



EOS CobaltChrome MP1

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: : 7/03/2023 Version: 5.1

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

1.1. Product identifier

Product form : Mixture
Trade name : EOS CobaltChrome MP1
Product code : 9011-0012
Type of product : Alloy, Powder
UFI : 5FJ9-UP9R-AC8U-J88V

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Industrial use
Use of the substance/mixture : Cobalt-based metal powder for DMLS processes in EOS M systems

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Electro Optical Systems Finland Oy
Lemminkäisenkatu 36
20520 Turku
FINLAND
T +358 (0) 20 765 9144/9147 - F +358 (0) 20 765 9141
MSDSInfo@eos.info - <https://www.eos.info/>

1.4. Emergency telephone number

Emergency number : +49 (0) 89 / 893 36 - 0 (8 am - 5 pm); +49 (0) 89 / 893 36 - 151 (Mon-Thurs 9 am - 12 pm & 1 pm - 6 pm; Fri 1 pm - 4 pm (CET))

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4	H302
Serious eye damage/eye irritation, Category 2	H319
Respiratory sensitisation, Category 1	H334
Skin sensitisation, Category 1	H317
Germ cell mutagenicity, Category 2	H341
Carcinogenicity, Category 1B	H350
Reproductive toxicity, Category 1B	H360F
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 1	H410

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II)

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS07

GHS08

GHS09

Signal word (CLP)

: Danger

Contains

: Cobalt

Hazard statements (CLP)

: H302 - Harmful if swallowed.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 - Suspected of causing genetic defects.
H350 - May cause cancer.
H360F - May damage fertility.
H410 - Very toxic to aquatic life with long lasting effects.

: P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust, mist.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P272 - Contaminated work clothing should not be allowed out of the workplace.

Precautionary statements (CLP)

2.3. Other hazards

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

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According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II)

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Cobalt	CAS-No.: 7440-48-4 EC-No.: 231-158-0 EC Index-No.: 027-001-00-9 REACH-no: 01-2119517392-44	60 – 65	Eye Irrit. 2, H319 Acute Tox. 4, H302 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350 Repr. 1B, H360F Aquatic Acute 1, H400 <i>M-factor: 10</i> Aquatic Chronic 1, H410 <i>M-factor: 1</i>
Chromium	CAS-No.: 7440-47-3 EC-No.: 231-157-5 REACH-no: 01-2119485652-31	27 – 30	Not classified
Molybdenum	CAS-No.: 7439-98-7 EC-No.: 231-107-2 REACH-no: 01-2119472304-43	5 – 7	Not classified
Silicon	CAS-No.: 7440-21-3 EC-No.: 231-130-8 REACH-no: 01-2119480401-47	0.6 – 1.0	Not classified
Manganese	CAS-No.: 7439-96-5 EC-No.: 231-105-1 REACH-no: 01-2119449803-34	0.67 – 0.9	Not classified
Nickel	CAS-No.: 7440-02-0 EC-No.: 231-111-4 EC Index-No.: 028-002-00-7 REACH-no: 01-2119438727-29	0 – 0.1	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Chronic 3, H412

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation	: Allow victim to breathe fresh air. Allow the victim to rest. Immediately call a POISON CENTER/doctor.
First-aid measures after skin contact	: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash contaminated clothing before reuse. Get medical advice/attention.
First-aid measures after eye contact	: Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

Symptoms/effects	: May damage fertility or the unborn child. May cause cancer. Suspected of causing genetic defects.
Symptoms/effects after inhalation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Symptoms/effects after skin contact	: May cause an allergic skin reaction.

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Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry powder. Sand.
Unsuitable extinguishing media : Carbon dioxide. Foam. Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Fine dust clouds may form flammable/explosive mixtures with air.
Hazardous decomposition products in case of fire : Compounds of Nickel, Chromium and Cobalt.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection. Refer to section 8.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid all unnecessary exposure. Avoid contact with skin, eyes and clothing. Avoid dust formation.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment. Refer to section 8.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials. Take up large spills with pump or vacuum. Collect spill using a vacuum cleaner with a HEPA filter or wet and scoop up dry spills.

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Take precautionary measures to prevent the formation of static electricity. Keep away from ignition sources. No smoking.

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According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II)

Precautions for safe handling	: Avoid dust formation. Avoid contact with skin and eyes. Avoid breathing dust, mist or spray. Obtain special instructions before use. Provide adequate ventilation to minimize dust and/or vapour concentrations. Do not handle until all safety precautions have been read and understood.
Hygiene measures	: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Do not breathe dust. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Keep only in the original container in a cool, well ventilated place. Keep container closed when not in use. Store locked up.
Incompatible products	: Explosive substances and articles. Mineral acids. Fluorine (F). Ammonium nitrate (AN). Hydrazine. Performic acid (CH ₂ O ₃). Sulphur. Potassium chlorate. Strong bases. Strong acids.
Incompatible materials	: Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Cobalt (7440-48-4)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	0.1 mg/m ³
WEL STEL (OEL STEL)	0.3 mg/m ³ (calculated)
WEL chemical category	Capable of causing cancer and/or heritable genetic damage, Capable of causing occupational asthma
Nickel (7440-02-0)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Nickel metal
IOEL TWA	0.005 mg/m ³ (respirable fraction) 0.01 mg/m ³ (inhalable fraction)
Remark	SCOEL Recommendations (2011) (Year of adoption 2011)
Regulatory reference	SCOEL Recommendations
EU - Biological Limit Value (BLV)	
Local name	Nickel and nickel compounds
Regulatory reference	SCOEL List of recommended health-based BLVs and BGVs
United Kingdom - Occupational Exposure Limits	
Local name	Nickel
WEL TWA (OEL TWA) [1]	0.1 mg/m ³ and its inorganic compounds (except nickel tetracarbonyl), water-soluble nickel compounds (as Ni) 0.5 mg/m ³ and its inorganic compounds (except nickel tetracarbonyl), nickel and water insoluble nickel compounds (as Ni)

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Nickel (7440-02-0)	
Remark	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity), Carc (nickel oxides and sulphides)(Capable of causing cancer and/or heritable genetic damage. See paragraphs 49–51), Sen (nickel sulphate)(Capable of causing occupational asthma. See paragraphs 53–56)
Regulatory reference	EH40. HSE
Chromium (7440-47-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Chromium metal
IOEL TWA	2 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
United Kingdom - Occupational Exposure Limits	
Local name	Chromium
WEL TWA (OEL TWA) [1]	0.5 mg/m ³
WEL STEL (OEL STEL)	1.5 mg/m ³ (calculated)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
United Kingdom - Biological limit values	
Local name	Chromium VI
BMGV	10 µmol/mol creatinine Parameter: chromium - Medium: urine - Sampling time: Post shift
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Molybdenum (7439-98-7)	
United Kingdom - Occupational Exposure Limits	
Local name	Molybdenum
WEL TWA (OEL TWA) [1]	10 mg/m ³ insoluble compounds (as Mo) 5 mg/m ³ soluble compounds (as Mo)
WEL STEL (OEL STEL)	20 mg/m ³ insoluble compounds (as Mo) 10 mg/m ³ soluble compounds (as Mo)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Silicon (7440-21-3)	
United Kingdom - Occupational Exposure Limits	
Local name	Silicon
WEL TWA (OEL TWA) [1]	10 mg/m ³ (inhalable dust) 4 mg/m ³ (respirable dust)
WEL STEL (OEL STEL)	12 mg/m ³ (calculated-respirable dust)
WEL STEL (OEL STEL) [ppm]	30 ppm (calculated-inhalable dust)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Manganese (7439-96-5)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Manganese

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According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II)

Manganese (7439-96-5)	
IOEL TWA	0.2 mg/m ³ (inhalable fraction) 0.05 mg/m ³ (respirable fraction) 0.2 mg/m ³ (inhalable fraction) 0.05 mg/m ³ (respirable fraction)
Remark	(Year of adoption 2011)
Regulatory reference	SCOEL Recommendations
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	0.2 mg/m ³ 0.05 mg/m ³
WEL STEL (OEL STEL)	0.6 mg/m ³ (calculated-inhalable fraction) 0.15 mg/m ³ (calculated-respirable fraction)

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

DNEL/DMEL (Workers)	
Acute – systemic effects, inhalation	680 mg/m ³ Nickel
Acute – local effects, inhalation	4 mg/m ³ Nickel
Long-term – local effects, dermal	0.035 mg/cm ² Nickel
Long-term – systemic effects, inhalation	0.05 mg/m ³ Nickel
Long-term – local effects, inhalation	0.05 mg/m ³ Nickel
Long-term – systemic effects, inhalation	0.04 mg/m ³ Cobalt
DNEL/DMEL (Consumer)	
Acute – systemic effects, inhalation	408 mg/m ³ Nickel
Acute – local effects, inhalation	2.4 mg/m ³ Nickel
Acute – oral	0.012 mg/kg/day Nickel
Long-term – local effects, dermal	0.035 mg/cm ² Nickel
Long-term – systemic effects, inhalation	20 ng/m ³ Nickel
Long-term – local effects, inhalation	20 ng/m ³ Nickel
Long-term – systemic effects, oral	0.02 mg/kg/day Nickel
Long-term – local effects, inhalation	0.0063 mg/m ³ Cobalt
Long-term – systemic effects, oral	0.0095 mg/kg/day Cobalt
PNEC (Water)	
PNEC aqua (freshwater)	0.00051 mg/l Cobalt
PNEC aqua (marine water)	0.00236 mg/l Cobalt
PNEC (Sediment)	
PNEC sediment (freshwater)	9.5 mg/kg dwt Cobalt
PNEC sediment (marine water)	9.5 mg/kg dwt Cobalt
PNEC (Soil)	
PNEC soil	10.9 mg/kg dwt Cobalt
PNEC (Sewage treatment plant)	
PNEC sewage treatment plant	0.37 mg/l Cobalt

8.1.5. Control banding

No additional information available

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8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Dust must be extracted directly at the point of origin. Use only in well-ventilated areas.

8.2.2. Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Wear eye glasses with side protection according to EN 166. Chemical goggles or safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing. ESD according to EN 61340-4-3 or equivalent.

Hand protection:

In case of repeated or prolonged contact wear gloves. Chemical resistant gloves (according to European standard NF EN 374 or equivalent).
Appropriate material: butyl rubber; nitrile rubber.

8.2.2.3. Respiratory protection

Respiratory protection:

Wear suitable respiratory protective device with particle filter. In case of inadequate ventilation wear respiratory protection.

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Grey
Appearance	: Powder
Odour	: Odourless
Odour threshold	: Not applicable
Melting point	: Not available
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Non flammable
Explosive properties	: Not explosive
Oxidising properties	: Not oxidizing
Explosive limits	: Not applicable
Lower explosion limit	: Not applicable
Upper explosion limit	: Not applicable
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not applicable
pH	: Not available
pH solution	: Not available

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Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: Not applicable
Solubility	: Insoluble in water
Partition coefficient n-octanol/water (Log Kow)	: Not available
Partition coefficient n-octanol/water (Log Pow)	: Not applicable
Vapour pressure	: Not available
Vapour pressure at 50 °C	: Not available
Density	: 4 – 4.7 g/cm ³
Relative density	: Not available
Relative vapour density at 20 °C	: Not available
Particle size	: Not available
Particle size distribution	: 16 - 51 µm
Particle shape	: Spherical
Particle aspect ratio	: Not available
Particle aggregation state	: Not available
Particle agglomeration state	: Not available
Particle specific surface area	: Not available
Particle dustiness	: Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

Relative evaporation rate (butylacetate=1) : Not available

SECTION 10: Stability and reactivity

10.1. Reactivity

Spontaneously flammable when finely dispersed.

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Hydrogen gas may be released in contact with mineral acids.

10.4. Conditions to avoid

Ignition sources. Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Explosive substances and articles. Mineral acids. Fluorine (F). Ammonium nitrate. Hydrazine. Performic acid (CH₂O₃). Sulphur. Potassium chlorate. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

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ATE CLP (oral)	500 mg/kg bodyweight
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Cobalt (7440-48-4)	
LD50 oral rat	550 mg/kg
LC50 Inhalation - Rat	> 10 mg/l (Exposure time: 1 h)
Chromium (7440-47-3)	
LD50 oral rat	> 5000 mg/kg Source: ECHA
LC50 Inhalation - Rat	> 5.41 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
LC50 Inhalation - Rat (Dust/Mist)	> 5.41 mg/l Source: ECHA
Molybdenum (7439-98-7)	
LD50 oral rat	> 2000 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LD50 dermal rabbit	> 2000 mg/kg Source: ECHA
LC50 Inhalation - Rat	> 5.84 mg/l/4h
LC50 Inhalation - Rat (Dust/Mist)	> 3.92 mg/l Source: ECHA
Silicon (7440-21-3)	
LD50 oral rat	3160 mg/kg
LD50 oral	3160 mg/kg
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit
Manganese (7439-96-5)	
LD50 oral rat	9 g/kg
LC50 Inhalation - Rat	> 5.14 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: EU Method B.2 (Acute Toxicity (Inhalation))
LC50 Inhalation - Rat (Dust/Mist)	> 5.14 mg/l Source: ECHA
Skin corrosion/irritation	: Not classified pH: Not available
Additional information	: Based on available data, the classification criteria are not met
Chromium (7440-47-3)	
pH	6.8 Source: The ECOTOXicology database
Serious eye damage/irritation	: Causes serious eye irritation. pH: Not available
Chromium (7440-47-3)	
pH	6.8 Source: The ECOTOXicology database
Respiratory or skin sensitisation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	: Suspected of causing genetic defects.
Carcinogenicity	: May cause cancer.
Cobalt (7440-48-4)	
IARC group	2B - Possibly carcinogenic to humans
Nickel (7440-02-0)	
IARC group	2B - Possibly carcinogenic to humans
Chromium (7440-47-3)	
IARC group	3 - Not classifiable

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Reproductive toxicity : May damage fertility.

Cobalt (7440-48-4)

NOAEL (animal/female, F0/P) 100 mg/kg bodyweight

STOT-single exposure : Not classified

Additional information : Based on available data, the classification criteria are not met

STOT-repeated exposure : Not classified

Additional information : Based on available data, the classification criteria are not met

Nickel (7440-02-0)

STOT-repeated exposure Causes damage to organs through prolonged or repeated exposure.

Chromium (7440-47-3)

LOAEC (inhalation, rat,dust/mist/fume, 90 days) ≥ 0.0044 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)

NOAEL (oral, rat, 90 days) 1216 mg/kg bodyweight/day (Ivankovic, S. and R. Preussman, 1975, Food Cosmet Toxicol.13(3): 347-51)

Molybdenum (7439-98-7)

NOAEC (inhalation, rat, dust/mist/fume, 90 days) > 0.1 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)

Silicon (7440-21-3)

NOAEL (oral, rat, 90 days) > 5000 mg/kg bodyweight Animal: rat, Animal sex: male

Aspiration hazard : Not classified

Additional information : Based on available data, the classification criteria are not met

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Viscosity, kinematic Not applicable

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

11.2.2. Other information

Potential Adverse human health effects and symptoms : Harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) : Very toxic to aquatic life with long lasting effects.

Cobalt (7440-48-4)

LC50 - Fish [1] > 1.512 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

ErC50 algae 0.0241 mg/l Exposure time: 7d

NOEC (chronic) 0.003 mg/l (Exposure time: 28-day, reproduction and survival, Daphnia magna)

NOEC chronic fish 0.003 mg/l (Exposure time: 28-day, reproduction and survival, Daphnia magna)

NOEC chronic crustacea ≤ 0.05 mg/l (Exposure time: 21-day, reproduction and survival, Daphnia magna)

NOEC chronic algae 0.0018 mg/l Exposure time: 7d

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Chromium (7440-47-3)	
LC50 - Fish [1]	13.9 – 210 mg/l Source: GESTIS
EC50 - Crustacea [1]	13.1 – 14.7 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	0.1 – 17.8 mg/l Source: GESTIS
Molybdenum (7439-98-7)	
LC50 - Fish [1]	609.1 mg/l Source: EHCA
EC50 72h - Algae [1]	289.2 mg/l Source: ECHA
Silicon (7440-21-3)	
EC50 72h - Algae [1]	≈ 250 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
Manganese (7439-96-5)	
LC50 - Fish [1]	> 3.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])
EC50 - Crustacea [1]	> 1.6 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	4.5 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	2.8 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
NOEC (chronic)	1.7 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '8 d'

12.2. Persistence and degradability

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Persistence and degradability	The methods for determining biodegradability are not applicable to inorganic substances. May cause long-term adverse effects in the environment.

12.3. Bioaccumulative potential

EOS CobaltChrome MP1	
Partition coefficient n-octanol/water (Log Pow)	Not applicable
Bioaccumulative potential	Not established.

Cobalt (7440-48-4)	
BCF - Fish [1]	(no bioaccumulation)

Molybdenum (7439-98-7)	
Partition coefficient n-octanol/water (Log Pow)	0.23 Source: SRC Access on Jan 2006

Chromium (7440-47-3)	
Partition coefficient n-octanol/water (Log Pow)	0.23 Source: SRC

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

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12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

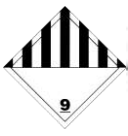



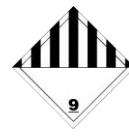
13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3077	UN 3077	UN 3077	UN 3077	UN 3077
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	Environmentally hazardous substance, solid, n.o.s.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Transport document description				
UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III, (E)	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III, MARINE POLLUTANT	UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

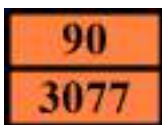
Classification code (ADR) : M7
Special provisions (ADR) : 274, 335, 375, 601
Limited quantities (ADR) : 5kg
Excepted quantities (ADR) : E1

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According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II)

Packing instructions (ADR)	: P002, IBC08, LP02, R001
Special packing provisions (ADR)	: PP12, B3
Mixed packing provisions (ADR)	: MP10
Portable tank and bulk container instructions (ADR)	: T1, BK1, BK2, BK3
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAV, LGBV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V13
Special provisions for carriage - Bulk (ADR)	: VC1, VC2
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13
Hazard identification number (Kemler No.)	: 90
Orange plates	:



Tunnel restriction code (ADR)	: E
EAC code	: 2Z

Transport by sea

Special provisions (IMDG)	: 274, 335, 966, 967, 969
Limited quantities (IMDG)	: 5 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P002, LP02
Special packing provisions (IMDG)	: PP12
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: T1, BK1, BK2, BK3
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-F
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW23

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y956
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 956
PCA max net quantity (IATA)	: 400kg
CAO packing instructions (IATA)	: 956
CAO max net quantity (IATA)	: 400kg
Special provisions (IATA)	: A97, A158, A179, A197
ERG code (IATA)	: 9L

Inland waterway transport

Classification code (ADN)	: M7
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 kg
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, A
Number of blue cones/lights (ADN)	: 0
Additional requirements/Remarks (ADN)	: * Only in the molten state. ** For carriage in bulk see also 7.1.4.1. *** Only in the case of transport in bulk.

Rail transport

Classification code (RID)	: M7
Special provisions (RID)	: 274, 335, 375, 601
Limited quantities (RID)	: 5kg
Excepted quantities (RID)	: E1

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According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II)

Packing instructions (RID)	: P002, IBC08, LP02, R001
Special packing provisions (RID)	: PP12, B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1, BK1, BK2, BK3
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAV, LGBV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W13
Special provisions for carriage – Bulk (RID)	: VC1, VC2
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW31
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 90

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)

Reference code	Applicable on
27.	EOS CobaltChrome MP1 ; Nickel

REACH Annex XIV (Authorisation List)

Contains no REACH Annex XIV substances

REACH Candidate List (SVHC)

Contains no substance on the REACH candidate list

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:

According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II).

Sources of Key data	: Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (et sequens).
Other information	: None.

Full text of H- and EUH-statements:

Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Carc. 1B	Carcinogenicity, Category 1B

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According to Regulation (EU) 2015/830, 2020/878 (REACH Annex II)

Full text of H- and EUH-statements:

Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H360F	May damage fertility.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Muta. 2	Germ cell mutagenicity, Category 2
Repr. 1B	Reproductive toxicity, Category 1B
Resp. Sens. 1	Respiratory sensitisation, Category 1
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Acute Tox. 4 (Oral)	H302	
Eye Irrit. 2	H319	Calculation method
Resp. Sens. 1	H334	Calculation method
Skin Sens. 1	H317	Calculation method
Muta. 2	H341	Calculation method
Carc. 1B	H350	Calculation method
Repr. 1B	H360F	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.