

Material Safety Data Sheet (MSDS / SDS)

Cobalt Sulphate (Heptahydrate) - Battery/Industrial Grade

SECTION 1: Identification

Product Name	Cobalt(II) Sulphate Heptahydrate (CoSO ₄ ·7H ₂ O)
Synonyms	Cobalt Sulphate, Cobalt Sulphate Heptahydrate, Cobaltous Sulphate
CAS No.	10026-24-1
Recommended Use	Precursor for lithium-ion battery cathode manufacturing; electroplating, catalysts, pigments and trace-mineral feed supplement
Manufacturer / Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India - 248001
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SECTION 2: Hazard(s) Identification

GHS Classification: Carcinogenicity Category 1B (H350i - inhalation route); Germ Cell Mutagenicity Category 2 (H341); Reproductive Toxicity Category 1B (H360F); Acute Toxicity Category 4, Oral (H302); Skin Sensitisation Category 1 (H317); Respiratory Sensitisation Category 1 (H334); Specific Target Organ Toxicity - Repeated Exposure Category 1 (H372, lungs); Aquatic Acute Category 1 (H400); Aquatic Chronic Category 1 (H410)

Signal Word: Danger

Hazard Statements:

- H350i - May cause cancer by inhalation
- H341 - Suspected of causing genetic defects
- H360F - May damage fertility
- H302 - Harmful if swallowed
- H317 - May cause an allergic skin reaction
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

- H372 – Causes damage to the lungs through prolonged or repeated exposure
- H400 – Very toxic to aquatic life
- H410 – Very toxic to aquatic life with long lasting effects

Precautionary Statements:

- P201 – Obtain special instructions before use
- P202 – Do not handle until all safety precautions have been read and understood
- P260 – Do not breathe dust/fume/mist
- P261 – Avoid breathing dust/mist
- P264 – Wash hands thoroughly after handling
- P270 – Do not eat, drink or smoke when using this product
- 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/respiratory protection
- P285 – In case of inadequate ventilation, wear respiratory protection
- P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell
- P304+P341 – IF INHALED: If breathing is difficult, remove person to fresh air and keep at rest in a position comfortable for breathing
- P308+P313 – IF exposed or concerned: Get medical advice/attention
- P333+P313 – If skin irritation or a rash occurs, get medical advice/attention
- P342+P311 – If experiencing respiratory symptoms, call a POISON CENTER/doctor

SECTION 3: Composition / Information on Ingredients

Component	CAS No.	Concentration (w/w)
Cobalt(II) Sulphate Heptahydrate (CoSO ₄ ·7H ₂ O)	10026-24-1	Min. 98.5%
Nickel, Iron, Copper, Zinc, Manganese (residual trace metals)	–	< 0.15% (combined, see TDS for individual limits)

SECTION 4: First-Aid Measures**Eye Contact**

Rinse immediately with plenty of water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy

	to do. Get medical attention immediately.
Skin Contact	Remove contaminated clothing immediately. Wash affected area thoroughly with soap and water. Get medical attention if irritation, redness, or an allergic skin reaction develops – cobalt is a well-documented skin sensitiser.
Inhalation	Move to fresh air immediately. If breathing is difficult, give oxygen if trained to do so and seek medical attention immediately. Persons with pre-existing respiratory conditions (asthma, sensitisation) should be evaluated promptly given the respiratory sensitisation hazard of this material.
Ingestion	Do NOT induce vomiting. Rinse mouth with water. Seek medical attention immediately – call a poison centre.

SECTION 5: Fire-Fighting Measures

- Non-flammable inorganic solid; does not itself burn
- Suitable extinguishing media: use media appropriate to the surrounding fire
- Combustion/thermal decomposition may release toxic sulphur oxide and cobalt oxide fumes – fire-fighters must wear full protective equipment and SCBA

SECTION 6: Accidental Release Measures

- Evacuate non-essential personnel; this is a CMR (carcinogenic/mutagenic/reprotoxic) substance requiring trained personnel and full PPE for clean-up
- Avoid generating dust; use wet suppression or vacuum with HEPA filtration
- Collect spilled material in sealed, labelled containers for disposal as hazardous waste – do not return to original container
- Prevent entry into drains, sewers or waterways under any circumstances – very toxic to aquatic life
- Wear full chemical-protective clothing, gloves, goggles and appropriate respiratory protection during clean-up

SECTION 7: Handling and Storage

- Handle only with appropriate engineering controls (local exhaust ventilation, closed handling systems) and full PPE given the CMR classification

- Avoid all skin, eye and respiratory contact; avoid generating dust
- Store in a cool, dry, well-ventilated area, physically segregated from food, feed, incompatible materials and general-access areas
- Keep containers tightly sealed and clearly labelled at all times
- Provide workers with specific training on cobalt sensitisation and CMR hazards before handling

SECTION 8: Exposure Controls / Personal Protection

Occupational Exposure Limits	ACGIH TLV for cobalt and inorganic cobalt compounds (as Co): 0.02 mg/m ³ , 8-hr TWA (respirable fraction) – confirm current jurisdiction-specific limit given active regulatory review of cobalt exposure limits
Engineering Controls	Local exhaust ventilation and, where practical, closed/automated handling systems to minimise worker exposure
Eye/Face Protection	Chemical splash goggles or face shield required
Hand Protection	Chemical-resistant gloves required; select per manufacturer's permeation data for cobalt salts
Respiratory Protection	Respiratory protection (at minimum a NIOSH-approved particulate respirator; higher protection factor required for elevated exposure) required per a documented respiratory protection programme given the respiratory sensitisation and carcinogenicity-by-inhalation classifications

SECTION 9: Physical and Chemical Properties

Property	Unit	Value
Appearance	–	Pink to red crystalline powder or crystals
Odour	–	Odourless
pH (5% Solution)	–	4.0 – 6.0
Solubility in Water	–	Freely soluble

Property	Unit	Value
Decomposition Temperature	°C	Loses water of crystallisation on heating; decomposes at higher temperature releasing SOx
Flash Point	–	Not applicable (non-flammable inorganic solid)

SECTION 10: Stability and Reactivity

- Stable under normal, dry storage conditions
- Loses water of crystallisation on heating; decomposes at higher temperatures releasing sulphur oxide fumes
- Incompatible materials: strong reducing agents, organic materials
- No unusual reactivity under normal ambient storage

SECTION 11: Toxicological Information

- Harmful if swallowed (H302); cobalt and cobalt compounds are classified as suspected human carcinogens by inhalation (IARC Group 2B; GHS Carc. 1B by inhalation route in this classification)
- Suspected of causing genetic defects (H341) and may damage fertility (H360F) – this is a CMR (Carcinogenic, Mutagenic, Reprotoxic) substance under EU classification criteria
- Cobalt is one of the most common metal contact allergens; skin sensitisation (“cobalt allergy”) is well documented and can develop with repeated exposure (H317)
- Respiratory sensitisation (H334) and occupational asthma have been documented with cobalt exposure, particularly in hard-metal and cobalt-refining industries
- Prolonged or repeated exposure causes lung damage (H372) – chronic cobalt lung disease is a recognised occupational condition

SECTION 12: Ecological Information

- Very toxic to aquatic life with long lasting effects (H400/H410) – significant environmental hazard

- Must not be released to drains, surface water or groundwater under any circumstances
- Cobalt does not degrade (it is an element) and can persist/bioaccumulate in aquatic sediment

SECTION 13: Disposal Considerations

- Dispose of strictly as hazardous waste in accordance with local, state and national regulations – given the CMR and aquatic-hazard classification, this is not general industrial waste
- Do not discharge to sewers, waterways or soil under any circumstances
- Use a licensed hazardous waste contractor for disposal

SECTION 14: Transport Information

UN Number	UN 3288 (or applicable entry per current IMDG/ADR classification for solid toxic inorganic substances, n.o.s.)
Proper Shipping Name	TOXIC SOLID, INORGANIC, N.O.S. (Cobalt Sulphate) – confirm exact entry with carrier/DG specialist
Transport Hazard Class	6.1 (Toxic), with Environmentally Hazardous Substance marking
Packing Group	III (typical; confirm against current classification)
Environmental Hazards	Marine Pollutant – very toxic to aquatic life

SECTION 15: Regulatory Information

- Cobalt sulphate is listed as a Substance of Very High Concern (SVHC) under EU REACH and is subject to authorisation requirements for use/import into the EU – buyers supplying into the EU must confirm current REACH authorisation/registration status before proceeding
- Classified as a Dangerous Good for transport (Class 6.1 Toxic) – requires full DG documentation, UN-rated packaging and DG-compliant freight booking; buyers/importers should engage a Dangerous Goods compliance specialist for every shipment

- Cobalt and cobalt compounds are subject to increasing regulatory scrutiny globally given both occupational health concerns and battery-supply-chain due-diligence requirements (e.g. conflict-mineral-style sourcing scrutiny for cobalt) – buyers should confirm current requirements for their specific jurisdiction and end-use

SECTION 16: Other Information

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This SDS has been compiled based on general industry data and knowledge for Cobalt Sulphate products of this type as commercially supplied. Cobalt sulphate is a genuinely hazardous CMR (carcinogenic, mutagenic, reprotoxic) substance and a classified Dangerous Good – this document is intended as a general handling and safety guide only and does NOT replace a batch-specific SDS from the manufacturing source or a professional occupational health, Dangerous Goods, and REACH/regulatory compliance review, all of which are essential before any handling, storage, or shipment decisions are finalised.

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