

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

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

1.1 Product identifier

Product name Cobalt(II,III)oxide,

Nanoform 30 nm

Product code NO-0002

CAS 1308-06-1

EC number 215-157-2

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 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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Carcinogenicity, Inhalation (Category 1B)

Respiratory sensitization (Category 1B)

Skin sensitization (Category 1)

Long-term (chronic) aquatic hazard (Category 2)

Hazardous respirable dust may be formed when used.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Pictogram



Signal word

Danger

Hazard statements

H-phrases

H350i	May cause cancer by inhalation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.
EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

Precautionary statements

P phrases

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/mist/vapours/spray.
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.
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.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P321	Specific treatment (see instructions on this label).
P333 + P313	If skin irritation or a rash occurs: Get medical advice/attention.
P361 + P364	Take off immediately all contaminated clothing and wash it before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/container in accordance to the local regulations.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

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(II,III)oxide, 30 nm

CAS: 1308-06-1

EC number: 215-157-2

Ingredient name	Contents	Classification
Cobalt(II,III)oxide, 30 nm	99.8+%	Resp. Sens. 1B; Skin Sens. 1, Aquatic Chronic 2; Carc. 1B

Formula	Molecular Weight
Co ₃ O ₄	240.80 g/mol

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

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

Use suitable fire-fighting measures depending on the surrounding environment.

5.2. Special hazards arising from the substance or mixture

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

Avoid water in straight hose stream, will scatter and spread fire. Keep run-off water out of sewers and water sources. Dike for water control. Fire causes formation of toxic gases.

5.3. Advice for firefighters

Wear self-contained breathing apparatus 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

Minimize dust generation and accumulation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Avoid ingestion and inhalation. Do not use in confined spaces without adequate ventilation and/or respirator. Work under hood.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store in a cool, dry place. Store in a tightly closed container. Good ventilation at the workplace is required. Hygroscopic. Keep locked up or in an area accessible only to qualified or authorised persons. Chemical storage.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

Storage class

Storage class (TRGS 510): LGK .1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects.

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)

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

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	Solid. Powder.
b) Color	Black.
c) Odor	No characteristic odor.
d) Melting point/freezing point	> 900°C
e) Initial boiling point	no data available
f) Flammability	no data available
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	0.00156 g/l at 20°C - OECD Test Guideline 105- slightly soluble
n) Partition coefficient	no data available
o) Vapor pressure	no data available
p) Density	6.11 g/cm ³
q) Relative vapor density	no data available
r) Particle characteristics	30 nm APS, > 40 m ² /g SSA
s) Explosive properties	no data available
t) Oxidizing properties	no data available

9.2 Other safety information

No data available.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

10 STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

Avoid moisture.

10.5 Incompatible materials

Reducing agents.

10.6 Hazardous decomposition products

High temperatures generate: Corrosive gases/vapor/fumes of: Cobalt; cobalt oxides.

11 TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes

Acute toxicity

LD50 Oral - Rat - > 5.000 mg/kg, (OECD Test Guideline 401)

LC50 Inhalation - Rat - 4 h - > 4,83 mg/l - dust/mist,
(OECD Test Guideline 403)

LD50 Dermal - Rat - > 2.000 mg/kg,
(OECD Test Guideline 402).

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

Respiratory or skin sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled. (ECHA)

Germ cell mutagenicity

No data available.

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available.

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

No data available.

Aspiration hazard

No data available.

Potential health effects

Inhalation May be harmful if inhaled. May cause cancer by inhalation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. Causes skin irritation.

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

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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 LC50 - Danio rerio (zebra fish) - > 136 mg/l - 96 h
(OECD Test Guideline 203)

Remarks: (above the solubility limit in the test medium)

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - > 136 mg/l - 48 h
(OECD Test Guideline 202)

Remarks: (above the solubility limit in the test medium)

Toxicity to algae IC50 - Pseudokirchneriella subcapitata (green algae) - 88 mg/l – 72h
(OECD Test Guideline 201)

Remarks: (above the solubility limit in the test medium)

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

12.5 Results of PBT and vPvB assessment 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.

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: -

IMDG: -

IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

14.4 Packaging group

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cobalt(II,III)oxide

Revision Date: 9/23/2025

Version: 3

ADR/RID: -

IMDG: -

IATA: -

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

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

WGK: 1

(Self-Classification)

16 OTHER INFORMATION

DISCLAIMER

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