

Trade name: EOS Titanium TiCP Grade 2**Product no.:** 9011-0036**Current version :** 2.1.1, issued: 29.08.2022**Replaced version:** 2.1.0, issued: 09.10.2020**Region:** GB**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name****EOS Titanium TiCP Grade 2**

Substance name	titanium
REACH registration no.	01-2119484878-14

Identification numbers

CAS no.	7440-32-6
EC no.	231-142-3

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

Pure titanium powder 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 in accordance with Regulation (EC) No 1272/2008 (CLP)**

Flam. Sol. 1; H228

Classification information

This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:

Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP

Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)****Product identifier**

7440-32-6 (titanium)

Hazard pictograms

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GHS02

Signal word

Danger

Hazard statement(s)

H228 Flammable solid.

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting/ equipment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P370+P378 In case of fire: Use dry sand or metal fire powder to extinguish. Never use water.

2.3 Other hazards

Danger of dust explosion

PBT assessment

The product is not considered to be a PBT.

vPvB assessment

The product is not considered to be a vPvB.

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

Substance name titanium

Identification numbers

CAS no. 7440-32-6

EC no. 231-142-3

3.2 Mixtures

Not applicable. The product is not a mixture.

SECTION 4: First aid measures**4.1 Description of first aid measures****General information**

Remove affected person from danger area, lay him down. Remove contaminated clothing and shoes and launder thoroughly before reusing. If the patient is likely to become unconscious, place and transport in stable sideways position.

After inhalation

Ensure supply of fresh air. Remove affected persons from dangerous area by observing suitable respiratory protection measures.

After skin contact

In case of contact with skin wash off with water. Remove contaminated clothing immediately and dispose of safely. Don't use solvents.

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. Never give anything by mouth to an unconscious person. Do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

No data available.

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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

special powder against burning metal; Dry sand

Unsuitable extinguishing media

Water; Carbon dioxide; Foam

5.2 Special hazards arising from the substance or mixture

When heating or in case of fire formation of toxic gases.

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. Ensure adequate ventilation. Avoid dust formation. Keep away from ignition sources.

For emergency responders

No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater. Avoid penetration into drainage system or in rooms situated at a lower level because of danger of explosion.

6.3 Methods and material for containment and cleaning up

Take up mechanically. Send in suitable containers for recovery or disposal. Avoid raising dust. Clean thoroughly.

6.4 Reference to other sections

No data available.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe the usual precautions for handling chemicals. Provide good ventilation at the work area (local exhaust ventilation, if necessary). Avoid dust formation.

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. Remove soiled or soaked clothing immediately. Avoid contact with eyes and skin.

Advice on protection against fire and explosion

Dust can form an explosive mixture with air. Take precautionary measures against static charges. Keep away from sources of ignition - refrain from smoking.

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. Protect against mechanical damage. Protect from atmospheric moisture and water.

Requirements for storage rooms and vessels

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

Incompatible products

Do not store together with: Acids; Alkalis; oxidizing agents; Halogenated compounds; Store the foodstuffs separately.

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7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****DNEL, DMEL and PNEC values****DNEL value (consumer)**

No	Substance name			CAS / EC no
	Route of exposure	Exposure time	Effect	Value
1	titanium			7440-32-6 231-142-3
	oral	Long term (chronic)	systemic	350 mg/kg bw/day

PNEC values

No	Substance name		CAS / EC no
	ecological compartment	Type	Value
1	titanium		7440-32-6 231-142-3
	water	fresh water	0.079 mg/L
	water	marine water	0.6 mg/L
	water	fresh water sediment	600 mg/kg dry weight
	water	marine water sediment	60 mg/kg dry weight
	soil	-	60 mg/kg dry weight
	sewage treatment plant	-	60 mg/L

8.2 Exposure controls**Appropriate engineering controls**

No data available.

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. In case of dust formation, use a fine dust face mask.

Respirator P2/P3

Eye / face protection

Tightly fitting 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.

Appropriate Material nitrile rubber
Breakthrough time >= 480 min

Other

Wear fully closed, flame retardant clothing. Closed ESD safety footwear (ESD according to EN 61340-4-3 or equivalent).

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties

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9.1 Information on basic physical and chemical properties

State of aggregation	
solid	
Form	
Powder	
Colour	
grey	
Odour	
Product specific	
pH value	
No data available	
Boiling point / boiling range	
Value	> 3260 °C
Melting point/freezing point	
Value	1670 °C
Decomposition temperature	
No data available	
Flash point	
not determined	
Ignition temperature	
Value	> 700 °C
Auto-ignition temperature	
not determined	
Flammability	
No data available	
Lower explosion limit	
Value	30 g/m ³
Upper explosion limit	
No data available	
Vapour pressure	
No data available	
Relative vapour density	
No data available	
Relative density	
No data available	
Density	
No data available	
Solubility in water	
Comments	insoluble
Solubility	
No data available	
Partition coefficient n-octanol/water (log value)	
No data available	
Kinematic viscosity	
No data available	

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Particle characteristics

No data available

9.2 Other information**Other information**

Minimum ignition energy (MIE) with inductivity: 100-300 mJ
 smouldering temperature: > 400 °C
 Class number: BZ 3
 Max. explosion overpressure (p_{max}): 5.6 bar
 KSt value/dust explosion class (St): 35 bar m/s

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).

10.3 Possibility of hazardous reactions

danger of dust explosion.

10.4 Conditions to avoid

Heat, naked flames and other ignition sources. Protect against humidity.

10.5 Incompatible materials

Acids; Alkalis; Oxidizing agents; Halogenated compounds; Reactions with oxidizing substances; Contact with water or moisture liberates flammable gases.

10.6 Hazardous decomposition products

Hydrogen

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	titanium	7440-32-6	231-142-3
	LD50	>	5000 mg/kg bodyweight
	Species	rat	
	Source	ECHA / Read across	

Acute dermal toxicity

No data available

Acute inhalational toxicity

No data available

Skin corrosion/irritation

No	Substance name	CAS no.	EC no.
1	titanium	7440-32-6	231-142-3
	Source	ECHA	
	Evaluation/classification	Based on available data, the classification criteria are not met.	

Serious eye damage/irritation

No	Substance name	CAS no.	EC no.
1	titanium	7440-32-6	231-142-3
	Source	ECHA	
	Evaluation/classification	Based on available data, the classification criteria are not met.	

Respiratory or skin sensitisation

No data available

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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

PBT assessment

The product is not considered to be a PBT.

vPvB assessment

The product is not considered to be a vPvB.

12.6 Endocrine disrupting properties

No data available.

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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

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

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.

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

Class	4.1
Classification code	F3
Packing group	II
Hazard identification no.	40
UN number	UN3089
Proper shipping name	METAL POWDER, FLAMMABLE, N.O.S.
Tunnel restriction code	E
Label	4.1

14.2 Transport IMDG

Class	4.1
Packing group	II
UN number	UN3089
Proper shipping name	METAL POWDER, FLAMMABLE, N.O.S.
EmS	F-G, S-G
Label	4.1

14.3 Transport ICAO-TI / IATA

Class	4.1
Packing group	II
UN number	UN3089
Proper shipping name	Metal powder, flammable, n.o.s.
Label	4.1

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

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EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)

In accordance with the REACH regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

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

In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

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 is considered being subject to REACH regulation (EC) 1907/2006 annex XVII. No 40

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

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

15.2 Chemical safety assessment

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

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.