



SAFETY DATA SHEET

MATERION

1. Product and company identification

Name of the chemical Iron Cobalt Boron Powder

Other means of identification
SDS number 362

Recommended use of the chemical and restrictions on use
Recommended use Not available.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/
Distributor information Materion Advanced Materials Group

Address 42 Mt. Ebo Road South
Brewster NY 10509
United States

Telephone Supplier Phone 1+845.279.0900

E-mail Not available.

Contact person Not available.

Emergency telephone
number Chemtrec 1+703.527.3887

2. Hazards identification

Hazard classification

Physical hazards Not classified.

Health hazards Sensitization, respiratory Category 1
Sensitization, skin Category 1
Carcinogenicity Category 2
Reproductive toxicity Category 2

Environmental hazards Hazardous to the aquatic environment,
long-term hazard Category 4

Label elements

Symbols None.

Signal word None.

Hazard statement The Material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

Precautionary statement None.

Other hazards None known.

Supplemental information None.

3. Composition/information on ingredients

Mixture

Chemical properties	CAS Number	Concentration (%)
Iron	7439-89-6	40 - 99.9
Boron	7440-42-8	0.1 - 50
Cobalt	7440-48-4	1.0 - 49.9

4. First aid measures

First aid measures for different exposure routes

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Not available.

Eye contact	Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Not available.
Most important symptoms and effects	Dusts may irritate the respiratory tract, skin and eyes.
Personal protection for first-aid responders	Not available.
Notes to physician	Not available.

5. Fire-fighting measures

Extinguishing media	Powder. Dry sand.
Extinguishing media to avoid	Use class D extinguishing agents, dry sand or sodium chloride on fire.
Specific hazards during fire fighting	None.
Special fire fighting procedures	Use water spray to cool unopened containers.
Protection of fire-fighters	None.

6. Accidental release measures

Personal precautions	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
Spill cleanup methods	Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. Stop the flow of material, if this is without risk.
	Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.
	Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.
	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Handling	Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Practice good housekeeping.
Storage	Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Exposure limits

Taiwan. OELs (Standards of Permissible Exposure Limits at Workplace, OSHA No. 10302007931), as amended

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	STEL	0.15 mg/m ³	Dust and fume.

Taiwan. OELs. (Standards of Permissible Exposure Limits at Workplace)

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0.05 mg/m ³	Dust and fume.

US. ACGIH Threshold Limit Values

Components	Type	Value
Cobalt (CAS 7440-48-4)	TWA	0.02 mg/m ³

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Cobalt (CAS 7440-48-4)	15 µg/l	Cobalt	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls	If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.
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Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
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Skin protection	
Hand protection	Not available.
Other	Not available.
Respiratory protection	Wear respirator with dust filter.
Thermal hazards	Not available.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

9. Physical and chemical properties

Appearance

Physical state	Not available.
Form	Liquid. Powder.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.
Melting point/freezing point	2723 °F (1495 °C) estimated
pH	Not available.
Boiling point, initial boiling point, and boiling range	5181.8 °F (2861 °C) estimated
Flammability (solid, gas)	Not available.
Flash point	Not available.
Decomposition temperature	Not available.
Auto-ignition temperature	1076 °F (580 °C) estimated

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.00001 hPa estimated
Vapor density	Not available.
Density	2.36 g/cm3 estimated
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Evaporation rate	Not available.
Other data	
Specific gravity	2.36 estimated

10. Stability and reactivity

Stability	Not available.
Possibility of hazardous reactions	Not available.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system.
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Skin contact	Dust or powder may irritate the skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Not available.
Symptoms	Dusts may irritate the respiratory tract, skin and eyes.
Information on toxicological effects	
Acute toxicity	Not available.
Respiratory or skin sensitization	
ACGIH sensitization	
HARD METALS CONTAINING COBALT AND TUNGSTEN CARBIDE, THORACIC FRACTION, AS CO (CAS 7440-48-4)	Respiratory sensitization
Respiratory sensitization	Not available.
Skin sensitization	Not available.
Germ cell mutagenicity	Not available.
Carcinogenicity	Risk of cancer cannot be excluded with prolonged exposure.
ACGIH Carcinogens	
Cobalt (CAS 7440-48-4)	A2 Suspected human carcinogen. A3 Confirmed animal carcinogen with unknown relevance to humans.
IARC Monographs. Overall Evaluation of Carcinogenicity	
Cobalt (CAS 7440-48-4)	2B Possibly carcinogenic to humans.
Reproductive toxicity	Not available.
Specific target organ toxicity - single exposure	Not available.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Not available.
Chronic effects	Prolonged exposure may cause chronic effects.
12. Ecological information	
Ecotoxicity	No ecotoxicity data noted for the ingredient(s).
Persistence and degradability	Not available.
Bioaccumulation	Not available.
Mobility in soil	Not available.
Other hazardous effects	Not available.
13. Disposal considerations	
Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
Local disposal regulations	Dispose in accordance with all applicable regulations.
14. Transport information	
IATA	
Not regulated as dangerous goods.	
IMDG	
Not regulated as dangerous goods.	
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.

15. Regulatory information

Applicable regulations

Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste

Not listed.

Standards on Workplace Atmosphere of Dangerous and Hazardous Materials

Cobalt (CAS 7440-48-4)

Listed.

Hazardous Substances and Flammable Pressurized Gases Establishment Standards and Safety Control Regulations

Iron (CAS 7439-89-6)

Class 2: Flammable Solids

GHS Classification List: GHS implementation phase 1, 2 and 3 (CLA No. 0980145063, 0990146707, and 1020146801)

Cobalt (CAS 7440-48-4)

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

16. Other information

References

Not available.

Issued by

Not available.

Prepared by

Not available.

Disclaimer

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02-12-2018

Revision information

Product and Company Identification: Product Review
Composition / Information on Ingredients: Ingredients