

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: January 12, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Mg Standard Solution

1.2 Other means of identification

Product number LINS000992

Other names UNII-I38ZP9992A;Rieke's active magnesium;Magnesium powdered

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Pyrophoric solids, Category 1

Substances and mixtures, which in contact with water, emit flammable gases, Category 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H250 Catches fire spontaneously if exposed to air

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

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P222 Do not allow contact with air.

P233 Keep container tightly closed.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P223 Do not allow contact with water.

P231+P232 Handle and store contents under inert gas/....Protect from moisture.

Response

P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].

P370+P378 In case of fire: Use ... to extinguish.

Storage

P402+P404 Store in a dry place. Store in a closed container.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Mg Standard Solution	Magnesium	7439-95-4	231-104-6	≈ 99%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth.

4.2 Most important symptoms/effects, acute and delayed

Dust irritates eyes in same way as any foreign material. Penetration of skin by fragments of metal is likely to produce local irritation, blisters, and ulcers which may become infected. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Magnesium toxicity can be counteracted with calcium infusion.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Burning of magnesium cannot be extinguished with water, carbon dioxide, halons or nitrogen ..., and more important, if these agents are used in fire-fighting, the hazardous situation will become even more severe. The only agents that can be applied successfully are the noble gases or in some cases boron trifluoride.

5.2 Specific hazards arising from the chemical

Behavior in Fire: Forms dense white smoke. Flame is very bright. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use dry sand, special powder. NO hydrous agents, carbon dioxide, other agents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources. Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT wash away into sewer. Sweep spilled substance into covered dry containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Remove all ignition sources. Consult an expert! Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered dry containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with water or any other substances. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Dry. Well closed. Separated from other incompatible materials. Detached storage must be used for finely divided materials. Must be stored in a dry location. Isolate from halogens, acids, and oxidizing materials.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid.
Colour	Silvery-white metal
Odour	none
Melting point/freezing point	650 °C. Atm. press.:Ca. 1 013.25 mBar.
Boiling point or initial boiling point and boiling range	1 090 °C. Atm. press.:Ca. 1 013.25 mBar.
Flammability	Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	500°C
Auto-ignition temperature	390 °C. Remarks:At atm. press. of ca.1013.25 mBar.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 1.236. Temperature:652.0°C.;dynamic viscosity (in mPa s) = 1.213. Temperature:658.0°C.;dynamic viscosity (in mPa s) = 1.035. Temperature:703.0°C.
Solubility	INSOL IN COLD WATER, CHROMIUM TRIOXIDES; SOLUBLE IN MINERAL ACIDS
Partition coefficient n-octanol/water	log Pow = -0.57. Temperature:25 °C.
Vapour pressure	1.3 hPa. Temperature:621 °C. Remarks:Solid.
Density and/or relative density	1.74 g/cm³. Temperature:20 °C.
Relative vapour density	0.84
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance may ignite spontaneously on contact with air and moisture. This produces irritating or toxic fumes. Reacts with oxidants and many other substances. Reacts with moisture and acids. This produces flammable/explosive gas (hydrogen - see ICSC 0001). This generates fire and explosion hazard.

Reacts with water. This produces flammable/explosive gas (hydrogen - see ICSC 0001). This generates fire and explosion hazard. Contact with many other substances may cause dangerous reactions. Decomposes on heating. This produces toxic and irritating fumes.

10.2 Chemical stability

Slowly oxidizes in moist air.

10.3 Possibility of hazardous reactions

MAGNESIUM FIRE: DO NOT FLARE UP VIOLENTLY UNLESS...MOISTURE PRESENT. DANGEROUS IN FORM OF DUST OR FLAKES, WHEN EXPOSED TO FLAME OR BY VIOLENT CHEM REACTION WITH OXIDIZING AGENTS. ...SOLID FORM IS DIFFICULT TO IGNITE...IT MUST BE HEATED ABOVE ITS MELTING POINT... FINELY DIVIDED FORM...MAY BE IGNITED BY SPARK OR FLAME...OR EVEN SPONTANEOUSLY WHEN...DAMP, PARTICULARLY WITH WATER-OIL EMULSION. DURING MACHINING, MAGNESIUM FIRES RESULT FROM USE OF DULL CUTTING TOOLS, MACHINING WITH LIGHT CUT AT HIGH SPEEDS OR RUBBING OF TOOL ON WORK AFTER CUTTING OPERATION IS FINISHED.Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.MAGNESIUM slowly oxidizes in moist air. Reacts very slowly with water at ordinary temperatures, less slowly at 100°C. Reacts with aqueous solutions of dilute acids with liberation of hydrogen [Merck 11th ed. 1989]. In the presence of carbon, the combination of chlorine

trifluoride with aluminum, copper, lead, magnesium, silver, tin, or zinc results in a violent reaction [Mellor 2, Supp. 1. 1956]. A mixture of powdered magnesium with trichloroethylene or with carbon tetrachloride will flash or spark under heavy impact [ASESB Pot. Incid, 39. 1968]. Stannic oxide, heated with magnesium explodes [Mellor 7:401. 1946-47]. When carbon dioxide gas is passed over a mixture of powdered magnesium and sodium peroxide, the mixture exploded [Mellor 2:490. 1946-47]. Powdered magnesium plus potassium (or sodium) perchlorate is a friction-sensitive mixture [Safety Eng. Reports. 1947]. An explosion occurred during heating of a mixture of potassium chlorate and magnesium [Chem. Eng. News 14:451. 1936]. Powdered magnesium can decompose performic acid violently [Berichte 48:1139. 1915]. A mixture of finely divided magnesium and nitric acid is explosive [Pieters 1957. p. 28]. Magnesium exposed to moist fluorine or chlorine is spontaneously flammable [Mellor 4:267. 1946-47].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible with ethylene oxide, metal oxosalts, oxidants, and potassium carbonate.

10.6 Hazardous decomposition products

Violent decomposition with evolution of hydrogen chloride can occur when 1,1,1-trichloroethane comes into contact with magnesium or its alloys with aluminum.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (female) - > 2 000 mg/kg bw. Remarks:LD50 cut off value: 5000 mg/kg body weight.
- Inhalation: LC50 - rat (male/female) - > 2.1 mg/L air.
- Dermal: LD50 - rat (male/female) - > 2 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes and respiratory tract.

STOT-repeated exposure

Lungs may be affected by repeated or prolonged exposure to dust particles.

Aspiration hazard

A nuisance-causing concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Pimephales promelas - 541 mg/L - 96 h. Remarks:Magnesium.
- Toxicity to daphnia and other aquatic invertebrates: NOEC - Americamysis bahia (previous name: Mysidopsis bahia) - 740 mg/L - 48 h. Remarks:Magnesium.
- Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - > 25.5 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge - > 108 mg/L - 3 h. Remarks:Magnesium.

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 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN3257 (For reference only, please check.) IMDG: UN3257 (For reference only, please check.) IATA: UN3257 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash point (including molten metals, molten salts, etc.) (For reference only, please check.) IMDG: ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash point (including molten metals, molten salts, etc.) (For reference only, please check.) IATA: ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash point (including molten metals, molten salts, etc.) (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.) IMDG: 9 (For reference only, please check.) IATA: 9 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: III (For reference only, please check.) IMDG: III (For reference only, please check.) IATA: III (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Magnesium	Magnesium	7439-95-4	231-104-6
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date

July 15, 2024

Revision Date

January 12, 2025

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Burns with an intense flame. In order to prevent eye injury do not look directly at magnesium fires. Magnesium powder could be present with pellets. It is strongly recommended to consult the card for magnesium powder. See ICSC 0289. Reacts violently with fire extinguishing agents such as water, powder, carbon dioxide, halons and foams.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.