



# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878  
Issue date: 12/27/2018 Revision date: 08/08/2023 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 NickelAlloy IN939  
Product code : 9011-0030  
Type of product : Alloy, Powder  
UFI : 20M9-XPQV-UC8R-FDS1

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

##### 1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial  
Use of the substance/mixture : Heat resistant nickel alloy 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](mailto: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]

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
Specific target organ toxicity – Repeated exposure, Category 1	H372
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

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

##### Adverse physicochemical, human health and environmental effects

No additional information available

#### 2.2. Label elements

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

Hazard pictograms (CLP) :



# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

	GHS08	GHS09
Signal word (CLP)	: Danger	
Contains	: Nickel, Cobalt	
Hazard statements (CLP)	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. H372 - Causes damage to organs through prolonged or repeated exposure. H410 - Very toxic to aquatic life with long lasting effects.	
Precautionary statements (CLP)	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P260 - Do not breathe dust/fume/gas/mist/vapours/spray. 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.	

### 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

### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Nickel	CAS-No.: 7440-02-0 EC-No.: 231-111-4 EC Index-No.: 028-002-00-7 REACH-no: 01-2119438727-29	51 – 54	Carc. 2, H351 STOT RE 1, H372 Skin Sens. 1, H317 Aquatic Chronic 3, H412
Chromium	CAS-No.: 7440-47-3 EC-No.: 231-157-5 REACH-no: 01-2119485652-31	22 – 22.8	Not classified
Cobalt	CAS-No.: 7440-48-4 EC-No.: 231-158-0 EC Index-No.: 027-001-00-9 REACH-no: 01-2119517392-44	18.5 – 19.5	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>
Titanium	CAS-No.: 7440-32-6 EC-No.: 231-142-3 REACH-no: 01-2119484878-14	3.5 – 3.8	Not classified

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Tungsten	CAS-No.: 7440-33-7 EC-No.: 215-231-4;231-143-9 REACH-no: 01-2119488910-30	1.8 – 2.2	Flam. Sol. 1, H228 Self-heat. 2, H252
Aluminum	CAS-No.: 7429-90-5 EC-No.: 231-072-3 EC Index-No.: 013-002-00-1 REACH-no: 01-2119529243-45	1.7 – 2	Flam. Sol. 1, H228 Water-react. 2, H261

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	: Immediately call a POISON CENTER/doctor. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: 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. Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Wash with plenty of water/.... If skin irritation or rash occurs: Specific treatment (see supplemental first aid instruction on this label).
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. 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. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Rinse mouth. Never give anything by mouth to an unconscious person. Obtain emergency medical attention. Do NOT induce vomiting.

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

Symptoms/effects	: Causes damage to organs through prolonged or repeated exposure. May cause cancer. Suspected of causing genetic defects. May damage fertility.
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.
Symptoms/effects after eye contact	: Causes serious eye irritation.

#### 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 sand. Dry extinguishing powder.
Unsuitable extinguishing media	: Carbon dioxide. Water.

#### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire	: Carbon dioxide. Carbon monoxide. Nickel monoxide.
Fire hazard	: Fine dust clouds may form flammable/explosive mixtures with air.

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

### 5.3. Advice for firefighters

- Firefighting instructions : 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.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment : Wear recommended personal protective equipment. Refer to section 8.
- Emergency procedures : Evacuate unnecessary personnel. Keep away from ignition sources.

#### 6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection. refer to section 8.
- 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. Minimise 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 : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Precautions for safe handling : Obtain special instructions before use. Provide adequate ventilation. Avoid dust formation. Handle under inert gas. Use personal protective equipment as required.
- Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Avoid contact with skin and eyes. Do not breathe dust. Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep container closed when not in use. Store tightly closed in a dry, cool and well-ventilated place. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep only in the original container in a cool, well ventilated place away from : Store in a dry place.
- Incompatible products : Strong bases. Strong acids. Strong oxidizing agents. Mineral acids.
- Incompatible materials : Sources of ignition. Direct sunlight. Do not allow contact with water.
- Special rules on packaging : Store in a closed container.

### 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

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

<b>Nickel (7440-02-0)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Nickel metal
IOEL TWA	0.005 mg/m <sup>3</sup> (respirable fraction) 0.01 mg/m <sup>3</sup> (inhalable fraction)
Remark	SCOEL Recommendations (2011) (Year of adoption 2011)
Regulatory reference	SCOEL Recommendations SCOEL Recommendations
<b>EU - Biological Limit Value (BLV)</b>	
Local name	Nickel and nickel compounds
Regulatory reference	SCOEL List of recommended health-based BLVs and BGVs
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Nickel
WEL TWA (OEL TWA) [1]	0.1 mg/m <sup>3</sup> and its inorganic compounds (except nickel tetracarbonyl), water-soluble nickel compounds (as Ni) 0.5 mg/m <sup>3</sup> and its inorganic compounds (except nickel tetracarbonyl), nickel and water insoluble nickel compounds (as Ni)
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
<b>Chromium (7440-47-3)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Chromium metal
IOEL TWA	2 mg/m <sup>3</sup>
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC COMMISSION DIRECTIVE 2006/15/EC
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Chromium
WEL TWA (OEL TWA) [1]	0.5 mg/m <sup>3</sup>
WEL STEL (OEL STEL)	1.5 mg/m <sup>3</sup> (calculated)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>United Kingdom - Biological limit values</b>	
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
<b>Cobalt (7440-48-4)</b>	
<b>United Kingdom - Occupational Exposure Limits</b>	
WEL TWA (OEL TWA) [1]	0.1 mg/m <sup>3</sup>
WEL STEL (OEL STEL)	0.3 mg/m <sup>3</sup> (calculated)

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Cobalt (7440-48-4)	
WEL chemical category	Capable of causing cancer and/or heritable genetic damage, Capable of causing occupational asthma

### Aluminum (7429-90-5)

United Kingdom - Occupational Exposure Limits	
Local name	Aluminium
WEL TWA (OEL TWA) [1]	10 mg/m <sup>3</sup> (inhalable dust) 4 mg/m <sup>3</sup> (respirable dust)
WEL STEL (OEL STEL)	30 mg/m <sup>3</sup> (calculated-inhalable dust) 12 mg/m <sup>3</sup> (calculated-respirable dust)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

### Tungsten (7440-33-7)

United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	5 mg/m <sup>3</sup>
WEL STEL (OEL STEL)	10 mg/m <sup>3</sup>

#### 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) Nickel	
Acute - systemic effects, inhalation	680 mg/m <sup>3</sup> Nickel
Acute - local effects, inhalation	4 mg/m <sup>3</sup> Nickel
Long-term - local effects, dermal	0,035 mg/cm <sup>2</sup> Nickel
Long-term - systemic effects, inhalation	0,05 mg/m <sup>3</sup> Nickel
Long-term - local effects, inhalation	0,05 mg/m <sup>3</sup> Nickel
DNEL/DMEL (Workers) Cobalt	
Long-term – systemic effects, inhalation	0.04 mg/m <sup>3</sup> Cobalt
DNEL/DMEL (Consumer)	
Long-term – local effects, inhalation	0.0063 mg/m <sup>3</sup> 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

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

**Appropriate engineering controls:**

Dust must be extracted directly at the point of origin.

#### 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:**

Chemical goggles or safety glasses. Avoid contact with eyes

##### 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 (industrial environment), wear gloves; Butyl-rubber protective gloves > 120 min (chemical resistant gloves according to European standard EN 374 or equivalent).

##### 8.2.2.3. Respiratory protection

**Respiratory protection:**

In case of inadequate ventilation wear respiratory protection. Dust production: dust mask with filter type P3

##### 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	: Not applicable
Odour threshold	: Not applicable
Melting point	: 1200 – 1500 °C
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Not flammable
Explosive properties	: Not explosive
Oxidising properties	: Not oxidising
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 available
pH	: Not applicable
pH solution	: Not available

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Viscosity, kinematic	: Not applicable
Solubility	: Water: Not applicable
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	: 3.8 – 4.5 g/cm <sup>3</sup>
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle size	: Not available
Particle size distribution	: 16 — 57 µm
Particle shape	: Not available
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

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Not established.

### 10.3. Possibility of hazardous reactions

May form toxic gaseous nickel carbonyl under: high pressure; high carbon monoxide concentration. Hydrogen gas may be released in contact with mineral acids. Spontaneously flammable when finely dispersed.

### 10.4. Conditions to avoid

Direct sunlight. Heat, open flame, sparks, hot surfaces, ignition sources, elevated temperature. Hydrogen gas may be released in contact with mineral acids. May form an explosive mixture in the presence of air. May form toxic gaseous nickel carbonyl under: high pressure; high carbon monoxide concentration. Spontaneously flammable when finely dispersed. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases. Mineral acids. Oxidizing agents.

### 10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide. Toxic fumes. Nickel monoxide. Chromium oxides. Fume.

## SECTION 11: Toxicological information

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

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified



# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

<b>Chromium (7440-47-3)</b>	
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
<b>Cobalt (7440-48-4)</b>	
LD50 oral rat	6171 mg/kg
LC50 Inhalation - Rat	> 10 mg/l (Exposure time: 1 h)
<b>Titanium (7440-32-6)</b>	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure), Guideline: EPA OPPTS 870.1100 (Acute Oral Toxicity)
<b>Aluminum (7429-90-5)</b>	
LC50 Inhalation - Rat	> 0.888 mg/l/4h
<b>Tungsten (7440-33-7)</b>	
LD50 dermal rat	> 2000 mg/kg
Skin corrosion/irritation	: Not classified pH: Not applicable
Additional information	: Based on available data, the classification criteria are not met
<b>Chromium (7440-47-3)</b>	
pH	6.8 Source: The ECOTOXicology database
Serious eye damage/irritation	: Causes serious eye irritation. pH: Not applicable
<b>Chromium (7440-47-3)</b>	
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.
<b>Nickel (7440-02-0)</b>	
IARC group	2B - Possibly carcinogenic to humans
<b>Chromium (7440-47-3)</b>	
IARC group	3 - Not classifiable
<b>Cobalt (7440-48-4)</b>	
IARC group	2B - Possibly carcinogenic to humans
Reproductive toxicity	: May damage fertility.
<b>Cobalt (7440-48-4)</b>	
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	: Causes damage to organs through prolonged or repeated exposure.

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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)

Aspiration hazard : Not classified  
Additional information : Based on available data, the classification criteria are not met

EOS NickelAlloy IN939	
Viscosity, kinematic	Not applicable

### 11.2. Information on other hazards

#### 11.2.1. Endocrine disrupting properties

No additional information available

#### 11.2.2. Other information

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - water : 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) : Toxic to aquatic life with long lasting effects.

Nickel (7440-02-0)	
LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
LC50 - Fish [2]	1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
LC50 - Other aquatic organisms [1]	7.35 – 12.12 mg/l (Exposure time: 96 h - Species: Calanoid copepod (Eurytemora affinis))
EC50 - Crustacea [1]	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)

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

Cobalt (7440-48-4)	
LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
NOEC (chronic)	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)

Titanium (7440-32-6)	
EC50 72h - Algae [1]	> 10000 mg/l Test organisms (species): Skeletonema costatum

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

### 12.2. Persistence and degradability

#### EOS NickelAlloy IN939

Persistence and degradability	Not established
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### 12.3. Bioaccumulative potential

#### EOS NickelAlloy IN939

Partition coefficient n-octanol/water (Log Pow)	Not applicable
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Bioaccumulative potential	Not established.
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#### Chromium (7440-47-3)

Partition coefficient n-octanol/water (Log Pow)	0.23 Source: SRC
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#### Cobalt (7440-48-4)

BCF - Fish [1]	(no bioaccumulation)
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### 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

### 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
<b>14.1. UN number or ID number</b>				
UN 3077	UN 3077	UN 3077	UN 3077	UN 3077
<b>14.2. UN proper shipping name</b>				
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.

# EOS NickelAlloy IN939


## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

ADR	IMDG	IATA	ADN	RID
<b>Transport document description</b>				
UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III, (-)	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
<b>14.3. Transport hazard class(es)</b>				
9	9	9	9	9
				
<b>14.4. Packing group</b>				
III	III	III	III	III
<b>14.5. Environmental hazards</b>				
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
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)	: -
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)	: LP02, P002
Special packing provisions (IMDG)	: PP12

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: BK1, BK2, BK3, T1
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
Carriage permitted (ADN)	: T* B**
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
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

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

### 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)

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

Nickel

###### REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

###### REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

#### ANNEX II REPORTABLE EXPLOSIVES PRECURSORS

List of substances on their own or in mixtures or in substances for which suspicious transactions and significant disappearances and thefts are to be reported to the relevant national contact point within 24 hours.

Name	CAS-No.	Combined Nomenclature code (CN)	Combined Nomenclature code for mixture without constituents which would determine classification under another CN code
Aluminium, powders	7429-90-5	7603 10 00; ex 7603 20 00	

Please see [https://ec.europa.eu/home-affairs/system/files/2021-11/list\\_of\\_competent\\_authorities\\_and\\_national\\_contact\\_points\\_en.pdf](https://ec.europa.eu/home-affairs/system/files/2021-11/list_of_competent_authorities_and_national_contact_points_en.pdf)

###### Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

##### 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:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
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
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Sol. 1	Flammable solids, Category 1

# EOS NickelAlloy IN939

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Full text of H- and EUH-statements:	
H228	Flammable solid.
H252	Self-heating in large quantities; may catch fire.
H261	In contact with water releases flammable gases.
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.
H411	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
Self-heat. 2	Self-Heating Substances and Mixtures, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
Water-react. 2	Substances and Mixtures which, in contact with water, emit flammable gases, Category 2

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
STOT RE 1	H372	Calculation method
Aquatic Acute 1	H400	
Aquatic Chronic 2	H411	

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.