

SECTION I: CHEMICAL PRODUCT & COMPANY INFORMATION

MARTIN MARIETTA MAGNESIA SPECIALTIES LLC
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BALTIMORE, MARYLAND 21236

For Chemical **Emergency ONLY** (spill, leak, fire, exposure or accident), call CHEMTREC at:
Within USA: (800) 424-9300
Outside USA: (703) 527-3887

For all **NON-EMERGENCY** inquiries, call (410) 780-5500

Date: October 20, 2009

PRODUCT NAME(S): CellGuard NRT, CellGuard OP, FloMag H, FloMag HNP, FloMag HUS, THIOGUARD, Utilimag H and UtiliMag HUS

CHEMICAL DESCRIPTION: Magnesium Hydroxide aqueous suspension FORMULA: Mg(OH)₂

SECTION II: HAZARDS IDENTIFICATION

GHS CLASSIFICATION: Not classified as hazardous.

EMERGENCY OVERVIEW: Product contains mechanical irritants to skin, eyes and respiratory tract. Avoid contact with skin. Wear protective clothing including gloves, goggles or safety glasses with side shields. Magnesium oxide FUME may be generated in a reducing environment when temperatures exceed 1700°C (3092°F).

SECTION III: COMPOSITION / INFORMATION ON INGREDIENTS

<u>HAZARDOUS COMPONENT</u>	<u>CAS No</u>	<u>Approx Wt</u>
Magnesium Hydroxide	01309-42-8	61%
Water		39%

SECTION IV: FIRST AID MEASURES

INHALATION: Inhalation is not an expected route of exposure

EYE CONTACT: Eye contact may cause redness and tearing. Do not rub eyes. Wash eyes under slowly running water for at least fifteen minutes, making sure eyes are held wide open and moved slowly in every direction. Ensure no solid particles remain in creases of eyelids. If so, continue to wash. If irritation persists, consult an ophthalmologist.

SKIN CONTACT: Prolonged skin contact may cause drying and chapping. Remove from source of irritation. Remove contaminated clothing and wash affected area thoroughly with a mild soap and water. Wash contaminated clothing before reusing.

INGESTION: Treat symptomatically. If bowel obstruction occurs, immediately consult a physician.

SECTION V: FIRE FIGHTING MEASURES

FLASH POINT (METHOD): Product is not flammable or combustible.

AUTO-IGNITION TEMP: Not applicable

LEL: Not applicable UEL: Not applicable

SENSITIVE TO MECHANICAL IMPACT? No

SENSITIVE TO STATIC DISCHARGE? No

FLAMMABILITY CLASSIFICATION: Not flammable

CONDITIONS OF FLAMMABILITY: Not flammable

EXTINGUISHING MEDIA: Use media appropriate to primary source of fire. Otherwise, use dry chemical, carbon dioxide, water spray or foam.

SPECIAL FIREFIGHTING PROCEDURES: No special procedures; avoid breathing fumes or dust; keep upwind.

UNUSUAL FIRE & EXPLOSION HAZARDS: None known.

HAZARDOUS COMBUSTION PRODUCTS: None known.

SECTION VI: ACCIDENTAL RELEASE MEASURES

Reclaim product for re-use, if possible, or collect in containers for disposal in an appropriate manner.

SECTION VII: HANDLING & STORAGE

HANDLING PROCEDURES AND EQUIPMENT: Keep container closed when not in use. Avoid contact with eyes. Consumption of food and beverages should be avoided in work area where product is being used. After handling product, always wash hands and face thoroughly with soap and water before eating, drinking or smoking.

STORAGE REQUIREMENTS: Suitable for any general chemical storage area. Keep from freezing. Keep below 100°F to avoid evaporation of free water, which could lead to higher viscosity.

SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS: Local and general mechanical collection and ventilation in accordance with good engineering practices should be provided to maintain airborne exposure below permissible exposure levels specified in Section VIII.

PERSONAL PROTECTIVE EQUIPMENT:

GLOVES: Impervious gloves during manual handling of product.

EYES: Safety glasses with side-shields or tight fitting goggles.

FOOTWEAR: Steel reinforced shoes when handling pallets of product.

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CLOTHING: Long sleeves, buttoned collar, long pants extended over shoes or coveralls.

RESPIRATORY - UP TO 100 MG/M3: Any dust, mist or fume respirator; any air supplied respirator; or, self-contained breathing apparatus.

UP TO 250 MG/M3: Any supplied air respirator operated in a continuous flow mode or any powered air purifying respirator with a dust/mist/fume filter.

UP TO 500 MG/M3: High efficiency particulate filter with full face piece; any powered air supplied respirator with a tight fitting face piece and a high efficiency particulate filter; any self contained breathing apparatus with a full face piece; any supplied air respirator with a full face piece.

UP TO 7500 MG/M3: Any air supplied respirator with full-face piece and operated in a pressure demand or other positive pressure mode.

EMERGENCY or ENTRY INTO UNKNOWN CONCENTRATIONS: Self contained breathing apparatus with full face piece and operated in pressure demand mode or air supplied respirator with full face piece operated in a pressure demand or other positive pressure mode in combination with auxiliary self contained breathing apparatus operated in pressure demand or positive pressure mode.

ESCAPE: Any air purifying full face piece respirator with high efficiency particulate filter or any appropriate escape type self contained apparatus.

EXPOSURE LIMITS

Magnesium hydroxide: No exposure limits established by OSHA, ACGIH or NIOSH.

If magnesium hydroxide is heated over 1700°C (in a reducing environment), magnesium oxide fume may be generated. Exposure limits for magnesium oxide fume include:

ACGIH - Time Weighted Averages Magnesium oxide fume 10 mg/m³ TWA

ACGIH - TLV Basis: Critical Effects Magnesium oxide fume irritation; metal fume fever

Australian Exposure Standards Magnesium oxide fume 10 mg/m³ TWA

California - Exposure Limits: PELs Magnesium oxide fume as Mg: 10 mg/m³

Canada - Alberta -

15 Minute Occupational Exposure Limit Magnesium oxide fume 20 mg/m³ STEL

8 Hour Occupational Exposure Limit Magnesium oxide fume as Mg: 10 mg/m³ TWA

Canada - British Columbia -

15 Minute Exposure Limits Magnesium oxide fume 10 mg/m³

8 Hour Exposure Limits Magnesium oxide fume as Mg;

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Total dusts: 10 mg/m³ TWA;
Respirable dust and fumes: 3 mg/m³ TWA

Canada - Ontario -

OHSA - TWAEVs Magnesium oxide fume 10 mg/m³ TWAEV

Proposed Occupational STEVs 5 mg/m³ STEV

Canada - Quebec - Magnesium oxide fume

Time-Weighted Average Exposure Magnesium oxide fume as Mg: 10 mg/m³ TWAEV

German (DFG) -

MAK Values Magnesium oxide fume respirable fraction: 1.5 mg/m³ MAK (includes magnesium oxide fume)

Peak Limitations Magnesium oxide fume 2 x normal MAK (30 min. average value); don't exceed 4 times during shift; half-life <2h

Israel -

Action Levels Magnesium oxide fume 5 mg/m³ AL

Time Weighted Averages Magnesium oxide fume 10 mg/m³ TWA

Mexico - Instruction No. 10 - TWAs Magnesium oxide fume 10 mg/m³ TWA

US - OSHA -

Final PELs: Time Weighted Average Magnesium oxide fume total particulate: 15 mg/m³ TWA

Vacated PELs: Time Weighted Avg Magnesium oxide fume total particulate: 10 mg/m³ TWA

United Kingdom -

Occupational Exposure Standard:STEL Magnesium oxide fume fume and respirable dust, as Mg: 10 mg/m³ STEL

Occupational Exposure Standards:TWA Magnesium oxide fume fume and respirable dust, as Mg: 5 mg/m³ TWA; total inhalable dust, as Mg: 10 mg/m³ TWA

SECTION IX: PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Milky white aqueous suspension; no odor

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PH: ~10 saturated sol	FREEZE POINT (F): 0°C
% VOLATILE (by VOL): Not applicable	VAP PRESS (mm Hg): Not determined
VAPOR DENSITY: Not applicable	SPEC GRAV: 2.36
SOLUBILITY IN WATER: Slightly soluble	EVAPOR RATE: Not applicable
PHYSICAL STATE: liquid suspension	ODOR THRESH (ppm): Not determined
OIL/WATER COEFFIC: Not applicable	VISCOSITY: 200 cps

SECTION X: STABILITY & REACTIVITY

STABLE: Yes

CONDITIONS OF REACTIVITY: Will react with incompatibles (see below)

CONDITIONS OF CHEMICAL INSTABILITY: Stable under ambient temperatures and pressures.

INCOMPATIBILITY (MATERIALS TO AVOID): ACID (Strong) - vigorous reaction, heat generated; MALEIC ANHYDRIDE - Alkali and other alkaline earth compounds, including magnesium compounds, will cause explosive decomposition; PHOSPHORUS - when boiled with alkaline hydroxides yields mixed phosphines which may ignite spontaneously in air.

HAZARDOUS DECOMPOSITION PRODUCTS:

- If container is left open at 100-110°F, water will evaporate causing product to become extremely viscous, if not semisolid
- If heated to above boiling (~100°C / 212°F), steam will be generated, product will eventually dry out, leaving behind magnesium hydroxide powder.
- If heated over 350°C, magnesium oxide powder will form with evolution of water vapor.
- If heated over 1700°C, magnesium oxide FUMES may be generated.

IS THIS PRODUCT SUBJECT TO POLYMERIZATION? No

CONDITIONS UNDER WHICH PRODUCT WILL POLYMERIZE: None known.

SECTION XI: TOXICOLOGICAL INFORMATION

ROUTES OF ENTRY - SKIN CONTACT: Yes SKIN ABSORPTION: No
EYE CONTACT: Yes INHALATION: No INGESTION: Yes

ACUTE TOXICITY: Not acutely toxic; LD50 (oral rat) 8500 mg/kg; LD50 (intraperitoneal rat) 2780 mg/kg

EFFECTS OF ACUTE EXPOSURE: May irritate eyes, skin, with prolonged direct contact.

CHRONIC TOXICITY: No data available.

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EFFECTS OF CHRONIC EXPOSURE: No data available.

REPRODUCTIVE TOXIN? No TERATOGEN? No MUTAGEN? No SENSITIZER? No

CONSIDERED CARCINOGENIC BY - NTP? No IARC? No OSHA? No

SIGNS & SYMPTOMS OF EXPOSURE:

INHALED DUST: Not an expected route of exposure

EYE CONTACT: redness, tearing, conjunctivitis.

SKIN CONTACT: drying, chapping, dermatitis.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Prolonged/frequent skin contact may lead to dermatitis.

NAME OF TOXICOLOGICALLY SYNERGISTIC PRODUCTS: None known.

IRRITANCY OF PRODUCT: Direct contact may irritate eyes, skin.

SECTION XII: ECOLOGICAL INFORMATION

LC50 of 284 to 285 mg/L for daphnia (D. magna)

LC50 of 319 to 511 mg/L for fathead minnow (P. promelas)

LC50 of 1293 to 1517 mg/L for rainbow trout

SECTION XIII: DISPOSAL CONSIDERATIONS

Dispose according to local, state/provincial and federal regulations.

SECTION XIV: TRANSPORT INFORMATION

SHIPPING NAME: Not regulated under DOT TRANSPORTATION CLASS: Not applicable

SPECIAL SHIPPING INFORMATION: No special precautions. For further information, refer to -

- Handling & Storage (Section VII)
- Stability & Reactivity (Section X)

This product does not meet the criteria of any classification under Section 3 nor is specifically listed as dangerous goods in Section 4.2 under IATA *Dangerous Goods Regulations*.

SECTION XV: REGULATORY INFORMATION

All of the ingredient(s) contained in this product are included on the following inventory and/or regulatory lists:

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Canada - Domestic Substance List (DSL): Magnesium hydroxide (1309-42-8)
Canada - WHMIS: Ingredient Disclosure List - Magnesium hydroxide (Not listed)
Canada- This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*."

Australian Inventory of Chemical Substances (ACIS): Magnesium hydroxide (1309-42-8)

European Inventory of Existing Commercial Chemical Substances (EINECS): Magnesium hydroxide (215-170-3)

Japan - Existing and New Chemical Substances (ENCS) - Magnesium hydroxide (1-386)

Korea - Existing and Evaluated Chemical Substances (KECL) - Magnesium hydroxide (KE-22716)

Philippines Inventory of Chemicals and Chemical Substances (PICCS) - Magnesium hydroxide (present)

Swiss Giftliste 1 (List of Toxic Substances 1), 31 May 1999 - Magnesium hydroxide (G-8166)
Toxic Category 4: Acute oral lethal dose of 500 - 2000 mg/kg.

U.S. Toxic Substances Control Act (TSCA) 8(b) Inventory List: Magnesium hydroxide (1309-42-8)

SECTION XVI: OTHER INFORMATION

SOURCES USED: ACGIH 2000; RTECS June 1998; Sax - 8th Ed.; Ind. Exposure & Control Techn. for OSHA Regulated Substances - MgO (fume), March, 1989, pp. 1181-1184; NIOSH Occupational Health Guide for Chemical Substances - Vol. II, September, 1978. NLM Hazardous Substances Data Bank (last modified Apr 8, 2006).

Organization that prepared the MSDS	The Redstone Group, LLC Address/phone: 6397 Emerald Parkway, Suite 200, Dublin, Ohio US 43016 +1 614 923 7472
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Date that the MSDS was prepared:	October 20, 2009