR/RID: METAL POWDER, FLAMMABLE, N.O.S. (COBALT)

IMDG: METAL POWDER, FLAMMABLE, N.O.S. (COBALT)

IATA: Metal powder, flammable, n.o.s. (cobalt)

14.3 Transport hazard class(es)

ADR/RID: 4.1

IMDG: 4.1

IATA: 4.1

14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: no

IMDG: Marine pollutant: no

IATA: no

14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available.

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15 REGULATORY INFORMATION

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

no data available

Country specific information

Germany

Substance No: 8026

WGK 3 - severe hazard to waters

Classification of the Commission for the Evaluation of Substances Hazardous to Water (KBwS).

16 OTHER INFORMATION

DISCLAIMER

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