

Material Safety Data Sheet

Cobalt oxide

ACC# 05294

Section 1 - Chemical Product and Company Identification

MSDS Name: Cobalt oxide

Catalog Numbers: AC206220000, AC206220250, AC206220500, S75093, C382-500, NC9004072, XXC3825KG

Synonyms: Cobaltic-cobaltous oxide; Cobaltosic oxide; Tricobalt tetraoxide; Cobalt oxide Co3O4; Cobalt (II,III) oxide; Cobalto-cobaltic oxide.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
1308-06-1	Cobalt oxide Co3O4	100	215-157-2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: black-gray crystalline powder.

Warning! May cause allergic skin reaction. May cause eye, skin, and respiratory tract irritation. May be harmful if swallowed. May cause cancer based on animal studies. Hygroscopic (absorbs moisture from the air). This product contains cobalt(II) oxide, a chemical known to the state of California to cause cancer.

Target Organs: Lungs, skin.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed.

Inhalation: May cause respiratory tract irritation. May cause chronic airway hyperreactivity and asthma, with changes in pulmonary function.

Chronic: Cobalt compounds may cause cancer based upon animal studies. May cause chronic heart disease due to effects on the heart muscle.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical aid if symptoms occur. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Runoff from fire control or dilution water may cause pollution.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Cobalt oxide Co3O4	0.02 mg/m3 TWA (as Co) (listed under Cobalt, inorganic compounds).	none listed	none listed
Cobalt(II) oxide	0.02 mg/m3 TWA (as Co) (listed under Cobalt, inorganic compounds).	none listed	none listed

OSHA Vacated PELs: Cobalt oxide Co3O4: No OSHA Vacated PELs are listed for this chemical. Cobalt(II) oxide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Crystalline powder

Appearance: black-gray

Odor: Not available.

pH: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not applicable.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: 895 deg C

Decomposition Temperature: 895 deg C

Solubility: insoluble

Specific Gravity/Density: 6.11 g /cm3

Molecular Formula: O4Co3

Molecular Weight: 240.80

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Dust generation, moisture, excess heat.

Incompatibilities with Other Materials: No information found..

Hazardous Decomposition Products: Cobalt/cobalt oxides.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 1308-06-1: GG2500000

CAS# 1307-96-6: GG2800000

LD50/LC50:

CAS# 1308-06-1:

Oral, rat: LD50 = >5 gm/kg;

CAS# 1307-96-6:

Oral, rat: LD50 = 202 mg/kg;

Oral, rat: LD50 = 202 mg/kg;

Carcinogenicity:

CAS# 1308-06-1:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans (listed as 'Cobalt, inorganic compounds').
- **California:** Not listed.
- **NTP:** Not listed.
- **IARC:** Group 2B carcinogen

CAS# 1307-96-6:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans (listed as 'Cobalt, inorganic compounds').
- **California:** carcinogen, initial date 7/1/92
- **NTP:** Not listed.
- **IARC:** Group 2B carcinogen

Epidemiology: See entry in the Documentation of the Threshold Limit Values and Biological Exposure Indices issued by ACGIH.

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: No information found

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: Cobalt uptake and phytotoxicity are affected by soil pH. More acidic soils absorb cobalt less strongly.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated as a hazardous material	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 1308-06-1 is listed on the TSCA inventory.

CAS# 1307-96-6 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 1308-06-1: immediate, delayed.

Section 313

This material contains Cobalt oxide Co3O4 (listed as Cobalt compounds), 100%, (CAS# 1308-06-1) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Cobalt(II) oxide (listed as Cobalt compounds), -, (CAS# 1307-96-6) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 1308-06-1 (listed as Cobalt compounds) is listed as a hazardous air pollutant (HAP).

CAS# 1307-96-6 (listed as Cobalt compounds) is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 1308-06-1 can be found on the following state right to know lists: New Jersey, (listed as Cobalt compounds), Pennsylvania, (listed as Cobalt compounds), Minnesota, (listed as Cobalt, inorganic compounds).

CAS# 1307-96-6 can be found on the following state right to know lists: New Jersey, (listed as Cobalt compounds), Pennsylvania, (listed as Cobalt compounds), Minnesota, (listed as Cobalt, inorganic compounds).

California Prop 65

WARNING: This product contains Cobalt(II) oxide, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN N

Risk Phrases:

R 22 Harmful if swallowed.

R 43 May cause sensitization by skin contact.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 22 Do not breathe dust.

S 24 Avoid contact with skin.

S 37 Wear suitable gloves.

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 1308-06-1: 0

CAS# 1307-96-6: 2

Canada - DSL/NDSL

CAS# 1308-06-1 is listed on Canada's DSL List.

CAS# 1307-96-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 1308-06-1 is not listed on the Canadian Ingredient Disclosure List.

CAS# 1307-96-6 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997

Revision #9 Date: 6/20/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.