



SAFETY DATA SHEET

MATERION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture Iron Cobalt Boron Powder
Synonyms None.
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1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Not available.
Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Advanced Materials Group
Address 42 Mt. Ebo Road South
Brewster, NY 10509
United States
Division
Telephone Supplier Phone 1+845.279.0900
e-mail Not available.
Contact person Not available.

1.4. Emergency telephone number Chemtrec 1+703.527.3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Respiratory sensitisation Category 1
Skin sensitisation Category 1
Carcinogenicity Category 2

Environmental hazards

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

Hazard summary Exposure to powder or dusts may be irritating to eyes, nose and throat. Prolonged exposure may cause chronic effects.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Boron, Cobalt, Iron

Hazard pictograms None.

Signal word None.

Hazard statements 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 statements

Prevention Not available.

Response Not available.

Storage Not available.

Disposal Not available.

Supplemental label information None.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Iron	40 - 99,9	7439-89-6 231-096-4	-	-	
Classification:	-				
Cobalt	1,0 - 49,9	7440-48-4 231-158-0	-	027-001-00-9	
Classification:	Skin Sens. 1;H317, Resp. Sens. 1;H334, Carc. 2;H351, Aquatic Chronic 4;H413				
Boron	0,1 - 50	7440-42-8 231-151-2	-	-	
Classification:	-				

SECTION 4: First aid measures

General information Not available.

4.1. Description of first aid measures

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.

4.2. Most important symptoms and effects, both acute and delayed Dusts may irritate the respiratory tract, skin and eyes.

4.3. Indication of any immediate medical attention and special treatment needed Not available.

SECTION 5: Firefighting measures

General fire hazards Not available.

5.1. Extinguishing media

Suitable extinguishing media Powder. Dry sand.
Unsuitable extinguishing media Use class D extinguishing agents, dry sand or sodium chloride on fire.

5.2. Special hazards arising from the substance or mixture Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters Not available.
Special firefighting procedures Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS.
For emergency responders Not available.

6.2. Environmental precautions Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

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. For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

6.4. Reference to other sections

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Practice good housekeeping.

7.2. Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. TRK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	STEL	0,4 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m ³	Dust and fume.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m ³	
Iron (CAS 7439-89-6)	TWA	6 mg/m ³	Inhalable fraction.

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value
Cobalt (CAS 7440-48-4)	MAC	0,1 mg/m ³

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m ³	Dust and fume.

Czech Republic. OELs. Government Decree 361

Components	Type	Value
Cobalt (CAS 7440-48-4)	Ceiling	0,1 mg/m ³
	TWA	0,05 mg/m ³
Iron (CAS 7439-89-6)	TWA	10 mg/m ³

Denmark. Exposure Limit Values

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TLV	0,01 mg/m ³	Dust and fume.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m ³

Finland. Workplace Exposure Limits

Components	Type	Value
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m ³

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Boron (CAS 7440-42-8)	TWA	0,75 mg/m3	Inhalable fraction.
Greece. OELs (Decree No. 90/1999, as amended)			
Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m3	Dust and fume.
Hungary. OELs. Joint Decree on Chemical Safety of Workplaces			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	STEL	0,4 mg/m3	
	TWA	0,1 mg/m3	
Iceland. OELs. Regulation 154/1999 on occupational exposure limits			
Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	Dust and fume.
Ireland. Occupational Exposure Limits			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m3	
Italy. Occupational Exposure Limits			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	
Latvia. OELs. Occupational exposure limit values of chemical substances in work environment			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,5 mg/m3	
Lithuania. OELs. Limit Values for Chemical Substances, General Requirements			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m3	
Netherlands. OELs (binding)			
Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	Dust and fume.
Norway. Administrative Norms for Contaminants in the Workplace			
Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TLV	0,02 mg/m3	Fume.
Poland. MACs. Regulation regarding maximum permissible concentrations and intensities of harmful factors in the work environment, Annex 1			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	
Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m3	
Romania. OELs. Protection of workers from exposure to chemical agents at the workplace			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	STEL	0,1 mg/m3	
	TWA	0,05 mg/m3	
Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents			
Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m3	
Iron (CAS 7439-89-6)	TWA	6 mg/m3	
Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)			
Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m3	Inhalable fraction.

Spain. Occupational Exposure Limits

Components	Type	Value
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m ³

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m ³	Inhalable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m ³	Dust/aerosol, inhalable.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m ³

Biological limit values**Finland. HTP-arvot, App 2., Biological Limit Values, (BRA/BGV) , Social Affairs and Ministry of Health**

Components	Value	Determinant	Specimen	Sampling time
Cobalt (CAS 7440-48-4)	130 nmol/l	Cobalt	Urine	*

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

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)

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

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

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

Components	Value	Determinant	Specimen	Sampling time
Cobalt (CAS 7440-48-4)	0,03 mg/g	Cobalt	Creatinine in urine	*
	0,058 µmol/mmol	Cobalt	Creatinine in urine	*

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

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling time
Cobalt (CAS 7440-48-4)	20,03 µg/g	Cobalt	Creatinine in urine	*
	30 µg/l	Cobalt	Urine	*

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

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling time
Cobalt (CAS 7440-48-4)	15 µg/l	Cobalto	Urine	*
	1 µg/l	Cobalto	Blood	*

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

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Determinant	Specimen	Sampling time
Cobalt (CAS 7440-48-4)	30 µg/l	Cobalt	Urine	*

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

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no effect levels (DNELs)

Not available.

Predicted no effect concentrations (PNECs)

Not available.

8.2. Exposure controls**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.

Individual protection measures, such as personal protective equipment

General information	Not available.
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
- Hand protection	Not available.
- Other	Not available.
Respiratory protection	Wear respirator with dust filter.
Thermal hazards	Not available.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
Environmental exposure controls	Not available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Not available.
Form	Liquid. Powder.
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	1495 °C (2723 °F) estimated
Initial boiling point and boiling range	2861 °C (5181,8 °F) estimated
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	0,00001 hPa estimated
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	580 °C (1076 °F) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information

Density	2,36 g/cm ³ estimated
Specific gravity	2,36 estimated

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Not available.
10.3. Possibility of hazardous reactions	Not available.
10.4. Conditions to avoid	Contact with incompatible materials.

10.5. Incompatible materials Strong oxidising agents.

10.6. Hazardous decomposition products Not available.

SECTION 11: Toxicological information

General information Not available.

Information on likely routes of exposure

Inhalation Dust may irritate respiratory system.

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.

11.1. Information on toxicological effects

Acute toxicity No data available.

Skin corrosion/irritation Not available.

Serious eye damage/eye irritation Not available.

Respiratory sensitisation Not available.

Skin sensitisation Not available.

Germ cell mutagenicity Not available.

Carcinogenicity Risk of cancer cannot be excluded with prolonged exposure.

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

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.

Mixture versus substance information Not available.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity No toxicity data noted for the ingredient(s).

12.2. Persistence and degradability Not available.

12.3. Bioaccumulative potential Not available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil Not available.

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects Not available.

12.7. Additional information

Estonia Dangerous substances in groundwater Data

Boron (CAS 7440-42-8)

Boron (B) 2000 UG/L

Boron (B) 500 UG/L

Cobalt (CAS 7440-48-4)

Cobalt (Co) 300 UG/L

Cobalt (Co) 5 UG/L

Estonia Dangerous substances in soil Data

Boron (CAS 7440-42-8)

Boron (B) 100 mg/kg

Cobalt (CAS 7440-48-4)

Boron (B) 30 mg/kg
Boron (B) 500 mg/kg
Cobalt (Co) 20 mg/kg
Cobalt (Co) 300 mg/kg
Cobalt (Co) 50 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

National regulations

Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

Not available.

SECTION 16: Other information

List of abbreviations

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

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