

Date: July 7, 2010

MSDS No: xxxx

**1. Identification**Product Name: **FloMag PWT 12 x 40**

Other Names: calcined brucite magnesia", "calcined magnesia", "calcined magnesite", dead-burned, dead burnt, magnesia, "Magnesite burnt deadburned refractory", periclase, "sea-water magnesia"

Names, addresses, and phone numbers of the manufacturer or supplier:

MARTIN MARIETTA MAGNESIA SPECIALTIES LLC  
 1800 Eastlake Road, Manistee, Michigan 49660  
 (410) 780-5500

**Emergency contact phone numbers/fax numbers:****Within USA: (800) 424-9300 CHEMTREC (24 hours/7 days per week)****Outside USA: (703) 527-3887 CHEMTREC (24 hours/7 days per week)**

CHEMICAL DESCRIPTION:

Magnesium Oxide

FORMULA: MgO

**2. Hazard(s) identification**

Product hazard class: Not classified as hazardous according to GHS criteria.

Label content: *May be irritating to eyes, respiratory system (nasal passages, throat, lungs) and skin.*

Other hazards: None known

**3. Composition/information on ingredients**

<u>HAZARDOUS COMPONENT</u>	<u>CAS No</u>	<u>Approx Wt %</u>
Magnesium Oxide	01309-48-4	98
Oxides of silica, iron, aluminum, and calcium	mixture	2

**4. First-aid measures**

The first aid measures for different exposure routes:

Inhalation: Remove to fresh air immediately. Do not permit exposed person to remain in dusty environment without adequate respiratory protection.

Skin contact: Remove from source of exposure. Remove contaminated clothing and wash affected area thoroughly with a mild soap and water. Wash contaminated clothing before reusing.

**Eye contact:** 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.

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

The most important symptoms and hazardous effects:

**EMERGENCY OVERVIEW:** Product contains mechanical irritants to skin, eyes and respiratory tract and may present a nuisance dust hazard. Avoid breathing dust. Avoid contact with skin. Wear protective clothing including gloves, goggles or safety glasses with side shields and NIOSH approved dust mask.

**EFFECTS OF ACUTE EXPOSURE:** Dust may irritate eyes, skin, nasal passages and respiratory tract. Ingestion generally causes purging of the bowels, however, swallowing large amounts may lead to bowel obstruction.

**EFFECTS OF CHRONIC EXPOSURE:** No data available.

**The protection of first-aiders:** No special procedures or protection.

**Notes to physicians:** No special notes to physicians.

## 5. Fire-fighting measures

**Suitable fire extinguishing media:** Product is not flammable or combustible. Use media appropriate to primary source of fire. Otherwise, use dry chemical, carbon dioxide, water spray or foam.

**Specific hazards may be encountered during fire-fighting:** No specific fire or explosion hazard.

**Specific fire-fighting methods:** Wear appropriate protective equipment; avoid breathing fumes or dust; keep upwind.

**Special equipment for the protection of firefighters:** None known.

## 6. Accidental release measures

**Personal precautions:** Ventilate enclosed spaces and use appropriate respiratory protection.

**Environmental precautions:** Prevent any spillage from entering drains or water courses

**Methods for cleaning up:** Sweep or vacuum spilled material in a manner to avoid generation of dust. Reclaim product for re-use, if possible, or collect in containers for

dust. Reclaim product for re-use, if possible, or collect in containers for disposal in an appropriate manner. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## 7. Handling and storage

- Handling:** Keep container closed when not in use. Avoid contact with eyes. Avoid breathing dust and only use in a well-ventilated area. 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:** Keep under cover -- exposure to water may cause this product to slowly hydrate, during which heat may be generated (exothermic reaction). Otherwise, product is suitable for any general chemical storage area.

## 8. Exposure controls/personal protection

**Specific engineering controls:** Local and general mechanical dust collection and ventilation in accordance with good engineering practices should be provided to maintain dust levels below permissible exposure levels specified in Section VIII.

**Personal protective equipment:**

**Respiratory protection:** 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.

**Hand protection:** Dust impervious gloves during manual handling of product.

Eye protection:	Safety glasses with side-shields or tight fitting goggles.
Skin and body protection:	Long sleeves, buttoned collar, long pants extended over shoes or coveralls.
Hygiene measures:	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.

### 9. Physical and chemical properties:

Appearance (physical state, color, etc.)	Dry white powder to granular solid; no odor	Odor:	No odor
Odor threshold:	Not applicable	Melting point:	2800°C (5072°F)
pH value:	~10 (saturated solution)	Boiling point/boiling point range:	3582°C (9162°F) @ 760 mm Hg
Flammability (solid, gas)	Not applicable	Flash point: °F °C	Not applicable
Decomposition temperature:	>1700°C (3092°F)	Test method: Open cup	Not applicable
		Closed cup	Not applicable
Auto-ignition temperature:	Not applicable	Explosion limits:	Not applicable
Vapor pressure:	~Zero mm Hg at 20°C	Vapor density:	Not applicable
Density:	3.5 to 3.6	Solubility:	Slightly soluble in water
Partition coefficient (n-octanol/water, log Kow):	Not applicable	Evaporation rate	Not applicable

### 10. Stability and reactivity

Stability: Stable under ambient temperatures and pressures.

Possible hazardous reactions under specific conditions:

Conditions to avoid: Exposure to water may cause this product to very slowly hydrate over time, during which heat may be generated (exothermic reaction).

Materials to avoid: ACID (Strong) - vigorous reaction, heat generated; CHLORINE TRIFLUORIDE reacts violently, producing flame; PHOSPHORUS PENTACHLORIDE - incandescs brilliantly.

Hazardous decomposition products: If magnesium oxide is heated to the point of volatilization (i.e., >1700°C), magnesium oxide FUMES may be generated.

## 11. Toxicological information

Routes of exposure:	Inhalation via nose (nasal passages), throat, lungs; also skin and eye contact
Symptoms:	<p>INHALED DUST: sneezing, coughing, discolored sputum</p> <p>INHALED FUME: metal fume fever has influenza-like symptoms including fever, chills, perspiration, cough, nasal irritation, chest pain, nausea, head aches, vomiting and muscular weakness.</p> <p>EYE CONTACT: redness, tearing, conjunctivitis.</p> <p>SKIN CONTACT: drying, chapping, dermatitis.</p>
Acute toxicity:	Magnesium Oxide Dust: No data available (dust)
Chronic toxicity or long term toxicity:	Not designated carcinogenic by NTP, IARC or OSHA.. As with exposure to any environment without adequate personal protection, inhalation of magnesium oxide dust may aggravate any pre-existing respiratory disease; prolonged/frequent skin contact may lead to dermatitis. Magnesium oxide is negative in the standard Ames microbial mutagenicity assay both with and without metabolic activation.

## 12. Ecological information:

Ecotoxicity:	No data available.
Persistence and degradability:	No data available.
Bioaccumulative potential:	No data available.
Mobility in soil:	No data available.
Other adverse effects:	No data available.

## 13. Disposal considerations

Methods of waste disposal:	<p>Dispose according to local, state/provincial and federal regulations.</p> <p>If discarded in its purchased form, this product would not be hazardous waste either by listing or by characteristic.</p> <p><i>However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)</i></p>
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## 14. Transport information

United Nations number (UN No): Not regulated under DOT. 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*.

UN Proper shipping name: Not applicable.

Transport hazard class(es): Not applicable.

Packing group: Not applicable.

Marine pollutant (Yes/No): No

Specific transport measures and precautionary conditions: Not applicable.

## 15. Regulatory information

Applicable regulations:

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

Australian Inventory of Chemical Substances (ACIS): 1309-48-4

Canada - Domestic Substance List (DSL): 1309-48-4

Canada - WHMIS: Ingredient Disclosure (Magnesium oxide FUME) 1% item 959 (1314)

European Inventory of Existing Commercial Chemical Substances (EINECS): 215-171-9

Japan - Existing and New Chemical Substances (ENCS) - 1-465 (Magnesium oxide fume)

Korea - Existing and Evaluated Chemical Substances (KECL) - KE-22728 (Magnesium oxide fume)

Philippines Inventory of Chemicals and Chemical Substances (PICCS) - Present (Magnesium oxide)

Swiss Giftliste 1 (List of Toxic Substances 1), 31 May 1999 - G-2368 Toxic Category 4: Acute oral lethal dose of 500 - 2000 mg/kg.

US Toxic Substances Control Act (TSCA) 8(b) Inventory List: 1309-48-4

### US REPORTING REQUIREMENTS:

CERCLA Hazardous Substance: No

SARA Title III:

Section 311/312 - Categories: Magnesium oxide - Acute hazard (nuisance dust)

Section 312 - Inventory Reporting: Although not specifically listed, magnesium oxide does meet the definition of a hazardous material under OSHA's Hazard Communication Standard at 29 CFR 1910.1200, and therefore is subject to Tier I and/or Tier II annual inventory reporting.

Section 313 - Emission Reporting - This notification must not be detached from this MSDS and any copying and redistribution of this MSDS must include this notice, as required by 40 CFR part 372:

Magnesium oxide is not subject to Form R reporting requirements.

Section 302 - Extremely Hazardous Substances: Magnesium oxide is not listed.

#### US CLEAN AIR ACT:

This product complies in all respects to the requirements of Section 611 of Title VI (Stratospheric Ozone Depletion) of the Clean Air Act as amended 1990; namely, that the product neither contains, nor is "manufactured with" (as defined by U.S. EPA) any Class I or Class II Ozone Depleting Substances listed in Title VI, and therefore is not required to carry the warning stated as dictated in the amended Act.

#### STATE LISTS:

California - Directors List of Hazardous Substances (8 CCR 339) (Magnesium oxide fume): Present

Florida Hazardous Substance List (Magnesium oxide fume): Present

Illinois Right-to-Know Toxic Substances List (Magnesium oxide fume): Present

Massachusetts Right To Know List (Magnesium oxide fume): Present

Minnesota Hazardous Substance List (Magnesium oxide fume): Present

NJ Department of Health RTK List (Magnesium oxide fume): Present (sn 1144)

Pennsylvania Right to Know List (Magnesium oxide): Present

Rhode Island Hazardous Substance List (Magnesium oxide fume): Present (toxic)

## 16. Other information

Literature references      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.

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