



Safety Data Sheet

Skyspring Nanomaterials, Inc.

www.ssnano.com

Rev 02/01/2022

1 Identification of substance:

Product details:

- Product name: Aluminum powder
- Product numbers: 0230HJ
- Manufacturer/Supplier:
SkySpring Nanomaterials, Inc.
2935 Westhollow Dr., Houston, TX 77082, USA
Phone: 281-870-1700
Fax: 281-870-8002
Email: sales@ssnano.com

2 Hazards identification

2.1 Classification of the substance

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

Flammable solids (Category 1), H228

Chemicals which, in contact with water, emit flammable gases (Category 2), H261

2.2 GHS Label elements, including precautionary statements



Pictogram

Signal word Danger

Hazard statement (s)

H250 Catches fire spontaneously if exposed to air

H261 In contact with water releases flammable gases.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P222 Do not allow contact with air.

P223 Do not allow contact with water.

P231 + P232 Handle under inert gas. Protect from moisture.

P280 Wear protective gloves/ eye protection/ face protection.

P335 + P334 Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol resistant foam to extinguish

P402+P404 Store in dry place and close container

P501 Dispose of contents/ container to an approved waste disposal plant

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

3 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

Aluminum (CAS# 7429-90-5), 100%
Identification number(s):
EINECS Number: 231-072-3
EU Number: 013-001-00-6

4 First aid measures

- * After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
- * After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
- * After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.
- * After swallowing Seek immediate medical advice.

5 Fire fighting measures

- * Suitable extinguishing agents
Special powder for metal fires. Do not use water.
- * For safety reasons unsuitable extinguishing agents Water
- * Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

- * Person-related safety precautions:
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
- * Measures for environmental protection:
Do not allow material to be released to the environment without proper governmental permits.
- * Measures for cleaning/collecting:
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Keep away from ignition sources.
- * Additional information:
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- * Handling
- * Information for safe handling:
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

- * Information about protection against explosions and fires:
Keep ignition sources away.
Substance/product is self ignitable.
- * Storage
- * Requirements to be met by storerooms and receptacles:
No special requirements.
- * Information about storage in one common storage facility:
Store away from oxidizing agents.
Store away from water/moisture.
Do not store together with acids.
- * Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

* 8.1 Control parameters

Component	CAS-No.	Value	Control parameters	Basis
aluminium	7429-90-5	TWA	5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	10 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	15 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		PEL	5 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		PEL	5 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	1 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
Remarks		Not classifiable as a human carcinogen		

- * 8.2 Exposure controls Appropriate engineering controls Change contaminated clothing. Wash hands after working with substance.

Eye/face protection Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

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 EC 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.

Respiratory protection required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure Risk of explosion. No special precautionary measures necessary

9 Physical and chemical properties:

* General Information

* Form: Powder

* Color: Black

* Odor: Odorless

	Value/Range	Unit	Method
* Change in condition			
* Melting point/Melting range:	660	° C	
* Boiling point/Boiling range:	2467	° C	
* Sublimation temperature / start:	Not determined		
* Flash point:	Not applicable		
* Flammability (solid, gaseous)	Contact with water liberates extremely flammable gases.		
* Ignition temperature:	400	° C	
* Decomposition temperature:	Not determined		
* Auto igniting:	Spontaneously flammable in air.		
* Explosion limits:			
* Lower:	Not determined		
* Upper:	Not determined		
* Vapor pressure:	Not determined		

* Change in condition

* Melting point/Melting range: 660 ° C

* Boiling point/Boiling range: 2467 ° C

* Sublimation temperature / start: Not determined

* Flash point: Not applicable

* Flammability (solid, gaseous)
Contact with water liberates extremely flammable gases.

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* Auto igniting: Spontaneously flammable in air.

* Explosion limits:

* Lower: Not determined

* Upper: Not determined

* Vapor pressure: Not determined

- * Density: at 20 ° C 2.699 g/cm³
- * Solubility in / Miscibility with
- * Water:
Contact with water releases flammable gases
Not determined

10 Stability and reactivity

- * Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
- * Materials to be avoided:
- * Dangerous reactions
Contact with water releases flammable gases
Spontaneously flammable in air.
- * Dangerous products of decomposition: Hydrogen

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity No data available

Inhalation: No data available Dermal: No data available No data available

Skin corrosion/irritation No data available

Serious eye damage/eye irritation No data available

Respiratory or skin sensitization No data available

Germ cell mutagenicity No data available

Carcinogenicity IARC: No ingredient 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 ingredient 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 on OSHA's list of regulated carcinogens.

Reproductive toxicity 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

11.2 Additional Information RTECS: BD0330000

12 Ecological information:

- * 12.1 Toxicity No data available
- * 12.2 Persistence and degradability No data available
- * 12.3 Bioaccumulative potential Bioaccumulation *Salvelinus fontinalis* - 56 d - 268 µg/l(aluminium) Bioconcentration factor (BCF): 36
- * 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

13 Disposal considerations

- * Product:
- * Recommendation
Consult state, local or national regulations to ensure proper disposal.
- * Uncleaned packagings:
- * Recommendation:
Disposal must be made according to official regulations.

14 Transport information

- * DOT regulations:
- * Hazard class: 4.3
- * Identification number: UN1396
- * Packing group: II
- * Poison inhalation hazard:
No
- * Proper shipping name (technical name):
Aluminum powder, uncoated
- * Land transport ADR/RID (cross-border)
- * ADR/RID class: 4.3 Substances which, in contact with water, emit flammable gases
- * Item: 13b
- * Danger code (Kemler): 423
- * UN-Number: 1396
- * Description of goods: Aluminium powder, uncoated
- * Maritime transport IMDG:
- * IMDG Class: 4.3
- * UN Number: 1396
- * EMS Number: 4.2-02
- * Proper shipping name: Aluminium powder, uncoated
- * Air transport ICAO-TI and IATA-DGR:
- * ICAO/IATA Class: 4.3
- * UN/ID Number: 1396

* Proper shipping name: Aluminum powder, uncoated

15 Regulations

* SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

- SARA 313 Components The following components are subject to reporting levels established by SARA Title III, Section 313: aluminium CAS-No. 7429-90-5 Revision Date 1993-02-16
- SARA 311/312 Hazards Reactivity Hazard
- Massachusetts Right To Know Components No components are subject to the Massachusetts Right to Know Act.

16 Other information:

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Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.