

Safety Data Sheet

Cobalt Sulphate

1. Identification of the substance/mixture and supplier

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| Product Name | Cobalt Sulphate |
| Other Name | Cobalt sulphate; Cobalt (II) sulphate; Cobaltous sulphate heptahydrate |
| Recommended uses | Catalyst; foam stabiliser; pigment; additive to soils; stock feed nutrient; ceramics, pigments, glazes and in plating baths for cobalt; paint and ink drier; storage batteries |
| Supplier Street Address | 66 Vincent Dickenson Road, Cottonlands |
| Telephone number | 082 465 5111 / 066 218 4225 |
| E-mail | edward@minemet.co.za / dylan@minemet.co.za / info@minemet.co.za |
| Website | http://www.minemet.co.za |

2. Hazards Identification

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|-----------------------------|--|
| Dangerous Goods | Classified as a Dangerous Good according to NZS 5433:1999 Transport of Dangerous Goods on Land |
| Hazardous Goods | Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001 |
| HSNO Classifications | 6.1D (acutely toxic) 6.3A (irritating to the skin) 6.4A (irritating to the eye) 6.5A (respiratory sensitiser) 6.5B (contact sensitizer) 6.7B (suspected human carcinogen) 6.8B (suspected reproductive or developmental toxicant) 6.9A (toxic to human target organs or systems) 9.1A (very eco-toxic to the aquatic environment) 9.3B (ecotoxic to terrestrial vertebrates) |

Minemet (Pty) Ltd
Registration Number: 1991/004606/07
VAT: 4670112699
66 Vincent Dickenson Rd, Cottonlands, Verulam
P O Box 164, Umdoti Beach, 4350
Tel: +27 (0) 82 465 5111 | Fax: +27 (0) 86 664 4162
E-mail: info@minemet.co.za
Web : www.minemet.co.za
Directors: EJ Munnik, C Munnik



2. Hazards Identification (Continue...)

Hazard Statements

Harmful if swallowed. Causes skin irritation. Causes eye irritation. 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. Causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects. Toxic to terrestrial vertebrates.

Precautionary Statements

Keep out of reach of children. Read label before use. Obtain special instructions before use. Do not handle until all safety instructions have been read and understood. Do not eat, drink or smoke when using this product. Avoid breathing dust. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/eye protection. Contaminated work clothing should not be allowed out of the workplace. Wash hands and exposed skin thoroughly after handling. Store locked up. Avoid release to the environment. Collect spillage

3. Composition/Information on Ingredients

| Contents | CAS Number | Proportions |
|-------------------------------|------------|-------------|
| Cobalt Sulphate, heptahydrate | 10026-24.1 | 100% |

4. First Aid Measures

If exposed or concerned: Get medical advice/ attention.

For advice, contact National Poisons Information Centre (Phone 0800 764 766) or a doctor Have product container or label at hand.

Swallowed

Do NOT induce vomiting. Rinse mouth with water. Give water to drink to achieve dilution. Call a POISON CENTRE or doctor/physician if you feel unwell.

Eye Contact

Rinse cautiously with water for several minutes. Remove contact lenses if present. Continue rinsing. If eye irritation persists get medical advice/attention.

Skin Contact

Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.

Inhaled

If breathing is difficult remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms call a POISON CENTRE or doctor/physician.

4. First Aid Measures (continue...)

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| Advise to Doctor | Treat symptomatically. Refer to National Poisons and Hazardous Chemicals Information Centre 0800 764 766 Prolonged inhalation of cobalt dust, fume or mist containing cobalt may cause serious respiratory illness. There are references in literature associating cobalt with interstitial fibrosis, a disease which can be fatal. Allergic or hypersensitive persons may develop a skin reaction or obstructive lung disease. |
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5. Fire-fighting Measures

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| Specific Hazard | Non-combustible material. Decomposes on heating emitting toxic fumes. |
| Suitable Extinguishing Media | This product is non-combustible, if material is involved in fire use media appropriate for surrounding fire conditions. Safe to use water fog or water spray, foam, dry agent (carbon dioxide, dry chemical powder). |
| Fire-fighting advice | Decomposes on heating emitting toxic fumes. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk to exposure to products of decomposition |

6. Accidental Release Measures

Wear protective equipment to prevent skin and eye contact and breathing in dust. Work up wind or increase ventilation. . Sweep up, avoiding generation of dust. Collect and seal in properly labelled containers or drums for safe disposal. Once pick up is complete, flush spill site with water to eliminate any residue. Do not wash material down the drain or sewer. In case of water contamination, precipitate with CaOH (lime). If contamination of sewers or waterways has occurred, advise local Regional Council.

7. Handling and Storage

| | |
|------------------------|--|
| Handling advice | Before use carefully read product label. Obtain special instructions before use. Do not handle until all safety instructions have been read and understood. Avoid skin and eye contact and breathing in dust. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/eye protection. Contaminated work clothing should not be allowed out of the workplace. Wash hands and exposed skin thoroughly after handling. Store locked up. Avoid release to the environment. Collect spillage. |
| Storage advice | Store in a cool, dry, well-ventilated area away from heat, moisture, oxidising agents and foodstuffs. Keep out of reach of children. Keep containers closed, securely sealed and protected against physical damage. |

8. Exposure Controls/Personal Protection

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|--------------------------------------|--|
| Workplace Exposure Guidelines | <p>No value assigned for this specific material by the New Zealand Occupational Safety and Health Service (OSH).</p> <p>However, Workplace Exposure Standard(s) for constituent(s): Cobalt, metal dust & fume (as Co): WES-TWA 0.05mg/m³ (A3 CARCINOGEN,bio) . As published by the New Zealand Occupational Safety and Health Service (OSH). Notes: Carcinogen Category A3 – Confirmed animal carcinogen with unknown relevance to humans. (bio) Exposure can also be estimated by biological monitoring. WES-TWA (Workplace Exposure Standard – Time Weighted Average) – The eight hour, timeweighted average exposure standard is designed to protect the worker from the effects of long-term exposure. These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.</p> |
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8. Exposure Controls/Personal Protection (Continue...)

Engineering Controls

Ensure ventilation is adequate to maintain air concentrations below exposure limits. Use exhaust ventilation and/or wear an approved respirator during use. A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Avoid generating and breathing in dusts. Keep containers closed when not in use.

Personal Protective Equipment

Wear overalls, chemical goggles and PVC or rubber gloves. Ensure ventilation is adequate. Avoid generating and inhaling dusts. If dust exists, wear dust mask / respirator meeting the requirements of AS/ NZS 1715 and AS/ NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. Physical and Chemical properties

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|----------------------------|---------------------|
| Appearance | Pink Powder |
| Odour | Odourless |
| Solubility | Soluble in water |
| Specific Gravity | 1.95 (Water = 1) |
| Flash Point (OC) | Not applicable |
| pH | 3-5 (5% solution) |
| Melting Point/Range | 96.8oC (decomposes) |
| Decomposition Point | 735°C |
| Boiling Point | Not available |
| Vapour Pressure | Not available |



10. Stability and Reactivity

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|-------------------|---|
| Stability | Product is stable under normal conditions of use and storage. Avoid dust generation, moisture, extreme heat and high temperatures. Hazardous polymerization will not occur. |
| Reactivity | Avoid contact with oxidizing agents. |

11. Toxicological information

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

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|---------------------------|---|
| Swallowed | May cause gastrointestinal irritation with nausea, vomiting and diarrhoea. |
| Eye Contact | Eye irritant. Exposure to dust may cause discomfort due to the particle nature. May cause physical irritation to the eyes. |
| Skin Contact | Prolonged or repeated contact may cause irritation and/or dermatitis. May cause skin sensitization (an allergic reaction) which becomes evident upon re-exposure to the product. |
| Inhaled | Breathing in dust may result in respiratory irritation. A respiratory sensitizer. Can cause possible allergic reactions, producing asthma- like symptoms. |
| Long Term Effects | Available evidence indicates that the product is a suspected animal carcinogen and therefore should be considered a possible human carcinogen. Chronic exposure may result in damage to the kidneys, lungs and heart. |
| Toxicological Data | Oral LD50 (rat): 424 mg/kg Oral LD50 (mice): 584 mg/kg |

12. Ecotoxicological information

Avoid contaminating waterways. Very toxic to aquatic organisms. May cause long term adverse effects in the aquatic environment..

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|-------------------------|------------------------------------|
| Aquatic toxicity | No data available for this product |
|-------------------------|------------------------------------|

13. Disposal

Recycle wherever possible. Whatever cannot be saved for recovery or recycling should be sent to an approved waste disposal contractor for disposal in an approved waste facility. Processing, use or contamination of this product may change the waste management options. Dispose of container and unused contents using an approved waste disposal contractor. Care should be taken to ensure compliance with national and local regulations. This product is NOT for disposal via municipal sewers, drains, natural streams or rivers.

Special Precautions:

This product is considered to be a hazardous waste because of its ecotoxicity. Emptied containers retain product residue and may therefore present hazards. Empty drums should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. Observe all safeguards on label and in this SDS until container is cleaned, reconditioned or destroyed. Decontaminate empty containers with dilute aqueous ammonia. Dispose of container and unused contents in accordance with local authority requirements. Do not store food stuffs in used containers.

14. Transport information

Transport of Dangerous Goods Pictogram:



Classified as a Dangerous Good according to NZS 5433:1999 Transport of Dangerous Goods on Land.

| | |
|----------------------|---|
| UN No | 3077 |
| Class-primary | 9 |
| Packing Group | III |
| Proper Shipping Name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt sulphate heptahydrate) |
| Hazchem Code | 2Z |

Marine Transport

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods (IMDG Code) for transport by sea.

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|----------------------|---|
| UN No | 3077 |
| Class-primary | 9 |
| Packing Group | III |
| Proper Shipping Name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt sulphate heptahydrate) |

14. Transport information (Continue...)

Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

| | |
|-----------------------------|---|
| UN No | 3077 |
| Class-primary | 9 |
| Packing Group | III |
| Proper Shipping Name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt sulphate heptahydrate) |

15. Regulatory Information

ERMA (NZ) Approval Code: HSR003620

HSNO Classifications

- 6.1D (acutely toxic)
- 6.3A (irritating to the skin)
- 6.4A (irritating to the eye)
- 6.5A (respiratory sensitiser)
- 6.5B (contact sensitizer)
- 6.7B (suspected human carcinogen)
- 6.8B (suspected reproductive or developmental toxicant)
- 6.9A (toxic to human target organs or systems)
- 9.1A (very eco-toxic to the aquatic environment)
- 9.3B (ecotoxic to terrestrial vertebrates)

HSNO Controls: Trigger quantities for this substance by itself in a "place:
Approved Handler: requirement not triggered
(Requirement was triggered by 9.1A and removed by Variation Code 6 when the substance is not applied in a wide dispersive manner)

Secured when unattended. Requirement is triggered by any amount of this substance.

Tracking: requirement not triggered (Requirement was triggered by 9.1A but is removed by Variation Code 19)

Transit depot requirements: requirement not triggered

Hazardous substance location: requirement not triggered

Hazardous atmosphere zone: requirement not triggered

requirementg if offerfed on sale in a package less than 2.5kg (Not applicable if the offer for sale is made in a place of work where children do not have access and the substance is for use in that place of work.

Child Resistant Packaging:

Emergency Management

- Level 1 information: 0.1KG
- Level 2 documentation: 0.5KG
- Level 3 requirements: 100KG
- Emergency response plan: 100KG
- Workable signage: 100KG
- Fire extinguishers: requirement not triggered.

15. Regulatory Information (Continue...)

GHS Pictogram:



16. Other Information

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES.

The information in this document is believed to be correct as of the date issued. However, no warranty of merchantability, fitness for any particular purpose, or any other warranty is expressed or is to be implied regarding the accuracy or completeness of this information, the results to be obtained from the use of this information or the product, the safety of this product, or the hazards related to its use. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.