

ACCORDING TO US CFR 1910.1200

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1 Product identifier

Product Name AISi7Mg
 CAS No. Mixture.
 Product code 36539, 37545, 37547, 38002, 38042, 38044, 38507, 38735, 38776, 39156, 39186, 39238, 39776, 40284, 41049, 41261, 41747, 41854

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

Identified Use(s) For application in laser-based additive manufacturing technologies (SLS, DMLS and SLM) and cold spray application.
 Uses Advised Against Not known.

1.3 Details of the supplier of the safety data sheet

Manufacturer /Supplier
 Company Identification Tekna Advanced Materials Inc.
 Address 2895, Industrial Blvd.
 Sherbrooke, QC, Canada.
 Postal code J1L 2T9
 Telephone (819) 820-7771
 E-mail sds@tekna.com

1.4 Emergency telephone number

Company +33(0) 385 231 045

2. SECTION 2: HAZARDS IDENTIFICATION
2.1 Classification of the substance or mixture

US CFR 1910.1200 Not classified as dangerous for supply/use.

2.2 Label elements

Product Name US CFR 1910.1200
 AISi7Mg

Hazard Pictogram(s) None.

Signal Word(s) None.

Hazard Statement(s) None.

Precautionary Statement(s) None.

2.3 Other hazards

Danger of dust explosion. Can form explosive mixture with air.

2.4 Additional Information

None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances

Not applicable.

3.2 Mixtures

HAZARDOUS INGREDIENT(S)	CAS No.	%W/W	Hazard Statement(s)	Hazard Pictogram(s)
Aluminium powder (stabilised)	7429-90-5	>92	Flam. Sol. 1; H228 Water-react. 2; H261	GHS02
Silicon	7440-21-3	6.7-7.3	Not classified	
Magnesium	7439-95-4	0.5-0.65	Flam. Sol. 1; H228 Self-heat. 1; H252 Water-react. 2; H261	GHS02
Manganese	7439-96-5	<0.09	Not classified	
Copper	7440-50-8	<0.045	Not classified	

4. SECTION 4: FIRST AID MEASURES
4.1 Description of first aid measures

Inhalation If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 Skin Contact Wash skin with soap and water.
 Eye Contact Hold eye open and rinse slowly and gently with water for 15-20 minutes.
 Ingestion Wash out mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

None anticipated.

4.3 Indication of any immediate medical attention and special treatment needed

Unlikely to be required but if necessary treat symptomatically.

5. SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media

Use dry powder to extinguish.

Unsuitable extinguishing media

Do not use water or halogenated agents.

5.2 Special hazards arising from the substance or mixture

May form explosible dust clouds in air. May form explosive dust/air mixtures.

5.3 Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid dust generation. Wear protective gloves/protective clothing/eye protection/face protection.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

Stop leak if safe to do so. Sweep up spilled substance and remove to safe place. Use vacuum equipment for collecting spilt materials, where practicable. Transfer to a container for disposal.

6.4 Reference to other sections

See Also Section 8, 13.

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Provide adequate ventilation. Avoid build-up of dust. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink or smoke at the work place.

7.2 Conditions for safe storage, including any incompatibilities

Storage temperature

Ambient.

Storage life

Stable under normal conditions.

Incompatible materials

Strong oxidizing agents, Acids, Alkaline, Halogenated compounds, Iron oxide (thermite reaction).

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

Occupational Exposure Limits						
SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Aluminum metal and insoluble compounds	7429-90-5		1			ACGIH TLV, R, A4
Aluminum, metal (as Al) (Total dust)	7429-90-5		15			OSHA PEL Z-1
Aluminum, metal (as Al) (Respirable fraction)	7429-90-5		5			OSHA PEL Z-1
Aluminum pyro powders	7429-90-5		5			OSHA PEL
Aluminum, metal (as Al) (Total dust)	7429-90-5		10			NIOSH REL Z-1
Aluminum, metal (as Al) (Respirable fraction)	7429-90-5		5			NIOSH REL Z-1
Silicon (total dust)	7440-21-3		15			OSHA PEL Z-1
Silicon (Respirable fraction)	7440-21-3		5			OSHA PEL Z-1
Silicon (total dust)	7440-21-3		10			NIOSH REL Z-1
Silicon (Respirable fraction)	7440-21-3		5			NIOSH REL Z-1

Copper (Dusts and mists (as Cu))	7440-50-8		1			ACGIH TLV
Copper (Fume (as Cu))	7440-50-8		0.2			ACGIH TLV
Copper (Fume (as Cu))	7440-50-8		0.1			OSHA PEL Z-1
Copper (Dusts and mists (as Cu))	7440-50-8		1			OSHA PEL Z-1
Copper metal fume, as Cu	7440-50-8		0.1			OSHA PEL
Copper salts, dusts and mists, as Cu	7440-50-8		1			OSHA PEL
Copper (Fume (as Cu))	7440-50-8		0.1			NIOSH REL Z-1
Copper (Dusts and mists (as Cu))	7440-50-8		1			NIOSH REL Z-1
Manganese	7439-96-5		0.02			ACGIH TLV, R, A4
Manganese inorganic compounds (as Mn)	7439-96-5		0.1			ACGIH TLV, I
Manganese inorganic compounds (as Mn)	7439-96-5		0.1			ACGIH TLV, I
Manganese compounds (as Mn)	7439-96-5		5			OSHA PEL Z-1, C
Manganese compounds (as Mn)	7439-96-5		5			OSHA PEL Z-1, C
Manganese fume (as Mn)	7439-96-5		5			OSHA PEL Z-1, C
Manganese and compounds, as Mn	7439-96-5		0.2			OSHA PEL
Manganese and compounds, as Mn	7439-96-5		0.2			OSHA PEL
Manganese fume, as Mn	7439-96-5		0.2		3	OSHA PEL
Manganese compounds (as Mn)	7439-96-5		1		3	NIOSH REL Z-1

Remark	Notes
ACGIH TLV	The American Conference of Governmental Industrial Hygienists (ACGIH®) Threshold Limit Values (TLVs®)
R	Respirable particulate matter
A4	Not Classifiable as a Human Carcinogen
OSHA PEL Z-1	Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) from 29 CFR 1910.1000 Z-1 Table
OSHA PEL	Occupational Safety and Health (OSHA) Permissible Exposure Limits (PELs).
NIOSH REL Z-1	National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs) from the NIOSH Pocket Guide to Chemical Hazards table Z-1: Up to 10-hour time weighted average (TWA) during a 40-hour work week
I	Inhalable particulate matter
C	Ceiling limit

8.2 Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction.

8.3 Personal protection equipment



Eye Protection

Wear suitable eye/face protection.



Skin protection

Wear suitable gloves.



Respiratory protection

Where engineering controls are not fitted or inadequate wear suitable respiratory protective equipment.



Thermal hazards

Not applicable.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Appearance	Powder.
Odor	Color : Grey.
Odor threshold	Odorless.
pH	Not applicable.
Melting point/freezing point	Not applicable.
Initial boiling point and boiling range	660°C
Flash Point	2467°C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Non-flammable.
Vapor pressure	Not available.
Vapor density	Not available.
Density	Not available.
Relative density	Not available.
Solubility(ies)	2.7g/cm ³ @ 20°C
Partition coefficient: n-octanol/water	Insoluble in water and solvent.
Auto-ignition temperature	Not applicable.
Decomposition Temperature (°C)	Not available.
Viscosity	Not applicable.
Explosive properties	Can form explosive mixture with air.
Oxidizing properties	Not oxidizing.

9.2 Other information (Data from the -63+10 um size powder)

Minimum ignition energy (MIE)	14 mJ
Dust deflagration index (Kst)	237 bar•m/s
Dust explosive classes	ST 2
Maximum explosion pressure (Pmax)	7.63 barg
Maximum rate of pressure rise ((dP/dt) _{max})	873
Minimum Explosible Concentration (MEC)	75<MEC<100 g/m ³
Limiting Oxidant Concentration (LOC)	8.5 %O ₂
Minimum Ignition Temperature of a Dust Cloud (MAIT)	950 °C
Minimum Ignition Temperature of a Dust Layer (MIT)	>450 °C

10. SECTION 10: STABILITY AND REACTIVITY**10.1 Reactivity**

Alloy will react exothermically with strong oxidizing substance if the mixture is ignited.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

React with strong oxidizer if the mixture is ignited.
Danger of dust explosion. Can form explosive mixture with air.

10.4 Conditions to avoid

Keep away from water. Protect from moisture. Keep away from heat and sources of ignition.

10.5 Incompatible materials

Strong oxidizing agents, Acids, Alkaline, Halogenated compounds, Iron oxide (thermite reaction).

10.6 Hazardous decomposition products

No hazardous decomposition products known.

11. SECTION 11: TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects**

Acute toxicity - Ingestion	Low acute toxicity.
Acute toxicity - Skin Contact	Low acute toxicity.
Acute toxicity - Inhalation	Low acute toxicity.
Skin corrosion/irritation	Non-irritant.
Serious eye damage/irritation	Non-irritant.
Skin sensitization data	It is not a skin sensitizer.
Respiratory sensitization data	None anticipated.
Germ cell mutagenicity	There is no evidence of mutagenic potential.



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Carcinogenicity	No evidence of carcinogenicity.
Reproductive toxicity	None anticipated.
Lactation	Not classified.
STOT - single exposure	None anticipated.
STOT - repeated exposure	None anticipated.
Aspiration hazard	Not classified.

11.2 Other information

None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity - Aquatic invertebrates	Low toxicity to invertebrates.
Toxicity - Fish	Low toxicity to fish.
Toxicity - Algae	Low toxicity to algae.
Toxicity - Sediment Compartment	Not classified.
Toxicity - Terrestrial Compartment	Not classified.

12.2 Persistence and Degradation

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

Insoluble in water. The product is predicted to have low mobility in soil.

12.5 Other adverse effects

None.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of this material and its container as hazardous waste.
Disposal should be in accordance with local, state or national legislation.

13.2 Additional Information

None.

14. SECTION 14: TRANSPORT INFORMATION

Not classified as hazardous for transport.

14.1 UN number

Not applicable.

14.2 UN proper shipping name

Not applicable.

14.3 Transport hazard class(es)

Not applicable.

14.4 Packing group

Not applicable.

14.5 Environmental hazards

Not classified as a Marine Pollutant.

14.6 Special precautions for user

Not applicable.

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

Not applicable.

15. SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Toxic and hazardous substances (29 CFR 1910; Subpart Z) All chemicals listed.

National emission standards for hazardous air pollutants (40 CFR 61.01) Listed: Manganese (CAS No.: 7439-96-5), Copper (CAS No.: 7440-50-8)
Title III Consolidated List of Lists Listed: Manganese (CAS No.: 7439-96-5), Copper (CAS No.: 7440-50-8)

TSCA (Toxic Substance Control Act) All chemicals listed.

CAA 602 - Ozone Depleting Substances (ODS) Not listed

15.2 US State Regulations

State Right to Know Lists All chemicals listed : New Jersey, Pennsylvania, Rhode Island, Minnesota.
Proposition 65 (California) All chemicals are not listed.

15.3 Other



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OSPAR List of Chemicals for Priority Action Not listed
NTP (National Toxicology Program) Not listed
OSHA (List of Highly Hazardous Chemicals, Toxics and Reactives) Not listed
IARC (International Agency for Research on Cancer) Not listed

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1

NFPA		HMIS	
Health	0	Health	0
Fire	0	Flammability	0
Instability	0	Physical hazards	0

LEGEND

LTEL Long Term Exposure Limit
STEL Short Term Exposure Limit
STOT Specific Target Organ Toxicity

Hazard Statement(s) H228: Flammable solid.
H252: Self-heating in large quantities; may catch fire.
H261: In contact with water releases flammable gases.

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