

# Intermediate Product of Cobalt Metallurgy

(ACCORDING TO EC-REGULATION 1272/2008 (CLP))

## 1. Identification of the Substance and Company

### 1.1 Product Identification:

*Product Name:* Intermediate Product of Cobalt Metallurgy  
*Synonyms:* Cobalt Hydrate, IPCM

### 1.2 Company Identification

Vale Europe Limited  
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**Telephone Number:** +44 (0) 1792 842501

**For Fire, Spill, or chemical emergency call CHEMTREC:** +44 (0) 2033 180470

## 2. Hazards Identification

### 2.1 Classification of the Substance:

#### 2.1.1 Classification according Regulation (EC) No. 1272/2008

Carcinogenicity – Category 1B  
Respiratory Sensitization – Category 1B  
Skin Sensitization – Category 1  
Aquatic Acute – Category 1  
Aquatic Chronic – Category 1

Hazard Pictograms: GHS07 – Exclamation Mark; GHS08 - Health Hazard; GHS09 - Environment

Signal Word: Danger

Hazard Statements: H350 – May cause cancer by inhalation  
H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H317 - May cause an allergic skin reaction.  
H400 - Very toxic to aquatic life  
H410 – Very toxic to aquatic life with long lasting effects

Precautionary Statements: P201, P202, P261, P272, P273, P280, P281, P285, P302+P352, P304+P341, P308+P313, P321, P333+P313, P342+P311, P363, P391, P405, P501

#### 2.1.2. Classification according to Directive 67/548/EEC

Carc. Cat. 2; R49  
Xn; R42/43  
N; R50/53

### 2.2: Label elements

Labeling according to Regulation (EC) No 1272/2008

Product identifier: Intermediate Product of Cobalt Metallurgy

Symbols: GHS07 – Exclamation Mark; GHS08 - Health Hazard; GHS09 - Environment



Signal Word: Danger

Hazard Statements: H317, H334, H350, H410

Precautionary Statements (*NOTE: number of P-statements has been reduced as per CLP regulation, the full list can be found in Section 15*).

P202, P261, P273, P281, P302+P352, P501

For full text of R-Statements and Precautionary statements see section 15.

### 3. Composition

Substance  Mixture

Hazardous ingredient(s)	Typical Composition	CAS No.	EC No.
Cobalt hydroxide oxide	80%	12016-80-7	234-614-7
Cobalt Sulfate	7%	10124-43-3	233-334-2
Cobalt Hydrate	2%	N/A	N/A

### 4. First Aid Measures

**Ingestion:** If swallowed, rinse mouth with water (only if the person is conscious). If symptoms persist, obtain medical attention.

**Inhalation:** 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 CENTRE or doctor/physician.

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

**Eyes:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. If eye irritation persists: Get medical advice/attention.

**Most important symptoms and affects, both acute and delayed**  
**Indication of immediate medical attention and special treatment needed**

Inhalation: Increased difficulty in breathing.  
 Eye Contact: Redness.

No special requirements

## 5. Fire Fighting Measures

*Suitable extinguishing media:* As appropriate for surrounding fire. Extinguish with dry chemical, carbon dioxide or halones.

*Special risks:* Non identified

*Special protective equipment for fire fighting:* Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Dike fire control water for later disposal. Do not allow to enter drains, sewers or watercourses.

## 6. Accidental Release Measures

*Person related precautionary measures:* Ensure adequate ventilation. Avoid breathing dust. Wear appropriate personal protective equipment, avoid direct contact.

*Environmental Protection measures:* Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

*Procedures for cleaning/absorption:* Sweep spilled substances into containers if appropriate moisten first to prevent dusting. Use vacuum equipment for collecting spilt materials, where practicable. Transfer to a lidded container for disposal or recovery.

## 7. Handling and Storage

*7.1 Precautions for Safe Handling:* Provide adequate ventilation. Avoid breathing dust. Contaminated work clothing should not be allowed out of the workplace. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/protective clothing/eye protection/face protection.

*7.2 Conditions for Safe Storage:* Stable under normal storage conditions.

## 8. Exposure Controls / Personal Protection

### **8.1.1 Exposure Limits:**

For this product, the exposure limit for cobalt metal is provided. There are no exposure limits for the individual ingredients.

Cobalt Metal (Co) – CAS 7440-48-4		Exposure Limit (mg/m <sup>3</sup> )
ACGIH TLV-TWA		0.02
UK WEL		0.1
NOHSC, Australia		0.05

### **8.2.1 Occupational exposure controls:**

Provide adequate ventilation.

## PPE

<i>Eye/face protection</i>	Wear eye protection
<i>Skin protection (Hand protection/ Other)</i>	Wear protective clothing and gloves: Butyl rubber, Neoprene, PVC.
<i>Respiratory protection</i>	A suitable dust mask or dust respirator with filter type P may be appropriate.
<i>Thermal hazards</i>	Not applicable.

## 9. Physical and Chemical Properties

Black, odourless powder.

Viscosity	Not Applicable (N/A)
Freezing point / freezing range	1984°C
Boiling point/ boiling range	N/A
Flash Point	N/A
Autoflammability	N/A
Explosive properties	Not explosive
Vapour pressure	N/A
Bulk density	1.8 - 2.7 g/cm <sup>3</sup>
Particle size	99% less than 45µm
Solubility cold water	N/A
Solubility hot water	N/A
Partition coefficient	N/A
Magnetic properties	Paramagnetic

## 10. Stability and Reactivity

10.1	Reactivity	Stable under normal conditions.
10.2	Chemical stability	Stable under normal conditions.
10.3	Possibility of hazardous reactions	Stable under normal conditions.
10.4	Conditions to avoid	Heat
10.5	Incompatible materials	Acids, Strong oxidising agents.
10.6	Hazardous Decomposition Product(s)	Cobalt oxide dust, Acrid smoke, Metal fumes

## 11. Toxicological Information

### **Cobalt Sulphate**

#### *Acute Toxicity:*

- a) *Oral:* Non toxic - LD<sub>50</sub> ORAL RAT 424 mg/kg (CoSO<sub>4</sub>)  
 b) *Inhalation:* No information available.

c) *Dermal:* No information available.

**Corrosivity/Irritation:**

- a) *Respiratory Tract:* No information available.
- b) *Skin:* See sensitization section.
- c) *Eyes:* Mechanical irritation may be expected.

**Sensitization:**

- a) *Respiratory tract:* Resp. Sens. 1B; May cause allergy or asthma symptoms or breathing difficulties if inhaled..
- b) *Skin:* Skin Sens. 1; May cause an allergic skin reaction..
- c) *Preexisting conditions:* Sensitized individuals may experience an allergic skin rash or asthma.

**Chronic toxicity:**

- a) *Oral:* No information available
- b) *Inhalation:* No information available
- c) *Dermal:* No information available

**Mutagenicity /**

**Reproductive toxicity:** Cobalt sulphate is categorized as a Cat. 2 mutagen.

**Carcinogenicity:**

- a) *Ingestion:* No information available
- b) *Inhalation:* Carcinogenicity cat 1B; May cause cancer by inhalation.

## 12. Ecological Information

- 12.1 Toxicity Aquatic Acute 1 / Chronic 1. Very toxic to aquatic life with long lasting effects
- 12.2 Persistence and degradability The PBT and vPvB criteria of Annex XIII to the Regulation do not apply to inorganic substances, such as cobalt substances. The methods for determining the biological degradability are not applicable to inorganic substances.
- 12.3 Bioaccumulative potential Cobalt does not tend to bioaccumulate or biomagnify in aquatic or terrestrial systems.
- 12.4 Mobility in soil The substance is essentially insoluble in water.
- 12.5 Results of PBT and vPvB assessment Not classified as PBT or vPvB.
- 12.6 Other adverse effects None anticipated.

## 13. Disposal Considerations

- 13.1 Waste treatment methods Recover or recycle if possible. Dispose of contents/container to: Licensed recycler. Dispose of contents in accordance with local, state or national legislation.
- 13.2 Additional Information No information available.

## 14. Transport Information

International Maritime Dangerous Goods Code	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cobalt hydroxides and cobalt sulphate), 9, PG III. MARINE POLLUTANT
International Civil Aviation Organization Technical Instructions for the Carriage of Dangerous Goods by Air	Not regulated.
U.S. Dept. of Transportation Regulations	Not regulated.
Canadian Transportation of Dangerous Goods Act	Not regulated.
European Agreement Concerning the International Carriage of Dangerous Goods by Road	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cobalt hydroxides and cobalt sulphate), 9, PG III, (E).

## 15. Regulatory Information

Europe:

Classification according to Dangerous Substance Directive 67/548/EEC

Carc. Cat. 2; R49 – May cause cancer by inhalation

Xn – Harmful

R42/43- May cause sensitization by inhalation and skin contact

N – Dangerous to the Environment

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

S22 - Do not breathe dust

S24 - Avoid contact with skin

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

S53 - Avoid exposure - obtain special instructions before use.

S37 - Wear suitable gloves

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

All components are listed on EINECS. (European Inventory of Existing Chemical Substances)

Classification according to Part 3 of Annex VI of EU Regulation No. 1272/2008

Carcinogenicity – Category 1B

Respiratory Sensitization – Category 1B

Skin Sensitization – Category 1

Aquatic Acute – Category 1

Aquatic Chronic – Category 1

Symbols:

GHS07 – Exclamation Mark; GHS08 - Health Hazard; GHS09 - Environment



Signal Word:

Danger

Hazard Statements:

H350 – May cause cancer by inhalation  
 H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H317 - May cause an allergic skin reaction.  
 H400 - Very toxic to aquatic life.  
 H410 – Very toxic to aquatic life with long lasting effects

Precautionary Statements:

Prevention:

P201 - Obtain special instructions before use  
 P202 - Do not handle until all safety precautions have been read and understood  
 P261 - Avoid breathing dust or fume  
 P272 - Contaminated work clothing should not be allowed out of the workplace.  
 P273 - Avoid release to the environment.  
 P280 - Wear protective gloves and protective clothing  
 P281 - Use personal protective equipment as required  
 P285 - In case in inadequate ventilation wear approved respiratory protection

Response:

P302+P352 - If on skin: Wash with plenty of soap and water.  
 P304+P341 - IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in position comfortable for breathing  
 P308+P313 - If exposed or concerned: Get medical advice/attention  
 P321 - See Safety Data Sheet for specific treatment  
 P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
 P342+P311 - If experiencing respiratory symptoms: CALL a POISON CENTER or doctor/physician.  
 P363 - Wash contaminated clothes before reuse  
 P391 – Collect Spillage

Storage:

P405 – Store locked up

Disposal:

P501 - Dispose of contents/container in accordance to local/regional/national/international regulations

## 16. Other Information

The following acronyms may be found in this document:

ACGIH	American Conference of Governmental Industrial Hygienists
DNEL	Derived No Effect Level
LTEL	Long Term Exposure Limit
LR	Lead Registrant
MMAD	Mass Median Aerodynamic Diameter
NIOSH	National Institute of Occupational Safety and Health

NOHSC	National Occupational Health & Safety Commission
OEL	Occupational Exposure Limits
OR	Only Representative
OSHA	Occupational Safety and Health Administration
PBT	PBT: Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
STEL	Short Term Exposure Limit
STOT	Specific Target Organ Toxicity
TLV-TWA	Threshold Limit Value – Time Weighted Average
vPvB	very Persistent and very Bioaccumulative
WEL	Workplace Exposure Limit (UK HSE EH40)

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**Note:**

***Vale Canada believes that the information in this Material Safety Data Sheet is accurate. However, Vale Canada makes no express or implied warranty as to the accuracy of such information and expressly disclaims any liability resulting from reliance on such information.***

1. Threshold Limit Values of the American Conference of Governmental Industrial Hygienists. 2008.
2. Maximum Exposure Limit of the Health and Safety Executive in the U.K. in EH40/00.
3. Describes possible health hazards of the product supplied. If user operations change it to other chemical forms, whether as end products, intermediates or fugitive emissions, the possible health hazards of such forms must be determined by the user.