

Material Safety Data Sheet

Cobalt (II) Hydroxide $\geq 95\%$ Pure

1. IDENTIFICATION

Product Information

Product Identification:	Cobalt Hydroxide
Synonyms:	Cobalt (II) Hydroxide, Cobaltous Hydroxide
CAS Number:	21041-930-0
EC Number:	244-166-4
Recommended Use:	Laboratory chemicals
Uses advised against	Food, drug, pesticide, or biocidal product use.

Manufacturer Information

Manufacturer/Supplier:	Minemet (Pty) Ltd 66 Vincent Dickenson Road, Cottonlands, Verulam, KwaZulu Natal, South Africa
------------------------	---

Contact Details

Telephone:	+27 82 465 5111
Email:	admin@minemet.co.za
Website:	www.minemet.co.za

2. HAZARD IDENTIFICATION

Classification

Section	Hazard Class	Category
3.1O	Acute toxicity (oral)	4
3.1I	Acute toxicity (inhal.)	1
3.3	Serious eye damage/eye irritation	2
3.4R	Respiratory sensitisation	1B
3.4S	Skin sensitisation	1
3.6	Carcinogenicity	1B
3.7	Reproductive toxicity	1B
4.1A	Hazardous to the aquatic environment - acute hazard	1
4.1C	Hazardous to the aquatic environment - chronic hazard	2

GHS Label Elements, including precautionary statements

Signal Word

Danger

Pictograms



Hazard Statements

H302 Harmful if swallowed
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H332 Harmful if inhaled
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350 May cause cancer
H360 May damage fertility or the unborn child
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.

Safety Datasheet: Cobalt (II) Hydroxide ≥95% Pure

Response	<p>P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/\u2026if you feel unwell.</p> <p>P330 Rinse mouth.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of soap and water</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/attention.</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P337+P313 If eye irritation persists: Get medical advice/attention.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P312 Call a POISON CENTER/doctor/\u2026if you feel unwell.</p> <p>P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor/...</p> <p>P308+P313 IF exposed or concerned: Get medical advice/attention.</p> <p>P391 Collect spillage.</p>
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification

Very toxic to aquatic life

Toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Substance Name: Cobalt (II) Hydroxide

Safety Datasheet: Cobalt (II) Hydroxide $\geq 95\%$ Pure

Chemical Formula:	$\text{Co}(\text{OH})_2$
Molar Mass:	92.95g/mol
Impurities:	<5% Aluminium Oxide (Al_2O_3)

4. FIRST AID MEASURES

Description of first aid measures

General notes:	Self-protection of the first aider.
Inhalation:	Remove to fresh air. If breathing is difficult, seek medical attention.
Skin Contact:	Wash with soap and water. If irritation persists, seek medical attention.
Eye Contact:	Rinse eyes with water for at least 15 minutes. If irritation persists, seek medical attention.
Ingestion:	Rinse mouth. If swallowed, seek medical attention immediately. Do not induce vomiting.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable extinguishing media	Water spray, carbon dioxide (CO_2), dry chemical, alcohol-resistant foam.
Unsuitable extinguishing media	No information available.
Specific hazards arising from the chemical	Non-combustible.
Special protective actions for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapours.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Use personal protective equipment as required. Avoid contact with skin, eyes, and clothes. Do not breathe dust.
Environmental precautions:	Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

Methods and material for containment and cleaning up:	Cover drains. Sweep or vacuum up spillage. Dispose of in accordance with local regulations.
---	---

7. HANDLING AND STORAGE

Handling

Precautions:	Use extractor hood (laboratory). Provision of sufficient ventilation. Avoid exposure. Avoid dust formation.
--------------	---

Environmental protection measures:	Avoid release to the environment.
------------------------------------	-----------------------------------

Advice on general occupational hygiene:	Wash hands before breaks and after work.
---	--

Storage

Conditions for safe storage, including any incompatibilities:	Store in a dry place. Hygroscopic solid.
---	--

Incompatible substances or mixtures:	Observe hints for combined storage.
--------------------------------------	-------------------------------------

Ventilation requirements:	Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted.
---------------------------	--

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limits:	No information available.
-------------------------------	---------------------------

Biological limits:	No information available.
--------------------	---------------------------

Engineering controls

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection:	Wear appropriate protective eyeglasses or chemical safety goggles.
----------------------	--

Safety Datasheet: Cobalt (II) Hydroxide $\geq 95\%$ Pure

Skin and body protection:	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory protection:	Wear dust mask when handling large quantities.
Hygiene measures:	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state:	Solid
Form:	Powder
Colour:	Greenish-blue/pink/red
Odour:	Odourless
Melting point/freezing point:	No data available.
Boiling point and boiling range:	No data available.
Flammability:	Non-combustible
Lower and upper explosion limit:	No data available.
Flash point:	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
pH	N/A
Kinematic viscosity:	No data available.
Water solubility:	Practically insoluble
Partition coefficient n-octanol/water (log value):	N/A (inorganic)
Vapour pressure:	24.5mmHg at 25°C
Density and/or relative density:	3.59g/cm ³ at 25°C
Relative vapour density:	No data available.
Particle characteristics:	No data available.

10. STABILITY AND REACTIVITY

Reactivity:	This material is not reactive under normal ambient conditions.
Stability:	Hygroscopic. Stable under normal conditions.
Incompatibility:	Avoid contact with strong oxidising agents.

Safety Datasheet: Cobalt (II) Hydroxide ≥95% Pure

Conditions to avoid:	Incompatible products. Excess heat. Avoid dust formation. Exposure to air. Exposure to moist air or water.
Hazardous decomposition products:	Cobalt Oxides.
Possible hazardous reactions:	Strong oxidising agent.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity:

LD50 Oral	LD50 Dermal	LC50 Inhalation
1.060 mg/kg (Rat)	No data available.	<0.05mg/L (Rat) 4h

Skin corrosion/irritation:	No data available.
Eye damage/irritation:	May cause eye irritation.
Respiratory/skin sensitisation:	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity:	No data available.
Carcinogenicity:	May cause cancer.
Reproductive:	Suspected of damaging the unborn child. May damage fertility.
Specific target organ toxicity - single exposure:	Shall not be classified as a specific target organ toxicant (single exposure).
Specific target organ toxicity - repeated exposure:	Shall not be classified as a specific target organ toxicant (repeated exposure).
Aspiration hazard:	Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical, and toxicological characteristics

Ingestion:	Vomiting, abdominal pain
Eye exposure:	Causes tears and eye irritation.
Inhalation:	May produce allergic reaction, cough, dyspnoea.
Skin contact:	May produce allergic reaction, pruritis, localised redness.
Information on other hazards:	No additional information.

12. ECOLOGICAL INFORMATION

Ecotoxicity:	The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.
Persistence and degradability:	May persist.
Bioaccumulation/Accumulation:	No data available.
Mobility:	No data available.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods:	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
Contaminated packaging:	Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. TRANSPORT INFORMATION

UN number or ID number

ADR/RID	UN3288
IMDG-Code	UN3288
ICAO-TI	UN3288

UN proper shipping name

ADR/RID	TOXIC SOLID, INORGANIC, N.O.S.
IMDG-Code	TOXIC SOLID, INORGANIC, N.O.S.
ICAO-TI	Toxic solid, inorganic, n.o.s.

Safety Datasheet: Cobalt (II) Hydroxide ≥95% Pure

Technical name: Cobalt (II) hydroxide

Transport hazard class(es)

ADR/RID 6.1

IMDG-Code 6.1

ICAO-TI 6.1

Packing group

ADR/RID I

IMDG-Code I

ICAO-TI I

Environmental hazards Hazardous to the aquatic environment.

Special precautions for user Provisions for dangerous goods (ADR) should be complied within the premises.

Maritime transport in bulk The cargo is not intended to be carried in bulk.

according to IMO instruments

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) -

Additional information

Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S.

Particulars in the transport document: UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Cobalt (II) hydroxide), 6.1, I, (C/E), environmentally hazardous

Classification code: T5

Danger label(s): 6.1, "Fish and tree"

Environmental hazards: Yes (hazardous to the aquatic environment)

Special provisions (SP): 274, 802(ADN)

Excepted quantities (EQ): E5

Limited quantities (LQ): 0

Transport category (TC): 1

Tunnel restriction code (TRC): C/E

Hazard identification No: 66

Emergency Action Code: 2X

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) -

Additional information

Classification code: T5

Safety Datasheet: Cobalt (II) Hydroxide ≥95% Pure

Danger label(s):	6.1, "Fish and tree"
Environmental hazards:	Yes (hazardous to the aquatic environment)
Special provisions (SP):	274, 802(ADN)
Excepted quantities (EQ):	E5
Limited quantities (LQ):	0
Transport category (TC):	1
Hazard identification No:	66

International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name:	TOXIC SOLID, INORGANIC, N.O.S.
Particulars in the transport document:	UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Cobalt (II) hydroxide), 6.1, I, MARINE POLLUTANT
Classification code:	T5
Danger label(s):	6.1, "Fish and tree"
Environmental hazards:	Yes (hazardous to the aquatic environment)
Special provisions (SP):	274
Excepted quantities (EQ):	E5
Limited quantities (LQ):	0
EmS	F-A, S-A
Stowage capacity:	B

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Proper shipping name:	TOXIC SOLID, INORGANIC, N.O.S.
Particulars in the transport document:	UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Cobalt (II) hydroxide), 6.1, I, MARINE POLLUTANT
Environmental hazards:	Yes (hazardous to the aquatic environment)
Danger label(s):	6.1
Special provisions (SP):	A3, A5
Excepted quantities (EQ):	E5

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture Relevant provisions of the European Union (EU) Seveso Directive

2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
H1	acute toxic (cat. 1)	5 20	40

Note 40: Category 1, all exposure routes

Deco-Paint Directive

VOC content 0%
0g/l

Industrial Emissions Directive (IED)

VOC content 0%
0g/l

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Not listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

Not listed

Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Cobalt (II) Hydroxide	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrinerelated functions in or via the aquatic environment		a)	
Cobalt (II) Hydroxide	Metals and their compounds		a)	

Legend

A) Indicative list of the main pollutants

Regulation on the marketing and Not listed

use of explosives precursors:

Regulation on drug precursors: Not listed

Safety Datasheet: Cobalt (II) Hydroxide ≥95% Pure

Regulation on substances that deplete the ozone layer (ODS):	Not listed
Regulation concerning the export and import of hazardous chemicals (PIC):	Not listed
Regulation on persistent organic pollutants (POP):	Not listed
National regulations(GB) List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list	Not listed
Restrictions according to GB REACH, Annex 17:	Not listed

16. OTHER INFORMATION

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No.	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations

Safety Datasheet: Cobalt (II) Hydroxide $\geq 95\%$ Pure

IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
M-factor	Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Note:

The information provided in this SDS is based on current knowledge and is intended to describe the product for health, safety, and environmental purposes. It should not be construed as guaranteeing specific properties or as suitability for a particular application.