



# SAFETY DATA SHEET

**MATERION**

## 1. Product and company identification

Name of the chemical	Cobalt
Other means of identification	
SDS number	G69
Recommended use of the chemical and restrictions on use	
Recommended use	Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment
Recommended restrictions	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)
Manufacturer/Importer/Supplier/ Distributor information	Materion Electronic Materials
Address	6070 Parkland Boulevard Mayfield Heights OH 44124 United States
Telephone	EH&S 1.216.383.4019
E-mail	ehs@materion.com
Contact person	Theodore Knudson
Emergency telephone number	See Section 16.

## 2. Hazards identification

Hazard classification	
Physical hazards	Not classified.
Health hazards	Sensitization, respiratory Category 1 Sensitization, skin Category 1 Reproductive toxicity Category 2
Environmental hazards	Hazardous to the aquatic environment, long-term hazard Category 4

### Label elements

#### Symbols



#### Signal word

Danger

#### Hazard statement

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause long lasting harmful effects to aquatic life.

#### Precautionary statement

##### Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wash thoroughly after handling. In case of inadequate ventilation wear respiratory protection.

##### Response

If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. Wash hands after handling. Wash contaminated clothing before reuse.

##### Storage

Store locked up.

##### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Other hazards

None known.

#### Supplemental information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

### 3. Composition/information on ingredients

#### Substance

Chemical name	CAS Number	Concentration (%)
Cobalt	7440-48-4	99.99

### 4. First aid measures

#### First aid measures for different exposure routes

**Inhalation** If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a poison center or doctor/physician.

**Skin contact** Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.

**Eye contact** Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion** Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms and effects** May cause respiratory irritation. May cause an allergic skin reaction.

**Personal protection for first-aid responders** IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

**Notes to physician** Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

### 5. Fire-fighting measures

**Extinguishing media** Water fog. Foam. Dry chemical powder. Dry sand. Carbon dioxide (CO<sub>2</sub>).

**Extinguishing media to avoid** Water.

**Specific hazards during fire fighting** This product is not flammable.

**Special fire fighting procedures** In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

**Protection of fire-fighters** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

**General fire hazards** No unusual fire or explosion hazards noted.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

### 6. Accidental release measures

**Personal precautions** Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

**Environmental precautions** Prevent further leakage or spillage if safe to do so.

**Spill cleanup methods** Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13 of the SDS.

### 7. Handling and storage

**Handling** Observe good industrial hygiene practices.

**Storage** Store away from incompatible materials (see Section 10 of the PIS).

## 8. Exposure controls/personal protection

### Exposure limits

#### OEIs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Material	Type	Value	Form
Cobalt	STEL	0.15 mg/m <sup>3</sup>	Dust and fume.
	TWA	0.05 mg/m <sup>3</sup>	Dust and fume.
Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	STEL	0.15 mg/m <sup>3</sup>	Dust and fume.
	TWA	0.05 mg/m <sup>3</sup>	Dust and fume.

#### US. ACGIH Threshold Limit Values

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

### Biological limit values

#### ACGIH Biological Exposure Indices

Material	Value	Determinant	Specimen	Sampling Time
Cobalt	15 µg/l	Cobalt	Urine	*
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** Not available.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear approved safety glasses, goggles, face shield and/or welder's helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume.

#### Skin protection

**Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.

**Other** Wear suitable protective clothing.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**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** Solid.

**Form** Solid.

**Color** Gray-silver

**Odor** None.

**Odor threshold** Not applicable.

**Melting point/freezing point** 2723 °F (1495 °C) / Not applicable.

**pH** Not applicable.

**Boiling point, initial boiling point, and boiling range** 5300.6 °F (2927 °C)

**Flammability (solid, gas)** None known.

**Flash point** Not applicable.

**Decomposition temperature** Not applicable.

**Auto-ignition temperature** Not applicable.

### Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not applicable.
Flammability limit - lower (%) temperature	Not applicable.
Flammability limit - upper (%)	Not applicable.
Flammability limit - upper (%) temperature	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.

Vapor pressure Not applicable.

Vapor density Not applicable.

Density Not applicable.

### Solubility(ies)

Solubility (water) Insoluble

Partition coefficient (n-octanol/water) Not applicable.

Evaporation rate Not applicable.

### Other data

Explosive properties Not explosive.

Molecular formula Co

Molecular weight 58.93 g/mol

Oxidizing properties Not oxidizing.

Relative density Not applicable.

Viscosity Not applicable.

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Contact with incompatible materials.

**Incompatible materials** Strong oxidizing agents.

**Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

**Inhalation** May cause sensitization by inhalation.

**Skin contact** May cause sensitization by skin contact.

**Eye contact** Not likely, due to the form of the product.

**Ingestion** Expected to be a low ingestion hazard.

**Symptoms** May cause respiratory irritation. May cause an allergic skin reaction.

### Information on toxicological effects

**Acute toxicity** Not known.

**Skin corrosion/irritation** May be irritating to the skin.

<b>Serious eye damage/eye irritation</b>	Not likely, due to the form of the product.
<b>Respiratory or skin sensitization</b>	
<b>ACGIH sensitization</b>	
Cobalt and inorganic compounds, as Co (CAS 7440-48-4)	<p>Dermal sensitization</p> <p>Respiratory sensitization</p>
<b>Respiratory sensitization</b>	May cause sensitization by inhalation.
<b>Skin sensitization</b>	May cause sensitization by skin contact.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	Not classifiable as to carcinogenicity to humans.

#### ACGIH Carcinogens

Cobalt (CAS 7440-48-4)	<p>A2 Suspected human carcinogen.</p> <p>A3 Confirmed animal carcinogen with unknown relevance to humans.</p>
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#### IARC Monographs. Overall Evaluation of Carcinogenicity

Cobalt (CAS 7440-48-4)	2B Possibly carcinogenic to humans.
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<b>Reproductive toxicity</b>	Not classified.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not an aspiration hazard.
<b>Chronic effects</b>	May cause allergic respiratory and skin reactions.

## 12. Ecological information

<b>Ecotoxicity</b>	May cause long lasting harmful effects to aquatic life.
<b>Persistence and degradability</b>	No data is available on the degradability of this substance.
<b>Bioaccumulation</b>	No data available.
<b>Mobility in soil</b>	The product is immiscible with water and will spread on the water surface.
<b>Other hazardous effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Residual waste</b>	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).
<b>Contaminated packaging</b>	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.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.

## 14. Transport information

<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.

## 15. Regulatory information

### Applicable regulations

Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste  
Regulations for the Labeling and Hazard Communication of Hazardous Chemicals  
Toxic Chemical Substances Control Act  
Toxic Chemical Substances Labeling and Materials Safety Data Sheets Regulations  
This material safety data sheet was prepared in accordance with the Regulation of Labeling and Hazard Communication of Hazardous Chemicals.

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

Not listed.

#### Priority Management Chemical List (Regulations on Handling Priority Managed Chemicals), as amended

Cobalt (CAS 7440-48-4)

#### Toxic Chemical Substances (TCS) List (EPA Toxic Substances Notice No. 0960095331E, Tables 1-3, Dec. 17, 2007, as amended)

Not listed.

#### Standards on Workplace Atmosphere of Dangerous and Hazardous Materials

Cobalt (CAS 7440-48-4)

Listed.

#### 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.

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

### References

ACGIH  
EPA: AQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)  
Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)  
Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)  
Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)  
Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)

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### Prepared by

Not available.

### Further information

Transportation Emergency  
Call Chemtrec at:  
US: 800.424.9300  
International: 703.741.5970  
Spain: 900.868.538  
Switzerland: 0800.564.402  
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059  
South Korea Toll-free Number – 080-880-0468