

# SAFETY DATA SHEET

Version  
3.0 Revision Date  
09/04/2017

## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product identifiers

Product name : Aluminum  
Brand : SAM

CAS-No. : 7429-90-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

### 1.3 Details of the supplier of the safety data sheet

Company : Stanford Advanced  
Materials  
23661 Birtcher Dr.  
Lake Forest, CA 92630  
USA

Telephone : +1 (949) 407-8904

Fax : +1 (949) 812-6690

### 1.4 Emergency telephone number

Emergency Phone # : +1-(949) 407-8904

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)  
H228 : Flammable solid.

Precautionary statement(s)  
P210 : Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P240 : Ground/bond container and receiving equipment.  
P241 : Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P280 : Wear protective gloves/ eye protection/ face protection.  
P370 + P378 : In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Combustible dust

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Formula : Al  
Molecular weight : 26.98 g/mol  
CAS-No. : 7429-90-5  
EC-No. : 231-072-3  
Index-No. : 013-002-00-1  
Registration number : 01-2119529243-45-XXXX

#### Hazardous components

Component	Classification	Concentration
	Flam. Sol. 1; H228	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

##### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

##### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

##### In case of eye contact

Flush eyes with water as a precaution.

##### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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### 5. FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Special powder against metal fire Dry sand Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

##### Unsuitable extinguishing media

Water Carbon dioxide (CO<sub>2</sub>) ABC powder

#### 5.2 Special hazards arising from the substance or mixture

No data available

#### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 5.4 Further information

Use water spray to cool unopened containers.

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### 6. ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

For personal protection see section 8.

## 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

## 6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13). Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

## 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Store in original container. Do not store near combustible materials. Keep in a cool place away from acids. Keep in a cool place away from bases. Keep in a cool place away from oxidizing agents. Keep container tightly closed in a dry and well-ventilated place.

Handle and store under inert gas. Keep in a dry place.

Storage class (TRGS 510): Flammable solid hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL

### PROTECTION 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
	7429-90-5	TWA	1.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lower Respiratory Tract irritation Pneumoconiosis Neurotoxicity Not classifiable as a human carcinogen		

		TWA	15.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	15.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Lower Respiratory Tract irritation Pneumoconiosis Neurotoxicity Not classifiable as a human carcinogen varies		
		TWA	1.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Lower Respiratory Tract irritation Pneumoconiosis Neurotoxicity Not classifiable as a human carcinogen varies		
		TWA	15 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Lower Respiratory Tract irritation Pneumoconiosis Neurotoxicity Not classifiable as a human carcinogen varies		
		PEL	5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Protective gloves against thermal risks

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |                                            |                                        |
|--------------------------------------------|----------------------------------------|
| a) Appearance                              | Form: powder<br>Colour: silver         |
| b) Odour                                   | odourless                              |
| c) Odour Threshold                         | No data available                      |
| d) pH                                      | No data available                      |
| e) Melting point/freezing point            | Melting point/range: 660 °C (1,220 °F) |
| f) Initial boiling point and boiling range | 2,467 °C (4,473 °F)                    |

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|-------------------------------------------------|--------------------------------------------------|
| g) Flash point                                  | Not applicable                                   |
| h) Evaporation rate                             | No data available                                |
| i) Flammability (solid, gas)                    | May form combustible dust concentrations in air. |
| j) Upper/lower flammability or explosive limits | No data available                                |
| k) Vapour pressure                              | No data available                                |
| l) Vapour density                               | No data available                                |
| m) Relative density                             | 2.7 g/mL at 25 °C (77 °F)                        |
| n) Water solubility                             | insoluble                                        |
| o) Partition coefficient: n-octanol/water       | No data available                                |
| p) Auto-ignition temperature                    | not auto-flammable                               |
| q) Decomposition temperature                    | Not applicable                                   |
| r) Viscosity                                    | No data available                                |
| s) Explosive properties                         | Risk of dust explosion.                          |
| t) Oxidizing properties                         | No data available                                |

## 9.2 Other safety information

No data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Risk of dust explosion. Reacts with water to generate Hydrogen gas. Reacts with the following substances: Acids, Bases, Oxidizing agents, Halogens

### 10.4 Conditions to avoid

Humid air water

Heat, flames and sparks. Extremes of temperature and direct sunlight.

### 10.5 Incompatible materials

Acids, Bases, Halogens, Oxidizing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Aluminum oxide

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - > 2,000 mg/kg

LC50 Inhalation - Rat - 4 h - > 888 mg/l

Dermal: No data available

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitisation**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional Information**

RTECS: BD0330000

Cough, weight loss, anemia, Weakness, Incoordination.

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**12. ECOLOGICAL INFORMATION****12.1 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**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

No data available

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**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**  
Dispose of as unused product.

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**14. TRANSPORT INFORMATION**

**DOT (US)**

UN number: 1309      Class: 4.1      Packing group: II  
Proper shipping name: Aluminum powder, coated  
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

**IMDG**

UN number: 1309      Class: 4.1      Packing group: II      EMS-No: F-G, S-G  
Proper shipping name: ALUMINIUM POWDER, COATED

**IATA**

UN number: 1309      Class: 4.1      Packing group: II  
Proper shipping name: Aluminium powder, coated

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**15. REGULATORY INFORMATION**

**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Aluminium powder (non pyrophoric)	7429-90-5	1994-04-01

**SARA 311/312 Hazards**

Fire Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Aluminium powder (non pyrophoric)	7429-90-5	1994-04-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Aluminium powder (non pyrophoric)	7429-90-5	1994-04-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Aluminium powder (non pyrophoric)	7429-90-5	1994-04-01

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3.**

Flam. Sol.      Flammable solids  
H228      Flammable solid.

**HMIS Rating**

Health hazard:      0  
Chronic Health Hazard:  
Flammability:      3  
Physical Hazard      3

**NFPA Rating**

Health hazard:      0



Fire Hazard: 3

Reactivity Hazard: 3

**Further information**

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