EOS Aluminium F357

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EC) No. 2020/878
Issue date: 08/29/2023 Version: 2.1

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

1.1. Product identifier

Product form	:	Mixture
Trade name	:	EOS Aluminium F357
Product code	:	9011-0049
Type of product	:	Alloy, Powder
UFI	:	7NN9-JPUE-PC84-1VU8

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	:	Aluminium 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 - 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]

Substances and Mixtures which, in contact with water, emit flammable gases, Category 3	H261

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) :

GHS02

Signal word (CLP)	:	Warning
Hazard statements (CLP)	:	H261 - In contact with water releases flammable gases.
Precautionary statements (CLP)	:	P280 - Wear protective gloves/protective clothing/eye protection/face protection. P402+P404 - Store in a dry place. Store in a closed container. P370+P378 - In case of fire: Use media other than water to extinguish. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

P231+P232 - Handle and store contents under inert gas. Protect from moisture.

2.3. Other hazards

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.

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]
Aluminum	CAS-No.: 7429-90-5 EC-No.: 231-072-3 EC Index-No.: 013-002-00-1 REACH-No.: 01-2119529243-45	85 – 95	Flam. Sol. 1, H228 Water-react. 2, H261
Silicon	CAS-No.: 7440-21-3 EC-No.: 231-130-8;240-968-3 REACH-No: 01-2119480401-47	6.6 – 7.4	Not classified

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 you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest.

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. Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

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 : Water. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Hazardous decomposition products. Aluminium oxides. In contact with water releases flammable gases.

Hazardous decomposition products in case of fire	:	Carbon dioxide. Carbon monoxide. Aluminium oxide.

5.3. Advice for firefighters

Firefighting instructions	:	Exercise caution when fighting any chemical fire. Avoid creating or spreading dust. Prevent runoff from entering drains, sewers or waterways.
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

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.

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.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection. For disposal of residues refer to section 13 : "Disposal considerations".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. No open flames. No smoking. Do not allow contact with air. Protect from moisture. Handle under inert gas.
Hygiene measures	:	Wash hands thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	:	Keep only in the original container in a cool, well ventilated place away from : Water, humidity. Keep container closed when not in use. Store in a dry place.
Incompatible products	:	Strong bases. Strong acids. Water.
Incompatible materials	:	Sources of ignition. Direct sunlight. Heat sources.
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

Silicon (7440-21-3)		
United Kingdom	WEL TWA (mg/m³)	10 mg/m³ (inhalable dust) 4 mg/m³ (respirable dust)
United Kingdom	WEL STEL (mg/m³)	12 mg/m³ (calculated-respirable dust)
United Kingdom	WEL STEL (ppm)	30 ppm (calculated-inhalable dust)
Aluminum (7429-90-5)		
United Kingdom	Local name	Aluminium
United Kingdom	WEL TWA (mg/m³)	10 mg/m³ (inhalable dust) 4 mg/m³ (respirable dust)
United Kingdom	WEL STEL (mg/m³)	12 mg/m³ (calculated value)
United Kingdom	Regulatory reference	EH40. HSE

8.1.2. Recommended monitoring procedures

Monitoring methods	
Biological monitoring methods	Analysis of urine samples

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

No additional information available

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

8.2.2.2. Skin protection

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

8.2.2.3. Respiratory protection

Respiratory protection:
In case of insufficient ventilation, wear suitable particle mask (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	:	None
Odour threshold	:	Not applicable
Melting point	:	Not available
Freezing point	:	Not determined
Boiling point	:	Not determined
Flammability	:	In contact with water releases flammable gases
Explosive properties	:	Dust may form explosive mixture in air
Oxidising properties	:	Not oxidizing
Explosive limits	:	Not available
Lower explosive limit (LEL)	:	30 g/m³
Upper explosive limit (UEL)	:	Not applicable
Flash point	:	Not determined
Auto-ignition temperature	:	Not determined
Decomposition temperature	:	Not applicable
pH	:	Not applicable
pH solution	:	Not available
Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	Not applicable
Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not applicable
Partition coefficient n-octanol/water (Log Pow)	:	Not applicable
Vapour pressure	:	Not determined
Vapour pressure at 50 °C	:	Not available
Density	:	Not available
Relative density	:	Not determined
Relative vapour density at 20 °C	:	Not determined
Particle size	:	20 — 90 µm
Particle size distribution	:	Not available
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 determined
Smouldering temperature	:	> 400 °C
Minimum Ignition Energy (MIE) (with Inductivity)	:	300 mJ < MIE < 1000 mJ
Minimum Ignition Energy (MIE) (without Inductivity)	:	MIE > 1000 mJ
Burning Class	:	At 20 °C - ("BZ") and 100 °C - ("BZ") 2

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with water liberating highly flammable gases.

10.2. Chemical stability

Stable under normal conditions of use.

10.3. Possibility of hazardous reactions

Not applicable.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Protect from moisture.

10.5. Incompatible materials

Strong acids. Strong bases. Humidity.

10.6. Hazardous decomposition products

Aluminium 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

Silicon (7440-21-3)	
LD50 oral rat	3160 mg/kg

Aluminum (7429-90-5)	
LC50 Inhalation - Rat	> 0.888 mg/l/4h

Skin corrosion/irritation : Not classified
pH: Not applicable
Additional information : Based on available data, the classification criteria are not met
Serious eye damage/irritation : Not classified
pH: Not applicable
Additional information : Based on available data, the classification criteria are not met
Respiratory or skin sensitisation : Not classified
Additional information : Based on available data, the classification criteria are not met
Germ cell mutagenicity : Not classified
Additional information : Based on available data, the classification criteria are not met
Carcinogenicity : Not classified
Additional information : Based on available data, the classification criteria are not met
Reproductive toxicity : Not classified
Additional information : Based on available data, the classification criteria are not met
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
Aspiration hazard : Not classified
Additional information : Based on available data, the classification criteria are not met

EOS Aluminium F357	
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

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

EOS Aluminium F357	
Persistence and degradability	Not established

12.3. Bioaccumulative potential

EOS Aluminium F357	
Partition coefficient n-octanol/water (Log Pow)	Not applicable
Bioaccumulative potential	Not established

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.

Additional information : Handle empty containers with care because residual vapours are flammable.

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 1396	UN 1396	UN 1396	UN 1396	UN 1396
14.2. UN proper shipping name				
ALUMINIUM POWDER, UNCOATED	ALUMINIUM POWDER, UNCOATED	Aluminium powder, uncoated	ALUMINIUM POWDER, UNCOATED	ALUMINIUM POWDER, UNCOATED
Transport document description				
UN 1396 ALUMINIUM POWDER, UNCOATED, 4.3, III, (E)	UN 1396 ALUMINIUM POWDER, UNCOATED, 4.3, III	UN 1396 Aluminium powder, uncoated, 4.3, III	UN 1396 ALUMINIUM POWDER, UNCOATED, 4.3, III	UN 1396 ALUMINIUM POWDER, UNCOATED, 4.3, III
14.3. Transport hazard class(es)				
4.3	4.3	4.3	4.3	4.3
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : W2
Hazard identification number (Kemler No.) : 423
Tunnel restriction code (ADR) : E

Transport by sea

EmS-No. (Fire) : F-G
EmS-No. (Spillage) : S-O

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

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV 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.
Other information	:	None.

Full text of H- and EUH-statements:	
Flam. Sol. 1	Flammable solids, Category 1
H228	Flammable solid
H261	In contact with water releases flammable gases
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]:		
Water-react. 3	H261	Expert judgment

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.