



EOS CaseHardeningSteel 20MnCr5

Safety Data Sheet

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

Date of issue: 10/12/2022 Version: 2.0

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

1.1. Product identifier

Product form : Mixture
Trade name : EOS CaseHardeningSteel 20MnCr5
Product code : 9030-0004
Type of product : Alloy, Powder

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
Industrial/Professional use spec : Industrial use
Use of the substance/mixture : Tool steel alloy 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]

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

EUH-statements : EUH210 - Safety data sheet available on request.

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]
Iron	(CAS-No.) 7439-89-6 (EC-No.) 215-168-2;231-096-4 (REACH-no) 01-2119462838-24	96.6 - 98	Not classified
Chromium	(CAS-No.) 7440-47-3 (EC-No.) 231-157-5 (REACH-no) 01-2119485652-31	1 - 1.3	Not classified
Manganese	(CAS-No.) 7439-96-5 (EC-No.) 231-105-1 (REACH-no) 01-2119449803-34	1 - 1.4	Not classified

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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	: If experiencing respiratory symptoms: Call a POISON CENTER/doctor/.... Allow affected person to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact	: Brush off loose particles from skin. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
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	: Extinguishing powder. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream. Carbon dioxide. Foam.

5.2. Special hazards arising from the substance or mixture

Explosion hazard	: Stable at ambient temperature and under normal conditions of use.
Hazardous decomposition products in case of fire	: Cobalt oxide. Molybdenum trioxide. Carbon monoxide. Carbon dioxide.

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove all sources of ignition. No open flames, no sparks, and no smoking.

6.1.1. For non-emergency personnel

Emergency procedures	: Evacuate unnecessary personnel.
Measures in case of dust release	: Avoid breathing dust.

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.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: May form combustible dust concentrations in air. Handle empty containers with care because residual vapours are flammable.
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.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
Storage conditions	: Store in a dry place. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products	: Strong bases. Strong acids.
Incompatible materials	: Heat sources. Sources of ignition. Direct sunlight.

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7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chromium (7440-47-3)

EU - Occupational Exposure Limits

Local name	Chromium metal
IOELV TWA (mg/m ³)	2 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC

United Kingdom - Occupational Exposure Limits

Local name	Chromium
WEL TWA (mg/m ³)	0.5 mg/m ³
WEL STEL (mg/m ³)	1.5 mg/m ³ (calculated)
Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Molybdenum (7439-98-7)

United Kingdom - Occupational Exposure Limits

Local name	Molybdenum
WEL TWA (mg/m ³)	10 mg/m ³ insoluble compounds (as Mo) 5 mg/m ³ soluble compounds (as Mo)
WEL STEL (mg/m ³)	20 mg/m ³ insoluble compounds (as Mo) 10 mg/m ³ soluble compounds (as Mo)
Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Manganese (7439-96-5)

EU - Occupational Exposure Limits

Local name	Manganese
IOELV TWA (mg/m ³)	0.2 mg/m ³ (inhalable fraction) 0.05 mg/m ³ (respirable fraction)
Notes	(Year of adoption 2011)
Regulatory reference	SCOEL Recommendations

United Kingdom - Occupational Exposure Limits

WEL TWA (mg/m ³)	0.2 mg/m ³ 0.05 mg/m ³
WEL STEL (mg/m ³)	0.6 mg/m ³ 0.15 mg/m ³ (calculated)

Iron (7439-89-6)

DNEL/DMEL (Workers)

Long-term - systemic effects, inhalation	10 mg/m ³
Long-term - systemic effects, respirable	4 mg/m ³

8.2. Exposure controls

Appropriate engineering controls:

Dust must be extracted directly at the point of origin. During standard processing, release of components above the exposure limit concentrations is not anticipated. However, with excessive heating creating the potential for decomposition, there is the potential for release of components at or above the exposure limit concentrations. Use appropriate engineering controls to ensure airborne concentrations are maintained below exposure limit concentrations.

Personal protective equipment:

Avoid all unnecessary exposure.

Materials for protective clothing:

Wear suitable protective clothing

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Hand protection:

Wear suitable gloves resistant to chemical penetration. Butyl-rubber protective gloves > 120 min (EN 374)

Eye protection:

Wear eye glasses with side protection according to EN 166.

Skin and body protection:

Wear protective shoes. ESD according to EN 61340-4-3 or equivalent. Use barrier cream

Respiratory protection:

Wear suitable respiratory equipment in case of insufficient ventilation. (FFP3) EN 149

Personal protective equipment symbol(s):



Environmental exposure controls:

Prevent entry to sewers and public waters.

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
Appearance	: Powder
Colour	: Grey
Odour	: Odourless
Odour threshold	: Not applicable
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: Not determined
Melting point	: Not determined
Freezing point	: Not determined
Boiling point	: Not determined
Flash point	: Not determined
Auto-ignition temperature	: Not determined
Decomposition temperature	: Not applicable
Flammability (solid, gas)	: Non flammable
Vapour pressure	: Not determined
Relative vapour density at 20 °C	: Not determined
Relative density	: ≤ 7.72 g/cm ³
Solubility	: Not determined
Log Pow	: Not applicable
Viscosity, kinematic	: No data available
Viscosity, dynamic	: Not applicable
Explosive properties	: Stable under normal conditions of use
Oxidising properties	: Not oxidising
Explosive limits	: Not applicable
Lower explosive limit (LEL)	: Not determined
Upper explosive limit (UEL)	: Not determined

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable in use and storage conditions as recommended in item 7.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

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10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Oxidising agents.

10.5. Incompatible materials

Oxidising agents.

10.6. Hazardous decomposition products

Fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

Iron (7439-89-6)

LD50 oral rat	98.6 g/kg (Boyd EM, Shanas MN, 1963, Canad Med Ass J July 27, 1963, vol. 89, 171-175)
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Chromium (7440-47-3)

LD50 oral rat	> 5000 mg/kg (OECD TG 420)
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LC50 inhalation rat (Dust/Mist - mg/l/4h)	> 5.41 mg/l/4h (OECD TG 403)
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Manganese (7439-96-5)

LD50 oral rat	9 g/kg
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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

Chromium (7440-47-3)

IARC group	3 - Not classifiable
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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

Chromium (7440-47-3)

LOAEC (inhalation, rat,dust/mist/fume, 90 days)	\geq 4.4 mg/l/6h/day (Derelanko, M. J., W. E. Rinehart, et al., 1999, Toxicol Sci.52: 278-288)
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NOAEL (oral, rat, 90 days)	1216 mg/kg bodyweight/day (Ivankovic, S. and R. Preussman, 1975, Food Cosmet Toxicol.13(3): 347-51)
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Aspiration hazard : Not classified

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

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

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

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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

Manganese (7439-96-5)

LC50 fish 1 > 3.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])

12.2. Persistence and degradability

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Persistence and degradability Not established

12.3. Bioaccumulative potential

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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. 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.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

Inland waterway transport

Not applicable

Rail transport

Not applicable

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14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

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

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:

EUH210	Safety data sheet available on request.
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SDS EU (REACH Annex II)

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.