

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Cobalt powder

Revision Date: 5/11/2026

Version: 3

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

#### 1.1 Product identifier

<b>Product name</b>	Cobalt powder, Nanoform <28 nm
<b>Product code</b>	NM-0007
<b>CAS</b>	7440-48-4
<b>EC-Number:</b>	231-158-0
<b>REACH No.</b>	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 2)

Acute Toxicity, (Category 1)

Eye Irrit, (Category 2)

Respiratory sensitisation, (Category 1B)

Skin sensitisation, (Category 1)

Reproductive toxicity, (Category 1B)

Germ Cell Mutagenicity, (Category 2)

Carcinogenicity, (Category 1B)

Aquatic Acute, (Category 1)

Aquatic Chronic, (Category 1)

Hazardous respirable dust may be formed when used.

#### 2.2 Label elements

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

###### Pictogram



###### Signal word

**Danger**

###### Hazard Statements

###### H-phrases

H228 Flammable solid.

H302 Harmful if swallowed.

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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.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H410	Very toxic to aquatic life with long-lasting effects.
H411	Toxic to aquatic life with long-lasting effects.
EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

### *Precautionary Statements*

### **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.
P241	Use explosion-proof electrical/ventilating/light/.../equipment.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P261	Avoid breathing dust/fume/mist/vapors/ spray.

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P264	Wash your hands thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352	IF ON SKIN: Wash with soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER or doctor/physician.
P320	Specific treatment is urgent (see instructions on this label).
P321	Specific treatment (see instructions on the label).
P330	Rinse mouth.
P333 + P313	P333+P313: If skin irritation or a rash occurs: Get medical advice/attention.

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P337+P313	If eye irritation persists: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use sand or fire extinguisher class D for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep the container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal plant.

### 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.

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### 3 COMPOSITION / INFORMATION ON INGREDIENTS

#### 3.1 Substances

Cobalt powder <28 nm

**CAS:** 7440-48-4

**EC-Number:** 231-158-0

Ingredient name	Contents	Classification
Cobalt powder <28 nm	99.8%	Flam. Sol. 2, Acute Tox. 1, Eye Irrit. 2, Resp. Sens. 1B, Skin Sens. 1, Repr. 1B, Muta. 2, Carc. 1B, Aquatic Acute 1, Aquatic Chronic 1

Formula	Molecular Weight
Co	58.93 g/mol

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.](#)

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### 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

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.

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### 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

Storage class (TRGS 510): LGK: 6.1A - Combustible acute toxic Cat. 1 and 2 / very toxic hazardous materials.

#### 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).

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### 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) 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

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<b>j) Decomposition temperature</b>	no data available
<b>k) pH</b>	no data available
<b>l) Kinematic viscosity</b>	no data available
<b>m) Water solubility</b>	Insoluble
<b>n) Partition coefficient</b>	no data available
<b>o) Vapor pressure</b>	no data available
<b>p) Density</b>	8.92 g/cm <sup>3</sup> at 20°C
<b>q) Relative vapor density</b>	no data available
<b>r) Particle characteristics</b>	<28 nm APS
<b>s) Explosive properties</b>	no data available
<b>t) Oxidizing properties</b>	no data available

### 9.2 Other safety information

No data available.

## 10 STABILITY AND REACTIVITY

### 10.1 Reactivity

Flammable solid

### 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.

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### 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

Eye Irrit, (Category 2)

##### Respiratory or skin sensitization

Respiratory sensitization Category 1

Skin sensitisation, Category 1

##### Germ cell mutagenicity

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

Respiratory sensitisation, (Category 1B)

##### Potential health effects

**Inhalation** Causes respiratory sensitization.

**Ingestion** Toxic if swallowed.

**Skin** Skin sensitisation.

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**Eyes** Causes eye irritation.

### 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.

## 12 ECOLOGICAL INFORMATION

### 12.1 Toxicity

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

(OECD Test Guideine 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)

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### 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.

### 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

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### 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.

## 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).

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### 16 OTHER INFORMATION

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