

Trade name: EOS Aluminium AI5X1**Product no.:** 9030-0017**Current version :** 1.0.0, issued: 08.08.2023**Replaced version:** -, issued: -**Region:** GB**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name

EOS Aluminium AI5X1**1.2 Relevant identified uses of the substance or mixture and uses advised against****Relevant identified uses of the substance or mixture**

Aluminium alloy for DMLS processes in EOS M systems

Uses advised against

No data available.

1.3 Details of the supplier of the safety data sheet**Address**

Electro Optical Systems Finland Oy

Lemminkäisenkatu 36

20520 Turku

FINLAND

Telephone no. +358 (0) 20 765 9144 / 9147

Fax no. +358 (0) 20 765 9141

Information provided by / telephone

+49 (0) 89 / 893 36 – 0

Advice on Safety Data Sheet

MSDSInfo@eos.info

1.4 Emergency telephone number

+49 (0) 89 / 893 36 - 0 (8 am - 5 pm)

+49 (0) 89 / 893 36 - 151 (Mo - Thu: 9 am - 12 pm & 1 - 6 pm; Fr: 1 - 4 pm) (CET)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification information**

This product does not meet the classification and labelling criteria given in the Regulation (EC) No 1272/2008 (CLP). The product is not classified as a flammable solid, a mixture liable to spontaneous combustion or a mixture which in contact with water emits flammable gases, contrary to the entry in Annex VI to Regulation (EC) No 1272/2008 (see also Note T in Annex VI to Regulation (EC) No 1272/2008).

2.2 Label elements

Not relevant

2.3 Other hazards

Dust can form an explosive mixture with air. This product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

PBT assessment

The study does not need to be conducted according to Annex XIII of Regulation (EC) 1907/2006 (REACH).

vPvB assessment

The study does not need to be conducted according to Annex XIII of Regulation (EC) 1907/2006 (REACH).

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable. The product is not a substance.

3.2 Mixtures**Hazardous ingredients**

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	CAS / EC / Index / REACH no	Classification (EC) 1272/2008 (CLP)	Concentration
			%
1	aluminium powder (stabilised)		
	7429-90-5 231-072-3 013-002-00-1 01-2119529243-45	Flam. Sol. 1; H228 Water-react. 2; H261	< 100.00 wt%
2	magnesium powder (pyrophoric)		
	7439-95-4 231-104-6 012-001-00-3 01-2119537203-49	Pyr. Sol. 1; H250 Water-react. 1; H260	< 5.00 wt%
3	zirconium powder (pyrophoric)		
	7440-67-7 231-176-9 040-001-00-3 01-2119490102-49	Pyr. Sol. 1; H250 Water-react. 1; H260	< 2.50 wt%

Full Text for all H-phrases and EUH-phrases: pls. see section 16

No	Note	Specific concentration limits	M-factor (acute)	M-factor (chronic)
1	T	-	-	-
2	T	-	-	-
3	T	-	-	-

Full text for the notes: pls. see section 16 "Notes relating to the identification, classification and labelling of substances ((EC) No 1272/2008, Annex VI)".

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Remove contaminated clothing and shoes and launder thoroughly before reusing. In case of persisting adverse effects, consult a physician.

After inhalation

Ensure supply of fresh air.

After skin contact

When in contact with the skin, clean with soap and water.

After eye contact

Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes).

After ingestion

Rinse the mouth thoroughly with water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

No data available.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Dry sand; special powder against burning metal

Unsuitable extinguishing media

Foam; ABC powder; Carbon dioxide; Water

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5.2 Special hazards arising from the substance or mixture

In the event of fire, the following can be released: Metal oxides; Hydrogen

5.3 Advice for firefighters

Use self-contained breathing apparatus. Wear protective clothing.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Refer to protective measures listed in sections 7 and 8.

For emergency responders

Personal protective equipment (PPE) - see section 8.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Collect mechanically. Avoid raising dust. Do not flush with water or aqueous cleaning agents. When collected, handle material as described under the section heading "Disposal considerations".

6.4 Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective measures, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling****Advice on safe handling**

Avoid the formation and deposition of dust.

General protective and hygiene measures

Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Wash hands before breaks and after work. Do not inhale dust.

Advice on protection against fire and explosion

Dust can form an explosive mixture with air. Avoid formation of dust. Keep away from sources of ignition and flames.

7.2 Conditions for safe storage, including any incompatibilities**Technical measures and storage conditions**

Keep container tightly closed and dry in a cool, well-ventilated place.

Requirements for storage rooms and vessels

Containers which are opened must be carefully resealed and kept upright to prevent leakage. Always keep in containers of same material as the original.

Incompatible products

Substances to be avoided, see section 10.

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Occupational exposure limit values**

No	Substance name	CAS no.	EC no.
1	aluminium powder (stabilised)	7429-90-5	231-072-3
List of approved workplace exposure limits (WELs) / EH40			
	Aluminium metal		
	total inhalable dust		

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	WEL long-term (8-hr TWA reference period)	10	mg/m ³
List of approved workplace exposure limits (WELs) / EH40			
Aluminium metal			
respirable dust			
	WEL long-term (8-hr TWA reference period)	4	mg/m ³

DNEL, DMEL and PNEC values**DNEL values (worker)**

No	Substance name			CAS / EC no
	Route of exposure	Exposure time	Effect	Value
1	aluminium powder (stabilised)			7429-90-5 231-072-3
	inhalative	Long term (chronic)	systemic	3.72 mg/m ³
	inhalative	Long term (chronic)	local	3.72 mg/m ³
2	magnesium powder (pyrophoric)			7439-95-4 231-104-6
	inhalative	Long term (chronic)	systemic	10 mg/m ³
3	zirconium powder (pyrophoric)			7440-67-7 231-176-9
	dermal	Long term (chronic)	systemic	11 mg/kg bw/day
	inhalative	Long term (chronic)	systemic	5 mg/m ³

DNEL value (consumer)

No	Substance name			CAS / EC no
	Route of exposure	Exposure time	Effect	Value
1	aluminium powder (stabilised)			7429-90-5 231-072-3
	oral	Long term (chronic)	systemic	7.9 mg/kg/day
2	magnesium powder (pyrophoric)			7439-95-4 231-104-6
	oral	Long term (chronic)	systemic	3.6 mg/kg bw/day
	inhalative	Long term (chronic)	systemic	10 mg/m ³
3	zirconium powder (pyrophoric)			7440-67-7 231-176-9
	oral	Long term (chronic)	systemic	5.5 mg/kg bw/day
	dermal	Long term (chronic)	systemic	5.5 mg/kg bw/day
	inhalative	Long term (chronic)	systemic	2.5 mg/m ³

PNEC values

No	Substance name		CAS / EC no
	ecological compartment	Type	Value
1	aluminium powder (stabilised)		7429-90-5 231-072-3
	water	fresh water	74.9 µg/L
	sewage treatment plant	-	20 mg/L
2	magnesium powder (pyrophoric)		7439-95-4 231-104-6
	water	fresh water	0.41 mg/L
	water	marine water	0.41 mg/L
	water	fresh water sediment	268 mg/kg dry weight
	water	marine water sediment	268 mg/kg dry weight
	soil	-	268 mg/kg dry weight
	sewage treatment plant	-	10.8 mg/L
3	zirconium powder (pyrophoric)		7440-67-7 231-176-9
	water	fresh water	0.074 mg/L
	water	marine water	0.007 mg/L

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water	fresh water sediment	74.6	mg/kg dry weight
water	marine water sediment	7.5	mg/kg dry weight
soil	-	7	mg/kg dry weight

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, local exhaust at the work station if necessary.

Personal protective equipment

Respiratory protection

If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. In case of dust formation, take appropriate measures for breathing protection in the event that workplace threshold values are not specified.

Respirator P3

Eye / face protection

Safety glasses (EN 166)

Hand protection

In case of intensive contact, wear protective gloves (EN 374). Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.

Other

Chemical-resistant work clothes.

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

State of aggregation	
solid	
Form	
Powder	
Colour	
silver-grey	
Odour	
odourless	
pH value	
No data available	
Boiling point / boiling range	
No data available	
Melting point/freezing point	
Value	> 900 °C
Decomposition temperature	
No data available	
Flash point	
No data available	
Ignition temperature	
No data available	

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Auto-ignition temperature	
Comments	Product is not selfigniting.
Flammability	
No data available	
Lower explosion limit	
No data available	
Upper explosion limit	
No data available	
Vapour pressure	
No data available	
Relative vapour density	
No data available	
Relative density	
No data available	
Density	
Value	2.5 - 3 g/cm ³
Reference temperature	20 °C
Solubility in water	
Comments	insoluble in water
Solubility	
No data available	
Partition coefficient n-octanol/water (log value)	
No data available	
Kinematic viscosity	
No data available	
Particle characteristics	
23-75 µm	

9.2 Other information

Other information
<p>Ignition hazard of dispersed dust Burning number: (20 °C / 100 °C): BZ 1 Lowest explosion limit (LEL): 60 g/m³ Limiting oxygen concentration (LOC) in N₂: 11 Vol.-% O₂ Maximum explosion overpressure (P_{max}): 5.8 bar K_{st}-Value: 28 bar m/s Dust explosion class: St 1 Minimum Ignition Energy (MIE): With inductance: 300 mJ < MIE < 1000 mJ Without inductance: MIE > 1000 mJ Minimum Ignition Temperature of the dust cloud (MIT): > 850 °C</p> <p>Ignition hazard of dust layer Minimum Ignition Temperature of the dust layer (5 mm: Smouldering temperature): > 400 °C Burning number: (20 °C / 100 °C): BZ 1</p>

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under recommended storage and handling conditions (See section 7).

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10.3 Possibility of hazardous reactions

Dust can form an explosive mixture with air. May release combustible gases when in contact with water.

10.4 Conditions to avoid

Heat, naked flames and other ignition sources. Protect against humidity. Avoid formation of dust.

10.5 Incompatible materials

Acids; Bases; Oxidizing agents; Water

10.6 Hazardous decomposition products

None if stored, handled and transported properly. In case of fire: see section 5.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Acute oral toxicity			
No	Substance name	CAS no.	EC no.
1	zirconium powder (pyrophoric)	7440-67-7	231-176-9
LD50	>	5000	mg/kg bodyweight
Species	rat		
Method	OECD 423		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Acute dermal toxicity			
No data available			

Acute inhalational toxicity			
No	Substance name	CAS no.	EC no.
1	aluminium powder (stabilised)	7429-90-5	231-072-3
LC50	>	0.88	mg/l
Duration of exposure		4	h
State of aggregation	Dust/mist		
Species	rat		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Skin corrosion/irritation			
No data available			

Serious eye damage/irritation			
No	Substance name	CAS no.	EC no.
1	zirconium powder (pyrophoric)	7440-67-7	231-176-9
Duration of exposure		48	h
Species	rabbit		
with reference to	Zirconium dioxide		
Method	OECD 405		
Source	ECHA		
Evaluation	non-irritant		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Respiratory or skin sensitisation			
No	Substance name	CAS no.	EC no.
1	magnesium powder (pyrophoric)	7439-95-4	231-104-6
Route of exposure	Skin		
Species	guinea pig		
Method	OECD 406		
Source	ECHA		
Evaluation	non-sensitizing		
2	zirconium powder (pyrophoric)	7440-67-7	231-176-9
Route of exposure	Skin		
Species	guinea pig		

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with reference to Method Source Evaluation Evaluation/classification	Zirconium dioxide OECD 406 ECHA non-sensitizing Based on available data, the classification criteria are not met.
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Germ cell mutagenicity
No data available

Reproduction toxicity
No data available

Carcinogenicity
No data available

STOT - single exposure
No data available

STOT - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Information on other hazards

Endocrine disrupting properties
No data available.

Other information
No data available.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)
No data available

Toxicity to fish (chronic)
No data available

Toxicity to Daphnia (acute)
No data available

Toxicity to Daphnia (chronic)
No data available

Toxicity to algae (acute)
No data available

Toxicity to algae (chronic)
No data available

Bacteria toxicity
No data available

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

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PBT assessment	The study does not need to be conducted according to Annex XIII of Regulation (EC) 1907/2006 (REACH).
vPvB assessment	The study does not need to be conducted according to Annex XIII of Regulation (EC) 1907/2006 (REACH).

12.6 Endocrine disrupting properties

No data available.

12.7 Other adverse effects

No data available.

12.8 Other information**Other information**

Do not discharge product unmonitored into the environment.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Disposal of the product should be carried out in accordance with all applicable regulations following consultation with the responsible local authority and the disposal company in an authorised and suitable disposal facility.

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Packaging

Residues must be removed from packaging and when emptied completely disposed of in accordance with the regulations for waste removal. Incompletely emptied packaging must be disposed of in the form of disposal specified by the regional disposer.

SECTION 14: Transport information**14.1 Transport ADR/RID/ADN**

The product is not subject to ADR/RID/ADN regulations.

14.2 Transport IMDG

The product is not subject to IMDG regulations.

14.3 Transport ICAO-TI / IATA

The product is not subject to ICAO-TI / IATA regulations.

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

No data available.

14.7 Maritime transport in bulk according to IMO instruments

Not relevant

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulations****Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)**

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substances considered as substances requiring authorisation as listed on Annex XIV of the REACH regulation (EC) 1907/2006.

REACH candidate list of substances of very high concern (SVHC) for authorisation

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According to available data and the information provided by preliminary suppliers, the product does not contain substances that are considered substances meeting the criteria for inclusion in annex XIV (List of Substances Subject to Authorisation) as laid down in Article 57 and article 59 of REACH (EC) 1907/2006.

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES

The product contains following substance(s) that are considered being subject to REACH regulation (EC) 1907/2006 annex XVII.

No	Substance name	CAS no.	EC no.	No
1	aluminium powder (stabilised)	7429-90-5	231-072-3	75
2	magnesium powder (pyrophoric)	7439-95-4	231-104-6	75
3	zirconium powder (pyrophoric)	7440-67-7	231-176-9	75

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances

This product is not subject to Part 1 or 2 of Annex I.

Other regulations

Adhere to the national sanitary and occupational safety regulations when using this product. Employment restrictions, according to the regulations for protection of expectant and nursing mothers and the youth health and safety regulations, serving to protect against hazardous materials, should be observed.

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this mixture.

SECTION 16: Other information

Sources of key data used to compile the data sheet:

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.

Directives 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164.

National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding section.

Full text of the H- and EUH- phrases drawn up in sections 2 and 3 (provided not already drawn up in these sections)

H228	Flammable solid.
H250	Catches fire spontaneously if exposed to air.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H261	In contact with water releases flammable gases.

Notes relating to the identification, classification and labelling of substances and mixtures ((EC) No 1272/2008, Annex VI)

T	This substance may be marketed in a form which does not have the physical hazards as indicated by the classification in the entry in Part 3. If the results of the relevant method or methods in accordance with Part 2 of Annex I of this Regulation show that the specific form of substance marketed does not exhibit this physical property or these physical hazards, the substance shall be classified in accordance with the result or results of this test or these tests. Relevant information, including reference to the relevant test method(s) shall be included in the safety data sheet.
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