

## Safety Data Sheet

according to Regulation (EC) No 1907/2006 and 1272/2008,  
Hazard Communication Standard 29 CFR 1910 (USA),  
WHS Regulations Australia,  
JIS Z 7253 (2012) Japan

### LaserForm® AlSi10Mg Type A

Revision Date: February 7<sup>th</sup>, 2017

#### 1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY/UNDERTAKING

**1.1 Identification of the mixture:** Aluminium alloy; Aluminium-silicon alloy; AlSi10Mg

**1.2 Type:** AlSi10Mg alloy

**1.3 Use of the preparation:** For use with ProX® DMP 320 printers

**1.4 Uses advised against:** No data

#### 1.5 Company/undertaking identification:

3D Systems, Inc.  
333 Three D Systems Circle  
Rock Hill, South Carolina  
U.S.A.  
Phone: 803.326.3900 or  
Toll-free Phone: 800.793.3669  
e-mail:  
moreinfo@3dsystems.com  
Chemical Emergency:  
800.424.9300 – Chemtrec

3D Systems Europe Ltd.  
Mark House, Mark Road  
Hemel Hempstead  
Herts HP2 7  
United Kingdom  
Phone: +44 144-2282600  
e-mail:  
moreinfo@3dsystems.com  
Chemical Emergency:  
+1 703.527.3887 - Chemtrec

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Hawthorn, VIC 3122  
+1 03 9819-4422  
e-mail:  
moreinfo@3dsystems.com  
Chemical Emergency:  
+(61) 29037.2994 – Aus  
Chemtrec

3D Systems Japan K.K.  
Ebisu Garden Place Tower 27F  
4-20-3, Ebisu, Shibuya-ku,  
Tokyo 50-6027 Japan  
Telephone No. +81-3-5798-  
2500  
e-mail:  
moreinfo@3dsystems.com  
Chemical Emergency  
+(81)-345209637 – Chemtrec

#### 2. HAZARDS IDENTIFICATION

##### 2.1 Classification

**GHS Classification (29 CFR 1910.1200) :**

**Regulation (EC) No. 1272/2008, HazCom 29 CFD 1910:**

Substances which, in contact with water, emit flammable gases	Category 3	H261
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**Regulation (EC) 67/548/EEC and 1999/45/EC:**

F, R11, R15

##### 2.2 Label Elements

**Regulation (EC) No. 1272/2008:**

**Hazard pictograms and signal word:**



**GHS02**

**Signal word:**

**Warning**



**GHS08**

**Signal word:**

**Warning**

**Hazard determining components of labelling:** Aluminium, Silicium, Magnesium

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#### Hazard statements:

H228: Flammable solid.

H261: In contact with water releases flammable gas

H334: May cause asthma symptoms or breathing difficulties if inhaled

H373: May cause damage to organs through prolonged or repeated exposure

#### Precautionary statements:

P202: Do not handle until all safety precautions have been read and understood.

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

P223: Do not allow contact with water.

P231+232: Handle under inert gas. Protect from moisture.

P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof electrical and ventilating equipment.

P260: Do not breathe dust.

P280: Wear protective gloves, clothing and eye protection.

P284: [In case of inadequate ventilation] wear respiratory protection.

P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P314: Get medical advice/attention if you feel unwell.

P370+378: In case of fire: Use dry sand or Class D fire extinguisher to extinguish.

P402+404: Store in a dry place. Store in a closed container.

P422: Store contents under inert gas.

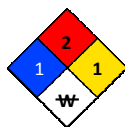
#### Other dangers:

Danger of dust explosion: Dust clouds can be ignited and could pose an explosion risk in a confined space.

Reactivity: Can react with oxidizing agents and in alkaline solutions, causing hydrogen release. Hydrogen gas can ignite spontaneously due to exothermal nature of reaction – Explosion risk.

Reactivity: Can react violently with halogenated hydrocarbons.

#### NFPA rating



#### NFPA Ratings

0 = Minimal

1 = Slight

2 = Moderate

3 = Serious

4 = Severe

#### Hazardous Materials Identification System (HMIS):

(Degree of hazard: 0 = low, 4 = extreme):

Health 1

Flammability 2

Physical Hazards 1

#### Personal Protection:

Skin, eye protection

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#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

##### 3.1 Chemical characterization:

**Description:** Metallic alloy powder

##### 3.2 Dangerous components:

Chemical name	CAS-No	EC-No	%	Classification	
				Regulation 67/548/EEG or 1999/45/EG	Regulation (EC) No. 1272/2008
Aluminum	7429-90-5	231-072-3	88-91	F R11, R15	Flam. Sol.1, H228 Water react. 2, H261
Silicium	7440-21-3	231-130-8	9-11	R11	Flam. Sol.2, H228
Magnesium	7439-95-4	231-104-6	0.2-0.5	F R15, R17	Pyr. Sol.1, H250 Self. Heat. 2, H252 Water react. 1, H261

#### 4. FIRST AID MEASURES

**4.1 General Information:** Ensure that eyewash stations and safety showers are close to the workstation location.

##### 4.2 Description of First Aid Measures

**Skin contact:** Wash off thoroughly with soap and water. Remove and dispose of or properly launder contaminated clothing before wearing again.

**Eye contact:** Irrigate gently but thoroughly, including under the eyelids, with water for at least 10 to 20 minutes. Obtain medical attention if irritation persists.

**Inhalation:** Move affected person to fresh air, rest and keep warm. Support breathing is necessary. In severe cases, if exposure has been great, or if respiratory irritation occurs, obtain medical attention.

**Ingestion:** Wash out mouth thoroughly with water. Drink 1 to 2 glasses of water. DO NOT INDUCE VOMITING. Seek medical attention if irritation persists.

##### 4.3 Most important symptoms and effects, both acute and delayed

**Skin Contact:** Mechanical irritation.

**Eye Contact:** Mechanical irritation.

**Inhalation:** Mechanical irritation of airways. May cause asthma symptoms or breathing difficulties if inhaled.

**Ingestion:** Mechanical irritation.

##### 4.4 Indications of any immediate medical attention and special treatment needed

**Eye Contact:** Treat symptomatically

**Inhalation:** Treat symptomatically

**4.5 Self-protection of the first aider:** Put on appropriate protective equipment (see section 8). Move exposed person to fresh air.

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#### 5. FIRE-FIGHTING MEASURES

**5.1 Suitable extinguishing media:** The product itself is flammable. When dispersed in air the powder is susceptible to dust explosions. Adapt extinguishing measures to surroundings. Use extinguishing type D powder, type D foam, dry salt or sand if available. Carbon dioxide is not effective.

**5.2 Extinguishing media which must not be used for safety reasons:** Do not use water (explosion hazard), including high volume water jets, Carbon dioxide or Halon.

**5.3 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:** increased fire hazard during dust formation. Contact with water releases flammable hydrogen gas.

**5.4 Special protective equipment for fire-fighters:** Wear breathing protection in the presence of dust and suitable antistatic garments.

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#### 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions:** Keep unnecessary personnel away and contact emergency personnel. Wear appropriate protective equipment and clothing. Remove all sources of ignition. Avoid dust formation.

**6.2 Environmental precautions:** Take precautions to ensure product does not contaminate ground or enter the sewer or drainage system.

**6.3 Methods for cleaning up:**

Wear appropriate protective equipment and antistatic clothing.

For containment:	Use non-sparking antistatic tools and containers
For cleaning up small spillage:	Use an explosion proof vacuum with equipment fitted with immersion filtration.
For cleaning up large spillage:	Solids should be carefully transferred to suitable salvage containers. Any residues should be treated as small spillages.
Other information:	Do not use compressed air. Prevent the formation of dust clouds.

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#### 7. HANDLING AND STORAGE

**7.1 Precautions for safe handling**

Protective measures:	Work using a suitable extraction/ventilation system. Use non-sparking explosion proof tools. Wear suitable antistatic garments and respiration protection.
Measures to prevent fire:	Prevent the formation of dust clouds. Avoid all sources of ignition.
Measures to protect the environment:	Use appropriate containment to avoid environmental hazard.
Advice on general occupational hygiene:	Avoid contact with skin and eyes. Do not breathe dust. Wash hands and face thoroughly after working with material. Contaminated clothing should be removed and washed before re-use.

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#### 7.2 Conditions for safe storage

Technical measures and storage conditions:	Store under inert gas in a sealed antistatic container in dry and cool conditions and keep the container closed when not in use.
Packaging materials:	Keep in the container supplied, or suitable metal, antistatic plastic or polythene container.
Requirements for storage rooms and vessels:	Containers should be stored in a fire proof cabinet or room in a clean, cool and dry environment.
Keep away from water or moisture.	
Storage class:	Class 4.3 (Releases flammable gas when wet)
Further information on storage conditions:	Local regulations should be followed regarding the storage of this material.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Exposure limit values:

Exposure limits	OSHA/PEL	ACGIH/TLV
Aluminium	No limit	5 mg/m <sup>3</sup> (Fumes)
Silicium	15/ 5 mg/m <sup>3</sup> (total/respiratory)	0.3 mg/m <sup>3</sup> (as SiO <sub>2</sub> )
Magnesium	No limit	No limit

### 8.2 Exposure controls

#### Technical measures to prevent exposure:

Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust explosion proof ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

#### Instructional measures to prevent exposure:

Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the day.

#### Personal protection equipment:

**Respiratory protection:** If ventilation cannot effectively keep dust concentrations below established limits, appropriate certified respiratory protection must be provided. Use a dust mask or filter apparatus of minimal level FFP1.

**Hand protection:** Use impervious nitrile gloves.

**Eye protection:** Wear safety glasses or chemical goggles.

**Body protection:** Use long sleeved antistatic garments and closed, antistatic safety shoes.

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#### 9. PHYSICAL AND CHEMICAL PROPERTIES

##### 9.1 Appearance:

**Physical state:** Powder

**Colour:** Silver/Gray

**Odour:** Odourless

##### 9.2 Important health, safety and environmental information

<b>pH (20 °C):</b>	NA
<b>Melting point/range (°C):</b>	570 - 660
<b>Boiling point/range (°C):</b>	No Data
<b>Flash point (°C):</b>	No Data
<b>Ignition temperature (°C):</b>	>500°C
<b>Vapour pressure (°C):</b>	No Data
<b>Density (g/cm<sup>3</sup>):</b>	2.5 - 2.7
<b>Bulk density (kg/m<sup>3</sup>):</b>	0.7 – 1.5
<b>Water solubility (20°C in g/l):</b>	Insoluble
<b>Viscosity:</b>	NA
<b>Auto-ignition temperature (°C):</b>	Product is not self-igniting
<b>Decomposition temperature:</b>	No Data
<b>Dust explosion hazard:</b>	Fine dust clouds may form explosive mixtures with air
<b>Lower explosion limit (g/m<sup>3</sup>):</b>	30
<b>Upper explosion limit:</b>	No Data
<b>Oxidising properties</b>	No Data
<b>Particle size</b>	100% <1mm

#### 10. STABILITY AND REACTIVITY

**10.1 Chemical Stability:** Stable under normal conditions and under recommended storage conditions. Aluminium and aluminium alloys may oxidize slowly when exposed to air.

**10.2 Reactivity:** Stable under normal conditions and under recommended storage conditions.

**10.3 Possibility of hazardous reactions:** Contact with water releases flammable gasses (hydrogen). Will react exothermally if mixed with strong oxidising substance and ignited. Susceptible to dust explosions.

**10.4 Conditions to avoid:** Prevent formation of dust clouds and accumulation of fines. Static electricity, heat or ignition source.

**10.5 Incompatible materials:** water, alcohols, amines, alkalis, oxidizing agents, strong acids and strong bases, halogenated hydrocarbons and other combustible materials.

**10.6 Hazardous decomposition products:** vapour, flammable gas (Hydrogen).

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#### 11. TOXICOLOGICAL INFORMATION

##### 11.1 Likely Routes of Exposure:

Inhalation, skin, eyes. Product as shipped does not present an inhalation hazard; however subsequent operations may create dusts or fumes which could be inhaled.

##### 11.2 Symptoms of Exposure:

Fines/dusts may irritate airways and eyes.

##### 11.3 Acute and chronic effects:

**Aluminium:** No scientific data is available on the toxicity of aluminum. Aluminum is considered to be relatively inert. This product is also not considered to be mutagenic, teratogenic or carcinogenic.

**Silicium:** No scientific data is available on the toxicity of silicium. This product is also not considered to be mutagenic, teratogenic or carcinogenic. Oral LD50 Rat: 3160 mg/kg

**Magnesium:** No scientific data is available on the toxicity of magnesium. There is no know limit for allowable daily magnesium intake. This product is also not considered to be mutagenic, teratogenic or carcinogenic.

**Acute Toxicity:** No data available

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#### 12. Ecological information

##### 12.1 Toxicity

**Long-term Ecotoxicity** No data available

##### 12.2 Persistence and degradability

**Abiotic Degradation** No data available

**Physical-and photo-chemical elimination** No data available

**Biodegradation** Not readily biodegradable.

##### 12.3 Biocumulative potential

**Bioconcentration factor (BCF)** No data available

##### 12.4 Mobility in soil

**Known or predicted distribution to environmental compartments** No data available

**Adsorption/Desorption** No data available

##### 12.5 Additional information

Do not allow product to enter drains. Do not flush into surface water. Do not let product contaminate subsoil.

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#### 13. DISPOSAL CONSIDERATIONS

**13.1 Appropriate disposal / Product:** Do not contaminate sewers, drains, soil or surface waters with this material. Reduce waste by attempting to utilize product completely. Dispose of this container and its contents in accordance with all local, state, and federal regulations.

**13.2 Packaging disposal:** Consult local and national guidelines for the disposal of discarded packaging.

**13.3 Additional information:** Prior to disposal 3D Systems recommends consulting your local waste disposal authority or an approved waste disposal firm to ensure regulatory compliance.

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#### 14. TRANSPORT INFORMATION

<b>UN Number</b>	Not applicable
<b>UN proper shipping name</b>	Not applicable
<b>Transport hazard class(es)</b>	Not applicable
<b>Packing group</b>	Not applicable
<b>Label</b>	Not applicable
<b>Environmental hazards</b>	Not applicable
<b>Special precautions for user</b>	Prevent moisture and contact with water, heat sources and sources of ignition
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IPBC code</b>	Not applicable

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#### 15. REGULATORY INFORMATION

##### 15.1 EU regulations

EINEC/ELINCS/NLP: All materials are listed  
REACH Annex XVII: None listed  
Other guidelines: Falls under the ATEX guidelines

##### 15.2 National EU regulations

Not applicable

##### 15.3 US FEDERAL

TSCA: All materials are listed on the TSCA Inventory or are not subject to TSCA requirements  
SARA 302 EHS List (40 CFR 355 Appendix A): None listed  
SARA 313 (40 CFR 372.65): None listed  
CERCLA (40 CFR 302.4): None listed

##### 15.4 Australian regulations

SUSDP, Industrial Chemicals Act 1989:  
Australian Inventory of Chemical Substances, AICS: Listed



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#### 15.5 Japanese regulations

Industrial Health and Safety Law	Dangerous substances (Combustible substances: Aluminium powder)
Hazardous material	not applicable
Organic solvent poison prevention rule	not applicable
Ordinance on prevention of hazard due to specified chemical substances	not applicable
Lead Poisoning Prevention Rule	not applicable
Poison and Deleterious Substance Control law	not applicable
Management law (PRTR Law)	not applicable
Fire Services Act	flammable solid
Explosives Law	explosive dust
High pressure gas safety law	not applicable
Export Trade Control Order	not applicable
Ship Safety Act:	Combustible material, pyrophoric substance
Aviation Law:	Transport ban, combustible material, pyrophoric substance (194-1)
Waste Disposal and Public Cleaning Law operative to ensure regulatory compliance	Before disposal, consult an approved waste disposal

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#### 16. OTHER INFORMATION

##### 16.1 Relevant Hazard Statements (number and full text) referred to in sections 2 and 3 (according to (EC) No. 1272/2008):

Flam. Sol.1, H228- Flammable solid, category 1, H228: Flammable solid  
Flam. Sol.2, H228- Flammable solid, category 2, H228: Flammable solid  
Pyr. Sol.1, H250 – Pyrophoric solid, category 1, H250: Catches fire spontaneously if exposed to air  
Self. Heat. 2, H252 – Self-heating solid, category 2, H252: Self-heating in large quantities; may catch fire  
Water react. 2, H261- Emission of flammable gases in contact with water, category 2, H261: In contact with water releases flammable gas  
Water react. 3, H261- Emission of flammable gases in contact with water, category 3, H261: In contact with water releases flammable gas  
H334: May cause asthma symptoms or breathing difficulties if inhaled  
H373: May cause damage to organs through prolonged or repeated exposure

##### Relevant Precautionary statements (number and full text) referred to in sections 2 and 3 (according to (EC) No. 1272/2008):

P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P223: Do not allow contact with water.  
P231+232: Handle under inert gas. Protect from moisture.  
P240: Ground/bond container and receiving equipment.  
P241: Use explosion-proof electrical and ventilating equipment.  
P260: Do not breathe dust.  
P280: Wear protective gloves, clothing and eye protection.  
P284: [In case of inadequate ventilation] wear respiratory protection.  
P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P314: Get medical advice/attention if you feel unwell.  
P370+378: In case of fire: Use dry sand or Class D fire extinguisher to extinguish.  
P402+404: Store in a dry place. Store in a closed container.  
P422: Store contents under inert gas.

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#### Relevant other dangers referred to in sections 2 and 3:

Danger of dust explosion: Dust clouds can be ignited and could pose an explosion risk in a confined space.

Reactivity: Can react with oxidizing agents and in alkaline solutions, causing hydrogen release. Hydrogen gas can ignite spontaneously due to exothermal nature of reaction – Explosion risk.

Reactivity: Can react violently with halogenated hydrocarbons.

#### Relevant R-Phrases (number and full text) referred to in sections 2 and 3:

##### F, R11, R15, R17

F : Highly Flammable

R11 : Highly flammable

R15 : Contact with water liberates extremely flammable gases

R17: Spontaneously flammable in air.

#### 16.2 Further information:

SDS Creation Date:..... March 14<sup>th</sup>, 2016

SDS Revision #: .....00-C

SDS Revision Date:..... February 7<sup>th</sup>, 2017

Reason for Revision: ..... Updated part number / updated header / updated danger class in accordance to latest safety testing results

[www.3dsystems.com](http://www.3dsystems.com)

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