



Materials Safety Data Sheet

Cobalt(II,III) Oxide Powder

1. Product and Company Identification

Product Name: Cobalt(II,III) Oxide

Formula: Co_3O_4

CAS: 1308-06-1

EC No.: 215-157-2

Synonyms: Cobalt Oxide

Recommended Use: Laboratory chemicals, Scientific research

Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd

Address: Building 2, Tengfei Innovation Center, No38 Gaoxin 6th Road, High-tech Zone, Xi'an, Shaanxi, China

Tel: +86-29-88993870

Email: sales@ulpmat.com

Website: www.ulpmat.com

24-Hour Emergency Contact: +86-13572830939

2. Hazards Identification

Classification of the substance or mixture

Classified as hazardous under Regulation (EC) No 1272/2008

Respiratory sensitisation Category 1 (H334)

Carcinogenicity, Inhalation Cat. 1A (H350i)

Aquatic Chronic Category 3 (H412)

GHS Label elements, including precautionary statements

Pictogram:



Signal Word: Danger

Hazard statement(s):

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H350i May cause cancer by inhalation.

H412 Harmful to aquatic life with long-lasting effects.

Precautionary Statement(s):

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing.

P304+P340+P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor if you feel unwell.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards:

3. Composition

Components	CAS	Classification (H)	Concentration
Cobalt (II,III) Oxide (Co ₃ O ₄)	1308-06-1	H334; H350i; H412	≤100%

4. First Aid Procedures

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.

Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention.

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.

Most important symptoms and effects, both acute and delayed

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

Indication of any immediate medical attention and special treatment needed

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

5. Firefighting Measures

Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media: N/A

Special hazards arising from the substance or mixture

Cobalt/cobalt oxides. Non-flammable. Thermal decomposition can lead to release of irritating gases and vapours.

Advice for firefighters

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

Further information

No data available

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Remove persons to safety. Use personal protective equipment as required. Avoid dust formation. Remove all sources of ignition. For emergency responders: Wear breathing apparatus if exposed to vapours/dust/spray/gases.

For personal protection see section 8.

Environmental precautions

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

Methods and materials for containment and cleaning up

Cover drains. Take up mechanically, taking care not to raise dust. Place in appropriate containers for disposal. Ventilate affected area.

Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

7. Handling and Storage

Precautions for safe handling

Precautions for safe handling: Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. 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.

Conditions for safe storage, including any incompatibilities

Storage conditions: Keep containers tightly closed in a dry, cool and well-ventilated place.

Storage class: Non Combustible Solids.

Incompatible materials: See section 10.5.

Specific end use(s)

Specific end use(s): Use in laboratories.

8. Exposure Controls/Personal Protection

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 - EN 166) and face protection.

Skin 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.

Body Protection

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

Respiratory protection

Use a respirator with appropriate particulate filter cartridges (e.g. EN 143 P2) as a backup to engineering controls. Avoid inhalation of dust. Only use equipment tested and approved under appropriate government standards (e.g. NIOSH, EN 149).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. Physical and Chemical Characteristics

Information on basic physical and chemical properties

Appearance

Form: Powder

Colour: Black

Odor: No data available

pH: N/A

Melting point/range: 895 °C

Boiling point/range: No data available

Flash point: No data available

Evaporation rate: Not applicable - Solid

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Relative density: 6.11 g/cm³

Water solubility: No data available

Partition coefficient (n-octanol/water): No data available

Auto-ignition temperature: No data available

Decomposition temperature: >900 °C

Viscosity: Not applicable

Other information

Molecular formula: Co_3O_4

Molecular weight: 240.8 g/mol

10. Stability and reactivity

Reactivity

None known, based on information available.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization: No information available.

Hazardous reactions: No information available.

Conditions to avoid

Avoid moisture.

Incompatible materials

Reducing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: cobalt/cobalt oxides.

In the event of fire: see section 5.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Oral: LD50-Rat >5,000 mg/kg.

Dermal: LD50-Rat >2,000 mg/kg.

Inhalation: LC50-Rat (4h) >4.83 mg/l (dust/mist).

Skin corrosion/irritation

No data available.

Serious eye damage/eye irritation

No data available.

Respiratory or skin sensitisation

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.

STOT-single exposure: Inhalation- May cause respiratory irritation.

No data available

Specific target organ toxicity - repeated exposure

No data available.

Aspiration hazard

Not applicable. Solid.

Additional Information

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

12. Ecological Information

Toxicity

Fish: LC50-Danio rerio (zebrafish) >136 mg/L - 96h.

Daphnia: EC50-Daphnia magna >136 mg/L - 48h.

Algae: IC50-Pseudokirchneriella subcapitata 88 mg/L - 72h.

Persistence and degradability

Persistence: No data available.

Degradability: No data available.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be PBT or vPvB at levels of 0.1% or higher.

Other adverse effects

Persistent Organic Pollutant: This product does not contain any known or suspected substance.

Ozone Depletion Potential: This product does not contain any known or suspected substance.

13. Disposal Considerations

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. Transportation Information

ADR

Not classified as dangerous goods under ADR.

IMDG

Not classified as dangerous goods under IMDG.

IATA

Not classified as dangerous goods under IATA.

15. Regulatory information

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

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: Not applicable

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

Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance

16. Other information

Revision Date:

2026-01-07

Version:

1.0

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.

This Safety Data Sheet is prepared in accordance with Regulation (EC) No 1907/2006 (REACH), Annex II.