

Vale Inco Electrolytic Cobalt Rounds

** THIS DATA SHEET IS PREPARED IN COMPLIANCE WITH EU DIRECTIVE 2001/58/EC**

1. Substance and Company Identification

Vale Inco Electrolytic Cobalt Rounds.

C.A.S. Number 7440-48-4

EINECS Number 231-150-0

Imported by:

Vale Inco Europe Ltd.
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Used in the iron and steel industry.

2. Hazards Identification

Cobalt

Xn; Harmful

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

S24 Avoid contact with skin.

S37 Wear protective gloves.

S22 Do not breathe dust.

As supplied this product cannot be inhaled. User operations may generate inhalable dusts. If user operations change the substance to other chemical forms, whether as end products, intermediates or fugitive emissions, the user must determine the possible health hazards of such forms.

3. Composition

Information on Ingredients:

Hazardous Ingredients	Typical Composition
Cobalt	99.9%

* - expressed as the metal in inhalable size fraction.

4. First Aid Measures

Ingestion: Large quantities of water should be drunk. Seek Medical attention

Inhalation: No specific first aid required, remove for exposure, if symptoms persist seek medical attention

Skin: Wash thoroughly with water. For rashes seek medical advice. Show label if possible.

Eyes: Irrigate eyeball thoroughly with water for at least 10 minutes. If discomfort persists seek medical attention.

Wounds: Cleanse thoroughly to remove any oxide particles.

5. Fire Fighting Measures

Non flammable. Extinguish fires with appropriate measures.

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6. Accidental Release Measures

Personal precautionary measures: Avoid generation of dusty atmospheres. Do not inhale dusts. Wear appropriate nationally approved respirators if collection and disposal of spills is likely to cause the concentration limits of airborne cobalt to exceed the locally prescribed exposure limits.

Environment Protection Measures: No specific measures needed.

Procedures for cleaning/absorption: Pick up and replace in original container. Cobalt-containing material is normally collected to recover nickel values.

7. Handling and Storage

Handling: Prevent inhalable dust generation e.g. by the use of suitable ventilation. Do not inhale dust. Wear appropriate nationally approved respirators if handling is likely to cause the concentration limits of airborne nickel to exceed the locally prescribed exposure limits. Wear suitable protective clothing and gloves as packed cobalt may constitute a manual handling risk.

Storage: Keep in the container supplied, and keep container closed when not in use. Local regulations should be followed regarding the storage of this product.

8. Exposure Controls / Personal Protection

TLV ^{1 3} mg/m ³	WEL ^{2 3} mg/m ³
0.02	0.5

Maintain airborne cobalt levels as low as possible.

Occupational exposure controls:

a) *Respiratory protection:* As supplied this product does not pose a health hazard due to inhalation. Ventilation may be required if user operations change it to other physical or chemical forms, whether as end products, intermediates or fugitive emissions, which are inhalable.

b) *Eye protection:* None

c) *Hand/Skin Protection:* Avoid repeated skin contact. Wear suitable protective clothing and gloves, which should be selected specifically for the working place, depending on concentration and quantity of hazardous material (overalls and leather/rubber gloves). Wash skin thoroughly after handling and before eating, drinking or smoking. Change contaminated clothing frequently. Launder clothing and gloves as needed.

9. Physical and Chemical Properties

Silver-grey, odorless metallic discs.

Mol. wt	58.93
pH	Not Applicable (N/A)
Viscosity	Not Applicable (N/A)
Boiling point	2870°C
Melting Point	1475°C

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Flash Point	N/A
Auto flammability	N/A
Explosive properties	Not explosive
Vapor pressure	N/A
Solubility - cold water	Insoluble
Solubility - hot water	Insoluble
Partition coefficient	N/A
Viscosity	N/A
Density	8.9 g/ cm ³
Size	8-12 mm thick, 18-24 mm dia.
Magnetic properties	Ferromagnetic

10. Stability and Reactivity

Like other metals, cobalt may react with acids to liberate hydrogen gas, which may form explosive mixtures in air.

11. Toxicological Information⁴

Cobalt

LD50 oral rat: 6171 mg/kg

Inhalation:

Asthmatic symptoms and pulmonary fibrosis occurring in the tungsten carbide industry may be related to the inhalation of metallic cobalt dust. Evidence of polycythemia (an increase in the total red cell mass of the blood in the body) and altered thyroid, kidney and liver function have also been found. Excessive doses of metallic cobalt have produced cardiac changes in miniature swine.

Skin Contact:

Repeated contact with metallic cobalt can cause cobalt sensitivity and allergic skin rashes.

Wounds:

Cobalt powders have caused tumors at the site of injection in rodents. However, studies of cobalt containing prostheses do not suggest a significant risk for humans.

Pre-existing Conditions:

Sensitized individuals may experience an allergic skin rash or asthma.

12. Ecological Information

The environmental classification has not been decided.

13. Disposal Considerations

Cobalt-containing material is normally collected to recover cobalt values. Should disposal be deemed necessary, follow local regulations.

14. Transport Information

International Maritime Dangerous Goods Code	Not regulated.
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	Not regulated.

15. Regulatory Information

Cobalt metal is classified as a skin and respiratory sensitizes by the EU in Directive 67/548/EEC (Classification, Packaging and Labeling Directive) and in the UK in the Chemicals Hazard Information and Packaging for Supply.

Xn; Harmful

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

Do not breathe dust S22

Avoid skin contact S24

Wear suitable gloves S37

16. Other Information

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Note:

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

Footnotes:

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. *Exposure Limits for user operations will depend on the relevant governmental regulations.*
4. *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.*