SECTION 1. IDENTIFICATION

Product Identifier: (3N) 99.9% Aluminum Nanoparticles

Product Code: AL-M-03-NP

CAS Number: 7429-90-5

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351
Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
GHS02 Flame
Pyr. Sol. 1 H250 Catches fire spontaneously if exposed to air.
Water-react. 2 H261 In contact with water releases flammable gas.
Classification according to Directive 67/548/EEC or Directive 1999/45/EC
F; Highly flammable
R15-17: Contact with water liberates extremely flammable gases. Spontaneously flammable in air.

Information concerning particular hazards for human and environment:
N/A
Hazard not otherwise classified
No data available.

Label elements
Labelling according to Regulation (EC) No 1272/2008
The substance is classified and labeled according to the CLP regulation.

Hazard pictograms

GHS02
Signal word: Danger

Hazard statements
H250 Catches fire spontaneously if exposed to air.
H261 In contact with water releases flammable gas.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P222 Do not allow contact with air.
P231+P232 Handle under inert gas. Protect from moisture.
P370+P378 In case of fire: Use for extinction: Special powder for metal fires.
P422 Store contents under inert gas.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification
B6 - Reactive flammable material

Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)
Health (acute effects) = 1
Flammability = 3
Physical Hazard = 2
Other hazards

Results of PBT and vPvB assessment:
PBT: N/A.
vPvB: N/A

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
CAS No. / Substance Name:
7429-90-5 Aluminum
Identification number(s):
EC number: 231-072-3
Index number: 013-001-00-6

SECTION 4. FIRST AID MEASURES

Description of first aid measures
If inhaled:
In case of unconsciousness place patient stably in side position for transportation. Supply fresh air. If not breathing, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

In case of skin contact:
Immediately wash with soap and water; rinse thoroughly. Seek immediate medical advice.

In case of eye contact:
Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:
Seek medical treatment.

Information for doctor
Most important symptoms and effects, both acute and delayed
No information available.
SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing media
Special powder for metal fires. Do not use water.
For safety reasons unsuitable extinguishing media
Water
Special hazards arising from the substance or mixture
Spontaneously flammable in air.
If this product is involved in a fire, the following can be released:
Metal oxide fume
Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
Environmental precautions:
No special measures required.
Do not allow product to reach sewage system or any water course.
Do not allow to penetrate the ground/soil.
Methods and material for containment and cleanup:
Keep away from ignition sources.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Prevention of secondary hazards:
Keep away from ignition sources.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling
Precautions for safe handling
Handle under dry protective gas.
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure adequate ventilation.
Information about protection against explosions and fires:
Substance/product is self ignitable.
Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles:
No special requirements.
Information about storage in one common storage facility:
Do not store together with acids.
Store away from oxidizing agents.
Store away from strong bases.
Store away from halogenated compounds.
Store away from air.
Store away from water/moisture.
Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
This product is air sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Protect from humidity and water.
Specific end use(s)
No further relevant information available

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Control parameters
Components with limit values that require monitoring at the workplace:
7429-90-5 Aluminum (100.0%)  
PEL (USA) Long-term value: 15*; 15** mg/m³  
*Total dust; ** Respirable fraction  
REL (USA) Long-term value: 10* 5** mg/m³  
*Total dust **Respirable fraction  
TLV (USA) Long-term value: 1* mg/m³ as Al; *as respirable fraction  
EL (Canada) Long-term value: 1.0 mg/m³ metal and insoluble compounds, respirable  
EV (Canada) Long-term value: 5 mg/m³ aluminium-containing (as aluminium)  
Additional information: No data  
Exposure controls
Personal protective equipment
Follow typical general protective and industrial hygiene measures for handling chemicals.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.  
Wash hands before breaks and at the end of work.  
Breathing equipment:  
Use suitable respirator when high concentrations are present.  
Protection of hands:  
Impervious gloves  
Inspect gloves prior to use.  
Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.  
Penetration time of glove material (in minutes): No data available.  
Eye protection:  
Safety glasses
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:
Form: Powder
Color: Silver gray
Odor: Odorless
Odor threshold: No data available.

pH: N/A.

Melting point/range: 660.4 °C (1221 °F)
Boiling point/range: 2519 °C (4566 °F)
Sublimation temperature / start: No data available.
Flash point: N/A

Flammability (solid, gas):
Contact with water liberates extremely flammable gases.
Ignition temperature: 400 °C (752 °F)
Decomposition temperature: No data available.
Auto igniting: Spontaneously flammable in air.
Danger of explosion: No data available.

Explosion limits:
Lower: No data available.
Upper: No data available.

Vapor pressure: N/A.

Density at 20 °C (68 °F): 2.7 g/cm³ (22.532 lbs/gal)
Relative density: No data available.

Vapor density: N/A.

Evaporation rate: N/A.

Solubility in Water (H₂O):
Contact with water releases flammable gases

Partition coefficient (n-octanol/water): No data available.

Viscosity:
Dynamic: N/A.
Kinematic: N/A.

Other information
No information available.

SECTION 10. STABILITY AND REACTIVITY

Reactivity
In contact with water releases flammable gases which may ignite spontaneously.
Catches fire spontaneously if exposed to air.

Chemical stability
Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions
Spontaneously flammable in air.
Contact with water releases flammable gases

Conditions to avoid
No information available.

Incompatible materials:
Acids
Air
Oxidizing agents
Bases
Halocarbons
Water/moisture

Hazardous decomposition products:
Metal oxide fume

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity: N/A
LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion: May cause irritation
Eye irritation or corrosion: May cause irritation
Sensitization: No sensitizing effects known.
Germ cell mutagenicity: N/A
Carcinogenicity:
ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.
Reproductive toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.
Specific target organ system toxicity - repeated exposure: N/A
Specific target organ system toxicity - single exposure: N/A
Aspiration hazard: N/A
Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity:
No information available.
Persistence and degradability:
No information available.
Bioaccumulative potential:
No information available.
Mobility in soil:
No information available.
Additional ecological information:
General notes:
Do not allow material to be released to the environment without official permits.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. Avoid transfer into the environment. Results of PBT and vPvB assessment: PBT: N/A. vPvB: N/A. Other adverse effects No further relevant information available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation: Consult state, local or national regulations to ensure proper disposal.
Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
DOT, IMDG, IATA
UN1396
UN proper shipping name
DOT Aluminum powder, uncoated
IMDG, IATA ALUMINIUM POWDER, UNCOATED
Transport hazard class(es)
DOT Class 4.3 Substances which, in contact with water, emit flammable gases.
Label 4.3
Class 4.3 (W2) Substances which, in contact with water, emit flammable gases
Label 4.3
IMDG, IATA Class 4.3 Substances which, in contact with water, emit flammable gases.
Label 4.3
Packing group DOT, IMDG, IATA II
Environmental hazards: N/A.
Special precautions for user Warning: Substances which, in contact with water, emit flammable gases
EMS Number:
运输在散装根据附录II的MARPOL73/78和IBC代码N/A。

运输/附加信息:

DOT

海洋污染物(DOT):

否

UN "Model Regulation":

UN1396, 铝粉，未涂层，4.3, II

SECTION 15. REGULATORY INFORMATION

安全、健康和环境法规/立法，具体针对该物质或混合物

国家法规

所有成分均被列入美国环境保护局有毒物质控制法化学品物质清单。

所有成分均被列入加拿大国内物质列表(DSL)。

SARA Section 313 (specific toxic chemical listings)

7429-90-5 铝

加州提案65

Prop 65 - 化学品导致癌症

物质未列入。

Prop 65 - 发育毒性

物质未列入。

Prop 65 - 发育毒性，女性

物质未列入。

Prop 65 - 发育毒性，男性

物质未列入。

关于限制使用的信息:

仅限于技术合格的人员使用。

该产品受第313节的应急计划和社区知情权法案1986年和40CFR372的报告要求。

其他法规，限制和禁用法规

物质非常高的担忧(SVHC)根据REACH法规(EC) No. 1907/2006。

物质未列入。

根据第67条和第XVII条的条件根据REACH法规(EC) No 1907/2006 (REACH)的条件，制造、投放市场和使用必须遵守。物质未列入。

REACH - 预先登记物质

物质未列入。

化学安全评估

A Chemical Safety Assessment has not been carried out.

16. OTHER INFORMATION

安全数据表根据REACH法规(EC) No. 1907/2006 (REACH)。上述信息被认为是正确的，但不主张是完整且应仅用作指南。该信息在该文档中基于我们目前的知识状态，并适用于产品的使用，应考虑适当的安全预防措施。它不表示任何保证的代表。
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