

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/27/2011

Reviewed on 09/22/2010

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Gadolinium powder**Stock number:** 12896**EINECS Number:**

231-162-2

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

H228 Flammable solid.

H260 In contact with water releases flammable gases which may ignite spontaneously.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

F+ Highly flammable

R11-15: Highly flammable. Contact with water liberates extremely flammable gases.

Label elements**Labelling according to EU guidelines:**

Observe the general safety regulations when handling chemicals

Code letter and hazard designation of product:

F Highly flammable

Risk phrases:

11 Highly flammable.

15 Contact with water liberates extremely flammable gases.

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.**vPvB:** Not applicable.

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

Gadolinium powder

Identification number(s):**EINECS Number:** 231-162-2**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

Environmental precautions:

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

Methods and material for containment and cleaning up: Pick up mechanically.**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.

Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities**Storage****Requirements to be met by storerooms and receptacles:** Store in a cool location.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

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.

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This product is air sensitive.

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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: Not required.

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:

Check protective gloves prior to each use for their proper condition.

Impervious gloves

Material of gloves

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

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:	1312°C (2394 °F)
Boiling point/Boiling range:	3273°C (5923 °F)
Sublimation temperature / start:	Not determined

Flash point: Not applicable

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

Ignition temperature: Not determined

Decomposition temperature: Not determined

Auto igniting: Not determined.

Explosion limits:

Lower:	Not determined
Upper:	Not determined

Vapor pressure: Not applicable.

Density at 20°C (68 °F): 7.9 g/cm³ (65.926 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.

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kinematic:
Other informationNot applicable.
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**Incompatible materials:**

Air

Water/moisture

Oxidizing agents

Hazardous decomposition products: Metal oxide fume**11 Toxicological information****Information on toxicological effects****Acute toxicity:****Primary irritant effect:****on the skin:** May cause irritation**on the eye:** May cause irritation**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:**

Lanthanons can cause delayed blood clotting leading to hemorrhages. Exposure may also lead to sensitivity to heat, itching, increased awareness of odor and taste, and liver damage.

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 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:**

4.1

Identification number:

UN3178

Packing group:

II

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Proper shipping name (technical name): FLAMMABLE SOLID, INORGANIC, N.O.S.
Label 4.1

Land transport ADR/RID (cross-border)



ADR/RID class: 4.1 (F3) Flammable solids, self-reactive substances and solid desensitised explosives
Danger code (Kemler): 40
UN-Number: 3178
Packaging group: II
UN proper shipping name: 3178 FLAMMABLE SOLID, INORGANIC, N.O.S.

Maritime transport IMDG:



IMDG Class: 4.1
UN Number: 3178
Label 4.1
Packaging group: II
Marine pollutant: No
Proper shipping name: FLAMMABLE SOLID, INORGANIC, N.O.S.

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 4.1
UN/ID Number: 3178
Label 4.1
Packaging group: II
Proper shipping name: FLAMMABLE SOLID, INORGANIC, N.O.S.

UN "Model Regulation": UN3178, FLAMMABLE SOLID, INORGANIC, N.O.S., 4.1, II

Special precautions for user

Warning: Flammable solids, self-reactive substances and solid desensitised explosives

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:

Observe the general safety regulations when handling chemicals

Hazard symbols:

F Highly flammable

Risk phrases:

11 Highly flammable.

15 Contact with water liberates extremely flammable gases.

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 Non-Domestic Substances List (NDSL).

Information about limitation of use: For use only by technically qualified individuals.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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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)

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