

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 08/02/2010

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Aluminum powder**Stock number:** 45546**CAS Number:**

7429-90-5

EINECS Number:

231-072-3

Index number:

013-001-00-6

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

GHS02 Flame

H250 Catches fire spontaneously if exposed to air.

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.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

F Highly flammable

Risk phrases:

15 Contact with water liberates extremely flammable gases.

17 Spontaneously flammable in air.

Safety phrases:

7/8 Keep container tightly closed and dry.

43 In case of fire, use metallic extinguishing powder. Never use water.

Hazard description:**WHMIS classification****Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	1
FIRE	3
REACTIVITY	2

Health (acute effects) = 1

Flammability = 3

Reactivity = 2

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

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vPvB: Not applicable.

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3 Composition/information on ingredients**Chemical characterization: Substances****(CAS#) Description:**

Aluminum powder (CAS# 7429-90-5)

Identification number(s):**EINECS Number:** 231-072-3**Index number:** 013-001-00-6**4 First aid measures****Description of 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 Firefighting measures****Extinguishing media****Suitable extinguishing agents** Special powder for metal fires. Do not use water.**For safety reasons unsuitable extinguishing agents** Water**Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Metal oxide fume

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

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:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

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.

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 good ventilation at the workplace.

Information about protection against explosions and fires:

Keep ignition sources away.

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 oxidizing and acidic materials.

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Store away from air.
 Store away from water/moisture.
Further information about storage conditions:
 Store under dry inert gas.
 This product is moisture sensitive.
 Keep container tightly sealed.
 Store in cool, dry conditions in well sealed containers.
 Protect from humidity and water.
 This product is air sensitive.

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:

Aluminum metal	
	mg/m ³
ACGIH TLV	10 (dust) 5 (pyro powder)
Alberta Canada TWA	10; 20-STEEL (dust) 5; 10-STEEL (pyro powder)
Belgium TWA	10 (dust) 5 (pyro powder)
BC Canada TWA	3 (resp dust); 10 (total dust) 5 (pyro powder)
Germany MAK	1.5 (resp dust)
Ireland TWA	5 (resp dust); 10 (total inhal dust)
Japan TWA	0.5 (resp dust); 2 (total dust)
Netherlands MAC-TGG	10 (dust) 5 (pyro powder)
Norway TWA	5 (dust)
Quebec Canada TWA	10 (dust) 5 (pyro powder)
Sweden TWA	4 (resp dust); 10 (total dust)
United Kingdom TWA	4 (resp dust); 10 (total inhal dust)
USA PEL	5 (resp dust); 15 (total dust) 5 (pyro powder)

Additional information: No data

Exposure controls**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

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

Eye protection:

Safety glasses

Full face protection

Body protection: Protective work clothing.

9 Physical and chemical properties**Information on basic physical and chemical properties****General information****Appearance:**

Form:	Powder
Color:	Silver grey
Odor:	Odorless
Odour threshold:	Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range:	660.4°C (1221 °F)
Boiling point/Boiling range:	2519°C (4566 °F)
Sublimation temperature / start:	Not determined

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Product name: Aluminum powder

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Flash point:	Not applicable
Flammability (solid, gaseous)	Contact with water liberates extremely flammable gases.
Ignition temperature:	400°C (752 °F)
Decomposition temperature:	Not determined
Auto igniting:	Spontaneously flammable in air.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not applicable.
Density at 20°C (68 °F):	2.7 g/cm ³ (22.532 lbs/gal)
Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with Water:	Contact with water releases flammable gases
Segregation coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Other information	No further relevant information available.

10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions

Contact with water releases flammable gases

Spontaneously flammable in air.

Incompatible materials:

Water/moisture

Acids

Air

Oxidizing agents

Hazardous decomposition products:

Hydrogen

Metal oxide fume

11 Toxicological information**Information on toxicological effects****Acute toxicity:****Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.**Other information (about experimental toxicology):**

Reproductive effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:

Aluminum may be implicated in Alzheimers disease. Inhalation of aluminum containing dusts may cause pulmonary disease.

Subacute to chronic toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).

Endocrine - hypoglycemia.

Lungs, Thorax, or Respiration - fibrosis (interstitial)

Lung, Thorax, or Respiration - cough.

Lungs, Thorax, or Respiration - dyspnea.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Reproductive - Effects on Newborn - behavioral.

Reproductive - Effects on Newborn - delayed effects.

Reproductive - Effects on Newborn - physical.

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Reproductive - Effects on Newborn - other postnatal measures or effects.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information**Toxicity****Acquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**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.**14 Transport information****DOT regulations:**

Hazard class:	4.3
Identification number:	UN1396
Packing group:	II
Poison inhalation hazard:	No
Proper shipping name (technical name):	ALUMINIUM POWDER, UNCOATED
Label	4.3

Land transport ADR/RID (cross-border)

ADR/RID class:	4.3 (W2) Substances which, in contact with water, emit flammable gases
Danger code (Kemler):	423
UN-Number:	1396
Packaging group:	II
UN proper shipping name:	1396 ALUMINIUM POWDER, UNCOATED

Maritime transport IMDG:

IMDG Class:	4.3
UN Number:	1396
Label	4.3

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Product name: Aluminum powder

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Packaging group:	II
EMS Number:	F-G, S-O
Marine pollutant:	No
Segregation groups	Powdered metals
Proper shipping name:	ALUMINIUM POWDER, UNCOATED

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class:	4.3
UN/ID Number:	1396
Label	4.3
Packaging group:	II
Proper shipping name:	ALUMINIUM POWDER, UNCOATED

UN "Model Regulation": UN1396, ALUMINIUM POWDER, UNCOATED, 4.3, II

Special precautions for user

Warning: Substances which, in contact with water, emit flammable gases

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Product related hazard informations:**Hazard symbols:**

F Highly flammable

Risk phrases:

15 Contact with water liberates extremely flammable gases.

17 Spontaneously flammable in air.

Safety phrases:

7/8 Keep container tightly closed and dry.

43 In case of fire, use metallic extinguishing powder. Never use water.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**16 Other information**

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.

Department issuing MSDS: Health, Safety and Environmental Department.**Contact:**Zachariah C. Holt
Global EHS Manager**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)