



SAFETY DATA SHEET

MATERION

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

1.1. Product identifier

Name of the substance Cobalt oxide (CoO)
Identification number 027-002-00-4 (Index number)
Synonyms None.
Materion Code C-MSDS0061
Issue date 16-April-2015
Version number 03
Revision date 02-November-2016
Supersedes date 23-April-2015

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 Chemicals Inc.
Address 407 N. 13th Street
1316 W. St. Paul Avenue
Milwaukee, WI 53233
United States
Division Milwaukee
Telephone 414.212.0257
e-mail advancedmaterials@materion.com
Contact person Noreen Atkinson

1.4. Emergency telephone number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Health hazards

Acute toxicity, oral Category 4
Skin sensitisation Category 1
Carcinogenicity Category 2

H317 - May cause allergic skin reaction.

H351 - Suspected of causing cancer.

Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard Category 1 M-factor = 10.
Hazardous to the aquatic environment, long-term aquatic hazard Category 1 M-factor = 10.

H410 - Very toxic to aquatic life with long lasting effects.

Hazard summary Not available.

2.2. Label elements

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

Contains: Cobalt Oxide

Hazard pictograms



Signal word Danger

Hazard statements

H301	Toxic if swallowed.
H317	May cause allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P280	Observe good industrial hygiene practices.
P270	Wear protective gloves/protective clothing/eye protection/face protection.
P285	Do not eat, drink or smoke when using this product.
P261	In case of inadequate ventilation wear respiratory protection.
	Avoid breathing dust.

Response

P301 + P312	IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P391	Collect spillage.
P363	Wash contaminated clothing before reuse.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P308 + P313	IF exposed or concerned: Get medical advice/attention.

Storage

Store away from incompatible materials.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Supplemental label information

None.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Cobalt Oxide	100	1307-96-6 215-154-6	-	027-002-00-4	M=10
Classification:	Acute Tox. 3;H301, Skin Sens. 1;H317, Resp. Sens. 1;H334, Carc. 2;H351, Aquatic Chronic 1;H410				

SECTION 4: First aid measures

General information Not available.

4.1. Description of first aid measures

Inhalation	Breathing difficulty caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help. Call a physician or poison control centre immediately. Move to fresh air.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Call a physician or poison control centre immediately. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.
Ingestion	Rinse mouth thoroughly. Call a physician or poison control centre immediately.

4.2. Most important symptoms and effects, both acute and delayed

Not available.

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	Carbon dioxide (CO ₂). Dry chemical powder. Foam.
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Unsuitable extinguishing media Not available.

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

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid inhalation of dust. Keep upwind. Local authorities should be advised if significant spillages cannot be contained. Ventilate closed spaces before entering them.

For emergency responders Not available.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up Not available.

6.4. Reference to other sections Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Not available.

7.2. Conditions for safe storage, including any incompatibilities Not available.

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

Material	Type	Value	Form
Cobalt Oxide (CAS 1307-96-6)	STEL	0,4 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.

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

Material	Type	Value
Cobalt Oxide (CAS 1307-96-6)	TWA	0,1 mg/m ³

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

Material	Type	Value
Cobalt Oxide (CAS 1307-96-6)	MAC	0,1 mg/m ³

Czech Republic. OELs. Government Decree 361

Material	Type	Value
Cobalt Oxide (CAS 1307-96-6)	Ceiling	0,1 mg/m ³
	TWA	0,05 mg/m ³

Denmark. Exposure Limit Values

Material	Type	Value
Cobalt Oxide (CAS 1307-96-6)	TLV	0,01 mg/m ³

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

Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,05 mg/m3	
Finland. Workplace Exposure Limits			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,02 mg/m3	
Greece. OELs (Decree No. 90/1999, as amended)			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,1 mg/m3	
Hungary. OELs. Joint Decree on Chemical Safety of Workplaces			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	STEL	0,4 mg/m3	
	TWA	0,1 mg/m3	
Iceland. OELs. Regulation 154/1999 on occupational exposure limits			
Material	Type	Value	Form
Cobalt Oxide (CAS 1307-96-6)	TWA	0,02 mg/m3	Dust and fume.
Ireland. Occupational Exposure Limits			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,1 mg/m3	
Italy. Occupational Exposure Limits			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,02 mg/m3	
Latvia. OELs. Occupational exposure limit values of chemical substances in work environment			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,5 mg/m3	
Lithuania. OELs. Limit Values for Chemical Substances, General Requirements			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,05 mg/m3	
Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,02 mg/m3	
Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,02 mg/m3	
Romania. OELs. Protection of workers from exposure to chemical agents at the workplace			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	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			
Material	Type	Value	
Cobalt Oxide (CAS 1307-96-6)	TWA	0,05 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)

Material	Type	Value	Form
Cobalt Oxide (CAS 1307-96-6)	TWA	0,1 mg/m ³	Inhalable fraction.

Spain. Occupational Exposure Limits

Material	Type	Value
Cobalt Oxide (CAS 1307-96-6)	TWA	0,02 mg/m ³

Sweden. Occupational Exposure Limit Values

Material	Type	Value	Form
Cobalt Oxide (CAS 1307-96-6)	TWA	0,02 mg/m ³	Inhalable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value	Form
Cobalt Oxide (CAS 1307-96-6)	TWA	0,05 mg/m ³	Dust/aerosol, inhalable.

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value
Cobalt Oxide (CAS 1307-96-6)	TWA	0,1 mg/m ³

Biological limit values

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

Material	Value	Determinant	Specimen	Sampling time
Cobalt Oxide (CAS 1307-96-6)	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

Material	Value	Determinant	Specimen	Sampling time
Cobalt Oxide (CAS 1307-96-6)	0,03 mg/g	Cobalt	Creatinine in urine	*
	0,058 µmol/mmol	Cobalt	Creatinine in urine	*

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

Recommended monitoring procedures Not available.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Not available.

Individual protection measures, such as personal protective equipment

General information Not available.

Eye/face protection Not available.

Skin protection

- **Hand protection** Not available.

- **Other** Not available.

Respiratory protection Not available.

Thermal hazards Not available.

Hygiene measures Not available.

Environmental exposure controls Not available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Solid.
Form	Not available.
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	1935 °C (3515 °F)
Initial boiling point and boiling range	Not available.
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	< 0,0000001 kPa at 25 °C
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Solubility (other)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information

Density	5,70 g/cm ³ estimated
Molecular formula	Co-O
Molecular weight	74,93 g/mol
Specific gravity	5,7 - 6,7

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	Not available.
10.5. Incompatible materials	Not available.
10.6. Hazardous decomposition products	Not available.

SECTION 11: Toxicological information

General information	Not available.
Information on likely routes of exposure	
Inhalation	Not available.
Skin contact	Not available.
Eye contact	Not available.

Ingestion	Not available.
Symptoms	Not available.

11.1. Information on toxicological effects

Product	Species	Test results
Cobalt Oxide (CAS 1307-96-6)		
Acute		
Oral		
LD50	Rat	202 mg/kg
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		
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 Oxide (CAS 1307-96-6)	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.

SECTION 13: Disposal considerations

13.1. Waste treatment methods	
Residual waste	Not available.
Contaminated packaging	Not available.
EU waste code	Not available.

SECTION 14: Transport information

ADR

14.1. UN number	UN3288
14.2. UN proper shipping name	Toxic solid, inorganic, n.o.s.
14.3. Transport hazard class(es)	
Class	6.1(PGIII)

Subsidiary risk	-
Label(s)	6.1
Hazard No. (ADR)	60
Tunnel restriction code	E
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not available.

RID

14.1. UN number	UN3288
14.2. UN proper shipping name	Toxic solid, inorganic, n.o.s.
14.3. Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not available.

ADN

14.1. UN number	UN3288
14.2. UN proper shipping name	Toxic Solid, N.o.s.
14.3. Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not available.

IATA

14.1. UN number	UN3288
14.2. UN proper shipping name	Toxic solid, inorganic, n.o.s.
14.3. Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	No.
ERG Code	6L
14.6. Special precautions for user	Not available.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

14.1. UN number	UN3288
14.2. UN proper shipping name	TOXIC SOLID, INORGANIC, N.O.S.
14.3. Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-A

14.6. Special precautions for user Not available.

ADN; ADR; IATA; IMDG; RID



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
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 Annex XVII Substances subject to restriction on marketing and use
Not regulated.

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
Cobalt Oxide (CAS 1307-96-6)

National regulations Not available.

15.2. Chemical safety assessment Not available.

SECTION 16: Other information

List of abbreviations Not available.

References Not available.

**Information on evaluation
method leading to the
classification of mixture**

Not available.

Training information

Not available.