

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 AlSi10Mg -63+20  
CAS No. Mixture.**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 Tekna Advanced Materials Inc.  
Company Identification 2895, Industrial Blvd.  
Address Sherbrooke, QC, Canada.  
J1L 2T9  
Postal code  
Telephone (819) 820-7771  
E-mail sds@tekna.com**1.4 Emergency telephone number**Company **CANUTEC: 1-888-CAN-UTEC (226-8832), 613-996-6666 or \*666 on a cell phone****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  
AlSi10Mg -63+20

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	>88	Flam. Sol. 1; H228 Water-react. 2; H261	GHS02
Silicon	7440-21-3	9-11	Not classified	
Magnesium	7439-95-4	0.20-0.45	Flam. Sol. 1; H228 Self-heat. 1; H252 Water-react. 2; H261	GHS02
Manganese	7439-96-5	<0.45	Not classified	
Copper	7440-50-8	<0.10	Not classified	
Nickel powder [particle diameter < 1 mm]	7440-02-0	<0.05	Skin Sens. 1; H317 Carc. 2; H351 STOT RE 1; H372	GHS08 GHS07
Tin	7440-31-5	<0.05	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.



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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.  
Combustion or thermal decomposition will evolve toxic vapors.

**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	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	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
Nickel	7440-02-0		1.5		ACGIH TLV, I, A5
Nickel, insoluble compounds, as Ni	7440-02-0		0.2		ACGIH TLV, I, A1
Nickel, metal and insoluble compounds (as Ni)	7440-02-0		1		OSHA PEL Z-1
Nickel metal, as Ni	7440-02-0		0.5		OSHA PEL
Nickel, insoluble compounds, as Ni	7440-02-0		0.1		OSHA PEL
Nickel, metal and insoluble compounds (as Ni)	7440-02-0		0.015		NIOSH REL Z-1, Ca
Tin, as Sn: Metal	7440-31-5		2		ACGIH TLV
Tin, and inorganic compounds, excluding Tin hydride, as Sn: Oxide and inorganic compounds	7440-31-5		2		ACGIH TLV
Tin, inorganic compounds (except oxides) (as Sn)	7440-31-5		2		OSHA PEL Z-1
Tin, tin oxide and inorganic compounds, except SnH4, as Sn	7440-31-5		2		OSHA PEL
Tin, inorganic compounds (except oxides) (as Sn)	7440-31-5		2		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).
I	Inhalable particulate matter
C	Ceiling limit
A5	Not Suspected as a Human Carcinogen
A1	Confirmed Human Carcinogen
Ca	Potential occupational carcinogen

## 8.2 Exposure 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.
	Color : Grey.
Odor	Odorless.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	660°C
Initial boiling point and boiling range	2467°C
Flash Point	Not available.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Non-flammable.
Upper/lower flammability or explosive limits	Not available.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Density	Not available.
Relative density	2.7g/cm <sup>3</sup> @ 20°C
Solubility(ies)	Insoluble in water and solvent.
Partition coefficient: n-octanol/water	Not applicable.
Auto-ignition temperature	Not available.
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 -53+20 um size powder)**

Minimum ignition energy (MIE)	>1000 mJ
Dust deflagration index (Kst)	51 bar·m/s
Dust explosive classes	ST 1
Maximum explosion pressure (Pmax)	6.70 barg
Maximum rate of pressure rise ((dP/dt) <sub>max</sub> )	188
Minimum Explosible Concentration (MEC)	300<MEC<400 g/m <sup>3</sup>
Limiting Oxidant Concentration (LOC)	11.5 %O <sub>2</sub>
Minimum Ignition Temperature of a Dust Cloud (MAIT)	>1000 °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.



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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.
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.
<b>11.2 Other information</b>	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), Nickel powder [particle diameter < 1 mm] (CAS No.: 7440-02-0)

Title III Consolidated List of Lists Listed: Manganese (CAS No.: 7439-96-5), Copper (CAS No.: 7440-50-8), Nickel powder [particle diameter < 1 mm] (CAS No.: 7440-02-0)

TSCA (Toxic Substance Control Act) All chemicals listed.

CAA 602 - Ozone Depleting Substances (ODS) Not listed



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**15.2 US State Regulations**

State Right to Know Lists  
Proposition 65 (California)

All chemicals listed : New Jersey, Pennsylvania, Rhode Island, Minnesota.  
All chemicals are not listed.

**15.3 Other**

OSPAR List of Chemicals for Priority  
Action

Not listed

NTP (National Toxicology Program)

Not listed

OSHA (List of Highly Hazardous  
Chemicals, Toxics and Reactives)

Listed: Nickel powder [particle diameter < 1 mm] (CAS No.: 7440-02-0)

IARC (International Agency for Research  
on Cancer)

Listed: Nickel powder [particle diameter < 1 mm] (CAS No.: 7440-02-0)

**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  
STEL  
STOT

Long Term Exposure Limit  
Short Term Exposure Limit  
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.  
H317: May cause an allergic skin reaction.  
H351: Suspected of causing cancer.  
H372: Causes damage to organs through prolonged or repeated exposure.

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