

Safety Data Sheet (SDS) for Cobalt Sulfate Monohydrate

1. Identification of the Product and Company Information

Product Name: COBALT SULFATE

Address: B-303 , Anand Square Near Anand vihar , Tragad Village , Ahmedabad-382470, Gujarat , India.

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2. Hazards Identification

Emergency Overview: Harmful if swallowed. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to the heart, to the thyroid and to the bone marrow through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

Product effects

Adverse effects to the human health: Irritating to skin, to the eyes and to respiratory and gastrointestinal tracts and may cause corrosion. May cause sensitization after skin contact. May cause cancer. May damage fertility or the unborn child. May cause damage to the heart, to the thyroid and to the bone marrow through chronic exposure

Environment effects: Very toxic to aquatic life with long lasting effects.

Physical and chemical hazards: It's not flammable. Decompose, producing toxic fumes of sulfur oxides. Dusts react with strong oxidants causing fire and explosion hazard.

Classification of the substance or mixture:

Regulation 1272:2008 (GHS)

Acute toxicity – oral: Category 4

Respiratory sensitization: Category 1

Skin sensitization: Category 1

Carcinogenicity: Category 2

Toxic to reproduction: Category 2

Specific target organ toxicity (repeated exposure): Category 2

Aquatic toxicity (acute): Category 1

Aquatic toxicity (chronic): Category 1

Label elements

Symbol:



Signal word: DANGER

Hazard Statement:

Harmful if swallowed.

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

May cause damage to the heart, to the thyroid and to the bone marrow through prolonged or repeated exposure.

Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects.

Precaution Statement:

Wash the hand thoroughly after handling.

Contaminated work clothing should not be allowed out of the work.

Do not eat, drink or smoke when using this product.

Avoid breathing dust/fume.

In case of inadequate ventilation wear respiratory protection.

Wear protective gloves.

Wash contaminated clothes before reuse.

IF SWALLOWED: Call a POISON CENTER or a doctor/physician if you feel unwell. Rinse mouth.

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. IF ON SKIN: Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

Store locked up.

Avoid release to the environment. Collect spillage.

Dispose of contents/container as hazardous waste.

Label elements according to Directive 67/548/EEC

Symbol:



Xn: Harmful



N - Dangerous for the environment

Risk Phrases:

R22: Harmful if swallowed.

R40: Limited evidence of a carcinogenic effect.

R62: Possible risk of impaired fertility.

R42/43: May cause sensitization by inhalation and skin contact.

R48/20/21/22: Harmful: Danger of serious damage to health by prolonged exposure.

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S53 Avoid exposure – obtain special instructions before use.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S60 This material and its container must be disposed of as hazardous waste.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

3. Composition/Information on Ingredients

Substance

Chemical name: Cobalt sulfate

Synonyms: Cobalt (II) sulphate monhydrate

CAS n°: 10124-43-3

EC n°: 233-334-2

Ingredients or impurities that contribute to the hazard: Doesn't have impurities that contribute to the hazard (pure substance).

4. First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Most important symptoms and effects, both acute and delayed: After inhalation, the victim may present cough, sore throat and shortness of breath. On ingestion, abdominal pain, nausea, vomiting, diarrhea, somnolence and ataxia may occur. Contact with the eyes and skin, may cause, redness and pain. May cause allergic and asthma like symptoms.

Indication of any immediate medical attention and special treatment needed: Avoid contact with this product while helping the victim; keep the victim warmed. Symptomatic treatment should include, above all, measured of support as correction of hydro electrolytic and metabolic disturbances and respiratory failure.

5. Firefighting Measures

Fire Extinguishing Media: Product is not combustible, compatible with all extinguishing media, such as dry chemical, water spray, carbon dioxide, etc.

Special hazards arising from the substance or mixture: May produce toxic fumes of sulfur and cobalt oxides if burning.

Advice for firefighters: In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Dust control: Apply ventilation or exhaust system. Moisten area to prevent dusting.

Prevention of inhalation, and skin, mucous membranes, and eye contact: Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation and contact with skin and eyes. Use proper personal protective equipment as indicated in Section 8.

Environmental precautions: Prevent from entering into soil, waterways and groundwater.

Methods and material for containment and cleaning up: Use a vacuum cleaner to collect residue or another method that does not generate dust. Place the material into appropriate containers and remove to a safe place. Clean the area. Dispose in accordance with local regulation about residues.

7. Handling and Storage

Precautions for safe handling: Handle in a well-ventilated area or with adequate general/local ventilation system. Use personal protective equipment as indicated on Section 8. Avoid inhaling product dust. Wash hands before eating and do not eat, drink, or smoke in workplace. Contaminated clothing shall be changed before reuse.

Conditions for safe storage, including any incompatibilities: Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances (Strong oxidizers, tert-butyl hydroperoxide). Use plastic bag for packaging.

8. Exposure Controls/Personal Protection

Control parameters

Occupational Exposure Limits:

Ingredients	TLV – TWA (ACGIH)	PEL – TWA (OSHA)
	(mg/m ³)	(mg/m ³)
Cobalt	0.02	0.001

Biological Limits:

BEI (cobalt in urine) = 15µg/l

BEI (cobalt in blood) = 1µg/l

Exposure control

Appropriate engineering controls:

Provide general ventilation combined with local exhaust ventilation, in case of generation of mist product. Safety shower and eye bath available near work site. Engineering controls measures are the most effective way of reducing product exposure.

Individual protection measures, such as personal protective equipment

Eye/face protection: Use chemical safety goggles and/or a full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin and hand protection: Wear protective gloves and clean body-covering clothing.

Respiratory protection:

Use respiratory protective equipments against dust. In cases of high potential of exposure use a supplied-air respirator, full facepiece, operated in positive-pressure mode. Respirator can be used in combination with a self-contained breathing apparatus (SCBA), full facepiece, operated in positive-pressure mode, should be used too.

Thermal hazard: When heated may produce cobalt oxide and carbon monoxide

Environmental exposure controls: Prevent from entering into soil, waterways and groundwater.

9. Physical and Chemical Properties

Appearance: Large irregular dark red transparent crystals.

Odor: Odorless.

pH: 4.0 (100g/l solution)

Melting point/freezing point: 96.8°C

Initial boiling point and boiling range: 735°C.

Flash point: Not applicable.

Evaporation Rate (BuAc=1): No information found.

Flammability: Not flammable.

Upper/lower flammability or explosive limits: Not applicable.

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Relative density: 2.03

Solubility: Soluble in water.

Partition coefficient: n-octanol/water: No information found.

Auto-ignition temperature: No information found.

Decomposition temperature: > 735°C

Viscosity: Not applicable.

Explosive properties: No information found.

Oxidizing properties: No information found.

Other information: % Volatiles by volume at 21°C (70°F): 0.

Loses water at 420°C.

10. Stability and Reactivity

Chemical stability: Stable under ordinary conditions of use and storage. Do not suffer polymerization.

Possibility of hazardous reactions: May catalyze organic reactions.

Incompatible materials: Strong oxidizers, tert-butyl hydroperoxide

Conditions to avoid: Heat, humid and incompatibles.

Hazardous decomposition Products: Oxides sulfur and the contained metal.

11. Toxicological Information

Acute toxicity: LD₅₀ (oral, rats) = 424mg/Kg.

Skin corrosion/irritation: May cause skin irritation with redness and pain.

Serious eye damage/irritation: May cause eye irritation with redness and pain.

Respiratory or skin sensitization: Skin contact may cause allergic symptoms with itching, redness and skin rash. May cause respiratory sensitization with asthma like symptoms including shortness of breath and asphyxia.

Germ cell mutagenicity: There are no relevant data from germ cell mutagenicity.

Carcinogenicity:

- Cobalt and cobalt compounds: possible carcinogen for humans (IARC – 2B)

Reproductive toxicity: Animal studies showed that this substance may cause effects on human reproduction and may cause malformations in human babies (NIOSH).

STOT-single exposure: Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath and sore throat. Causes abdominal pain, nausea, vomiting and diarrhea. May cause effects on the nervous system with somnolence, tremors and convulsions. May cause death if ingested in large quantities.

STOT-repeated exposure: May cause cardiomyopathy, thyroid enlargement (goiter) and increased blood cell count.

Aspiration hazard: There is no data from aspiration hazard. Product is solid.

12. Ecological Information

Toxicity: Very toxic to aquatic life.

EC₅₀ (*Selenastrum capricornutum*, 72h) = 0.04 – 0.72mg/l

Persistence and degradability: It's expected high persistence and low degradability.

Bioaccumulative potential: It's expected no bioaccumulative potential.

Mobility in soil: Not determined.

13. Disposal Considerations

Product: The treatment and disposal should be evaluated specifically for each product. Can be deposited in landfills, sent to an appropriate incineration or other means of disposal provided they meet the requirements of local law.

Product waste: Keep the product remains in their original containers and properly sealed. Disposal should be performed as established for the product.

Contaminated packaging: Do not reuse empty containers. These may contain residues of the product and must be kept closed and sent for destruction in the appropriate place. In some cases the packaging should be returned to the registering company or supplier.

14. Transport Information

National and international regulations

Land (road/rail):

UN – “United Nations”

Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations, 16th Edition, 2009.

Waterways (sea/inland):

IMO - “International Maritime Organization”

International Maritime Dangerous Goods Code (IMDG Code) - Incorporating Amendment 34-08; 2008 Edition.

Air:

IATA - “International Air Transport Association”

Dangerous Goods Regulation (DGR) - 51th Edition, 2010.

UN number: 3077

UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cobalt sulfate)

Transport hazard class(es): 9

Packing group: III

Environmental hazards: Very toxic to aquatic life.

Exception:

172.102 (c) Special Provision 146: This material may be shipped as a Class 9, Environmentally Hazardous Substance because it has been designated as such by the European authority, IATA and IMDG. However, ground shipments may be classified as nonhazardous as they do not meet the definition of a Hazardous Material or Hazardous substance under 49 CFR 100 to 185.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: It's not listed.

15. Regulatory Information

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

Regulation 1272:2008: GHS, United Nations, 3th Revised Edition, 2009

ECB: Directives 67/548 e 1999/45

UN Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations, 16th Edition, 2009.

16. Other Information

This information had been based on the current knowledge of the product and intended to describe safety, health and environmental hazards.

It is advised that the handling of any chemical substance requires the previous knowledge of its hazards by the user. It is responsibility of the product user enterprise to promote the training of its employees and contractors about the possible risks arising from the product.

SDS elaborated by InterTox

Abbreviations

ACGIH: American Conference of Industrial Hygienists

BEI: Biological Exposure Index

CAS: Chemical Abstracts Service

EC: European Commission

EEC: European Economic Community

IARC: International Agency for Research on Cancer

LC₅₀: Lethal Concentration 50

LD₅₀: Lethal Dose 50

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

TLV: Threshold Limit Value

TWA: Time Weighted Average