SINWON

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Material Safety Data Sheet

Product or Trade name : FLAMDANT
Chemical name : Magnesium hydroxide

1. Identification of the substance and Company

1.1. Product
Commercial product or trade name : FLAMDANT
Substance or chemical name : $Mg(OH)_2$, Magnesium hydroxide
Application :
- Flame retardant for plastics and rubber(PE, PP, ABS, HIPS, Nylon, PVC, Elastomers etc.)
- Compound elements of electric wire, conveyor belt and construction materials.
- Phenol resin, FRP, Ferrite, Fine ceramics, Petroleum additive, for other chemical used.

1.2. Producer : SINWON CHEMICAL CO., Ltd,
Adress : 1Ra 106, Sihwa Industrial complex, No.1236-5
Jeongwang-dong, Siheung-si, kyonggi-do, Korea
Emergency information(Telephone) : 82-31-432-6688, 9200
(Facsimile) : 82-31-432-9204

2. Composition / Information on ingredients

2.1. Chemical name : Magnesium hydroxide
2.2. Chemical structure : $Mg(OH)_2$
2.3. Composition

Chemical name	CAS NO.	percent
Magnesium hydroxide	1309-42-8	96 - 100 %
S1(KNOW-HOW)	-	0 - 4 %

3. Hazards identification

3.1. NFPA ratings(scale 0~4)
0-Insignificant 1-Slight 2-Moderate 3-High 4-Extreme
Health : 1
Fire : 0
Reactivity : 0

EMERGENCY OVERVIEW : Product contains mechanical irritants to skin, eyes and respiratory tract and may present a nuisance dust hazard if allowed to dry out. Avoid breathing dust. Avoid contact with skin. Wear protective clothing including gloves, goggles or safety glasses with side shields and NIOSH approved dust mask.Magnesium oxide FUME may be generated in a reducing environment when temperatures exceed 1700?/span>C

EFFECTS OF ACUTE EXPOSURE : Ingestion generally causes purging of the bowels, however, swallowing large amounts may lead to bowel obstruction.If allowed to dry out, dust may irritate eyes, skin, nasal passages and respiratory tract.If heated over 1700?/span>C (in a reducing environment), inhalation of freshly generated magnesium oxide fume may result in metal fume fever.
EFFECTS OF CHRONIC EXPOSURE : No data available.

SIGNS & SYMPTOMS OF EXPOSURE:

INHALED DUST: sneezing, coughing, discolored sputum

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. Symptoms may be delayed 1-3 hours after exposure however no reports of such exposures from industrial contact have been reported.

EYE CONTACT: redness, tearing, conjunctivitis.

SKIN CONTACT: drying, chapping, dermatitis.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE : As with exposure to any environment without adequate personal protection, inhalation of magnesium oxide dust or fume may aggravate any pre-existing respiratory disease; prolonged/frequent skin contact may lead to dermatitis.

4. First aid measure

4.1. INHALATION : Remove to fresh air immediately. Do not permit exposed person to remain in dusty environment without adequate respiratory protection. Treat metal fume fever with bed rest and treat for fever and pain.

4.2. 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.

4.3. SKIN CONTACT : Remove from source of irritation. Remove contaminated clothing and wash affected area thoroughly with a mild soap and water. Wash contaminated clothing before reusing.

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

5. Fire-fighting measure

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

5.2. AUTO-IGNITION TEMP: Not applicable LEL: Not applicable UEL: Not applicable

5.3. SENSITIVE TO MECHANICAL IMPACT? No SENSITIVE TO STATIC DISCHARGE? No

5.4. FLAMMABILITY CLASSIFICATION: Not flammable CONDITIONS OF FLAMMABILITY: Not flammable

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

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

5.7. UNUSUAL FIRE & EXPLOSION HAZARDS: None known.

5.8. HAZARDOUS COMBUSTION PRODUCTS: None known.

6. Accidental release measures

6.1. Ventilate enclosed spaces and use appropriate respiratory protection. 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 disposal in an appropriate manner.

7. Handling and storage

7.1. HANDLING PROCEDURES AND EQUIPMENT : Keep container closed when not in use. Avoid contact with eyes. Avoid breathing dust or fume 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.

7.2. STORAGE REQUIREMENTS : Suitable for any general chemical storage area.

8. Exposure controls / Personal protection

8.1. 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.

8.2. PERSONAL PROTECTIVE EQUIPMENT :

GLOVES : Dust 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.

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

8.3. 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.

8.4. EXPOSURE LIMITS

Magnesium hydroxide : No exposure limits established by OSHA, ACGIH or NIOSH.
If magnesium hydroxide is heated over 1700?/span>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;
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

9. Physical and chemical properties

9.1. Appearance : White powder
9.2. Purity(%) : 96 Min.
9.3. Moisture(%) : 0.2 Max
9.4. Bulk density(g/ml) : 0.35~0.65
9.6. Solubility in water : 0.84mg/100g(18℃)
9.7. Cl(%) : 0.05 Max.
9.8. Particle size(㎛) : 0.7~1.0
9.9. Molecular weight : 58.32 g/mole

10. Stability and reactivity

10.1. STABLE : Yes
CONDITIONS OF REACTIVITY: Will react with incompatibles (see below)
CONDITIONS OF CHEMICAL INSTABILITY: Stable under ambient temperatures and pressures.

10.2. 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.

10.3. HAZARDOUS DECOMPOSITION PRODUCTS : Steam, acrid smoke and trace amounts of carbon dioxide, carbon monoxide and nitrous oxides.If magnesium hydroxide is heated to the point of volatilization (i.e., >1700?/span>C), magnesium oxide FUMES may be generated.

10.4. IS THIS PRODUCT SUBJECT TO POLYMERIZATION? No
CONDITIONS UNDER WHICH PRODUCT WILL POLYMERIZE : None known.

11. Toxicological information

Magnesium hydroxide:
ORAL, MOUSE 8500 mg/kg LD50
ROUTES OF ENTRY - SKIN CONTACT : Yes SKIN ABSORPTION : No
EYE CONTACT : Yes INHALATION : Yes INGESTION : Yes
IRRITANCY OF PRODUCT: No data available.
REPRODUCTIVE TOXIN? No TERATOGEN? No MUTAGEN? No SENSITIZER? No
CONSIDERED CARCINOGENIC BY - NTP? No IARC? No OSHA? No

12. Ecological information

12.1. No information available.

13. Disposal considerations

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

If discarded in its purchased form, this product would not be hazardous waste either by listing or by characteristic. 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)

14. Transport information

14.1. No information available

15. Other information

15.1. The above information is accurate to the best of our knowledge and is not meant to guarantee specific properties of the product. This information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide.

The existing regulations are to be observed by our customers at their own responsibility.