MagShield® Magnesium Hydroxide

Safety Data Sheet

according to the Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations

Version 2.0

Date of Issue: 04/18/2014 Revision Date: 05/03/2026 Supersedes: 03/02/2021

SECTION 1: Identification

1.1 GHS Product identifier

Product Form:	Substance
Product Name	MagShield® S MagShield® UF
Substance Name:	Magnesium hydroxide
Chemical Formula:	$Mg(OH)_2$
EC no:	215-170-3
CAS no.:	1309-42-8

1.2 Other means of identification

Magnesium dihydroxide, Magnesium hydroxide, Magnesium (II) hydroxide, milk of magnesia

1.3 Recommended use of the chemical and restrictions on use

Chemically precipitated magnesium hydroxide powder for use in flame retardant and other specialty chemical applications.

1.4 Supplier's details

Name	Martin Marietta
Address	2700 Wycliff Road Suite 320 Raleigh, NC 27607 USA
Telephone	(800) 648 - 7400

1.5 Emergency phone number

Available 24/7: U.S., CHEMTREC: 1-800-424-9300

Available 24/7: International, CHEMTREC: +1-703-527-3887

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)

No classified.

2.2 GHS label elements, including precautionary statements

No labeling applicable.

2.3 Other hazards which do not result in classification

Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance type: Mono-constituent

Component	Identification	Weight %
Magnesium hydroxide	CAS no.: 1309-42-8 EC no.: 215-170-3	98.8 %
Oxides of silicon, iron, aluminum, and calcium		1 %

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice:	Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
If inhaled:	If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
In case of skin contact:	Not expected to be an irritant. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
In case of eye contact:	Rinse immediately with plenty of water. Obtain medical attention if pain, blinking, or redness persists.
If swallowed:	Rinse mouth. Do NOT induce vomiting.

4.2 Most important symptoms/effects, acute and delayed

Symptoms/effects:	Not expected to present a significant hazard under anticipated conditions of normal use. Do not breathe dust.
Symptoms/effects after inhalation:	Inhalation may cause irritation, cough, shortness of breath.
Symptoms/effects after skin contact:	None under normal conditions.
Symptoms/effects after eye contact:	May cause eye irritation.

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

No special procedures required.

SECTION 5: Fire-fighting measures

5.1 Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Not combustible. If there is a fire close by, use suitable extinguishing agents: water fog, carbon dioxide, dry powder, foam.
Unsuitable extinguishing media:	None known.

5.2 Specific hazards arising from the chemical

Fire hazard:	If magnesium hydroxide is heated to the point of decomposition (>350 °C), it forms magnesium oxide and water. If magnesium oxide is heated to the point of volatilization (> 1700 °C), magnesium oxide fumes may be generated.
Explosive hazard:	Product is not explosive.
Reactivity:	Reacts with: Incompatible materials. See Section 7.

5.3 Special protective actions for fire-fighters

Firefighting instructions:	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not allow run-off from the fire fighting to enter drains or water courses.
Protection during firefighting:	Do not enter fire area without proper protective equipment, including respiratory protection.

Further information

No additional risk management measures required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment, and emergency procedures

General measures:	Avoid creating or spreading dust.
For non-emergency personnel:	Avoid contact with skin and eyes. Evacuate unnecessary personnel.
For emergency personnel:	Avoid contact with skin and eyes.

6.2 Environmental precautions

Prevent entry to sewers and public waters.

6.3 Methods and materials for containment and cleaning up

For containment:	Contain and collect as any solid.
Methods for cleaning up:	Sweep up spilled material without making dust.

Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling:	Provide good ventilation in process area to prevent formation of dust.
Hygiene measures:	Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking, and when leaving work.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions:	Keep container closed when not in use.
Incompatible products:	ACID (strong) - vigorous reaction, heat generated. MALEIC ANHYDRIDE - Alkali and other alkaline earth compounds including magnesium compounds, will cause explosive decomposition of maleic anhydride. PHOSPHORUS - Phosphorous boiled with alkaline hydroxides yields mixed phosphines which may ignite spontaneously with air.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

CAS: 1309-42-8 (EC: 215-170-3)
Magnesium hydroxide
ACGIH: 10 mg/m^3 TLV TWA inhalation (particulate mass);
US/OSHA: 10 mg/m^3 PEL inhalation (total dust);
5 mg/m^3 PEL inhalation (respirable fraction);
US/OSHA: 15 mppcf PEL inhalation;

8.2 Appropriate engineering controls

Provide local exhaust or general room ventilation to minimize exposure to dust. Use engineering controls to eliminate or reduce exposure below exposure limits.

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

Eye/face protection

Safety glasses with side guards should be worn to prevent injury from airborne particles and/or other eye contact with this product. Where excessive dust may result, wear goggles.

Respiratory protection

Where excessive dust may result, use approved respiratory protection equipment. Use an N95 respirator.

SECTION 9: Physical and chemical properties

Appearance, such as physical state and color	Powder
Odor	Odorless
Odor threshold	Not applicable
pH	No data available
Melting point and freezing point	350 °C (Decomposes) / No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability, in the case of solids and gases	Non flammable
Lower and upper explosion limit or lower and upper flammability limit	No data available
Vapor pressure	No data available
Relative vapor density	No data available
Relative density	2.36 g/cm^3 (solids)
Solubility	Water 6.9 mg/l
Partition coefficient — n-octanol/water (logarithmic value)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	350 °C (Decomposes)
Viscosity	No data available

Additional properties

Physical state	Solid
Color	White
Explosive properties	Product is not explosive.

Further safety characteristics (supplemental)

VOC Content: 0%

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts with: Incompatible materials.

10.2 Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

Keep/Store away from incompatible materials.

10.5 Incompatible materials

ACID (Strong) - vigorous reaction, heat generated.

MALEIC ANHYDRIDE - Alkali and other alkaline earth compounds including magnesium compounds, will cause explosive decomposition of maleic anhydride.

PHOSPHORUS - phosphorous boiled with alkaline hydroxides yields mixed phosphines which may ignite spontaneously with air.

10.6 Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute toxicity (oral):	Not classified (Based on available data, the classification criteria are not met)

Magnesium hydroxide: LD50 oral rat: >2000 mg/kg OECD Guideline 423

Acute toxicity (dermal):	Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation):	Not classified (Based on available data, the classification criteria are not met)
Skin corrosion/irritation:	Not classified (Based on available data, the classification criteria are not met)
Serious eye damage/irritation:	Not classified (Based on available data, the classification criteria are not met)
Respiratory or skin sensitization:	Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity:	Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity:	Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity:	Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard:	Not classified (Based on available data, the classification criteria are not met)

Specific target organ toxicity (STOT)

STOT - single exposure:	Not classified (Based on available data, the classification criteria are not met)
STOT - repeated exposure:	Not classified (Based on available data, the classification criteria are not met)

Additional Information

Likely routes of exposure:	Dermal; Inhalation
Symptoms/effects:	Not expected to present a significant hazard under anticipated conditions of normal use. Do not breathe dust.
Symptoms after inhalation:	Inhalation may cause irritation, cough, shortness of breath.
Symptoms after skin contact:	None under normal conditions.
Symptoms after eye contact:	May cause eye irritation.

SECTION 12: Ecological information

Toxicity

LC50 fish 1 (Oncorhynchus mykiss): 1293 mg/l

EC50 crustacea: 284.76 mg/l

LC50 fish 2 (P. promelas): 511.31 mg/l

ErC50 (algae): > 100 mg/l

Persistence and degradability

Not readily biodegradable although it does dissolve.

Bioaccumulative potential

Not established.

Mobility in soil

No additional information available.

SECTION 13: Disposal considerations

Disposal methods

Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations.

Ecology-waste materials: Avoid release to the environment.

SECTION 14: Transport information

DOT (US)

Not regulated.

IMDG

Not regulated.

IATA

Not regulated.

SECTION 15: Regulatory information

Component	CAS no.	EC no.	TSCA (US)[1]	Pfas[2]	Canada[3]	CLP[4]	Csm[5]	SVHC[6]
Magnesium hydroxide	1309-42-8	215-170-3	P	-	D	-	-	-

[1] TSCA (US): "P"—Public list, "C"—Confidential list
[2] pfas: Per- and polyfluoroalkyl substances (any pfas listing)
[3] Canada: "D"—Canadian Domestic Substances List, "N"—Canadian Non-Domestic Substances List
[4] CLP: EU table of harmonized entries, (EC) No. 1272/2008, Annex VI
[5] Csm: "p"—EU prohibited in cosmetics list, (EC) No. 1223/2009, Annex II, "r"—EU restricted in cosmetics list, (EC) No. 1223/2009, Annex III
[6] SVHC: EU Substances of Very High Concern Candidate List.

US Regulations

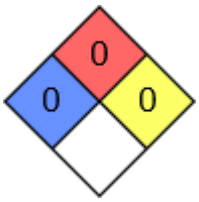
Regulation	Applicability
California Proposition 65	**CA WARNING** This product can expose you to Lead, Nickel, and Arsenic compounds, which are known to the State of California to cause cancer and developmental, male or female reproductive toxicity. For more information go to www.P65Warnings.ca.gov.
SARA 313 Components	This material [Magnesium Hydroxide] does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards	No SARA Hazards for: Magnesium hydroxide.

International Regulations

Jurisdiction	List	Comment
Asia Pacific	Asia - PAC	
Australia	Australian Inventory of Chemical Substances (AICS)	CR No: 6315
China	Inventory of Existing Chemical Substance (IECSC)	
Japan	Existing and New Chemical Substances (ENCS)	# 1-386; inorganic compounds
Korea	Chemical Inventory of Korea (KECI)	KE-22716

New Zealand	Inventory of Chemicals	HSNO approval
Philippines	Inventory of Chemicals and Chemical Substances (PICCS)	
Europe	EEC International Cosmetics Ingredient Inventory (INCI)	absorbent/buffering
	EU REACH	Registered
	EU Inventory of Existing Commercial Chemical Substances (EINECS)	215-170-3
	German Water Hazard Class Substance List	Classification: VwVwS
	Switzerland Giftliste	G-8166 Toxic Category 4
Canada	Canadian Domestic Substance List (DSL)	
United States	DOT Coast Guard Bulk Hazardous Materials	
	EPA Pesticide Inert Ingredients	
	FDA Food Substances Generally Recognized as Safe (GRAS)	
	FDA Priority-based Assessment of Food Additives (PAFA	
	High Production Volume Chemicals (HPV)	
	OSHA Permissible Exposure Limits	8-hour TWA: total particulates 15 mg/m3
	Toxic Substances Control Act (TSCA) Inventory	
	Toxic Inventory Update Rule	
	TSCA Section 8A-Preliminary Assessment Information Rule (PAIR)	
	High Production Volume Chemicals: ICCA	
	High Production Volume Chemicals: OECD	

NFPA Rating



NFPA health hazard: 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity 0 - Material that in themselves are normally stable, even under fire conditions.

SECTION 16: Other information

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Revision date: 05/03/2026

Data sources:

ACGIH 2000
Chemical Inspection & Regulation Service; accessed at http://www.cirs-reach.com/Inventory/Global_Chemicalical_Inventories.html.
Ind. Exposure & Control Techn. for OSHA Regulated Substances - MgO (fume) March, 1969, pp. 1181 - 1184.
Krister Forsberg and S. Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.
NIOSH Occupational Health Guide for Chemical Substances - Vol. II September 1978.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on the classification, labelling, and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No 1907/2006.
TRECS, June 1998

Sax - 8th ED. TSCA Chemical Substance Inventory. Accessed at http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html.
US National Library of Medicine National Institutes of Health Haz-Map. Accessed at http://hazmap.nlm.nih.gov.

Abbreviations and acronyms:

ACGIH: American Conference of Government Industrial Hygienists
ATE: Acute Toxicity Estimate
CAS: Chemical Abstract Service number
EC50: Environmental Concentration associated with a response by 50% of the test population.
GHS: Globally Harmonized System
LD50: Lethal Dose for 50% of test population.
OSHA: Occupational Safety & Health Administration
TSCA: Toxic Substances Control Act
TWA: Time Weighted Average

16.1 Further information/disclaimer

Disclaimer: The information contained in this document applies to this specific material as supplied and Martin Marietta believes that the information contained in this SDS is accurate. The suggested precautions and recommendations are based on recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance as not all use circumstances can be anticipated. It may not be valid for this material if it is used in combination with other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for one's own particular use. Since the actual use of the product described herein is beyond our control, Martin Marietta assumes no liability arising out of the use of the product by others. Appropriate warnings and safe handling procedures should be provided to handlers and users. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules or insurance requirement. However, products must not be used in a manner which could result in harm.

16.2 Preparation information

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