

1. INFORMATION ON THE CHEMICAL PRODUCT AND COMPANY

- A. Product Name : GYPSUM
- B. Purpose of use and restrictions in use
 - Purpose of use : Soil conditioner carrier; Plaster cast, wall plaster for construction, wall board, tiles and blocks, molding; statues; paper making; soild, oranic liquid and gas drier; cement element; filler for paper; medicine, medicine (for animals) -Restrictions in use : There is no relevant material.
- C. Manufacturer / supplier / distributor
 - Manufacturer and supplier : Samwoo Co., Ltd
 - Address : 308-1 Seonam-dong, Nam-gu, Ulsan Metropolitan City, Korea
 - Telephone : 052)276-5551 - Department : Production Department

2. HAZARDS AND RISKS

- A. Hazards and risks classification
 - There is no relevant material.
- B. Warning including advice on the preventive measure
 - Figure : There is no relevant material.
 - Sign : There is no relevant material.
 - Hazard or risk expression : There is no relevant material.
 - Prelimiary measure : There is no relevant material.
 - Prevention : There is no relevant material.
 - Response : There is no relevant material.
 - Storing : There is no relevant material.
 - Discard : There is no relevant material.
 - Other hazards and risks that are not included in the hazards and risks classification standards (NFPA)
Health=1, Fire=0, Risk : 0

3. NAME AND AMOUNT OF THE CONTENTS

- A. Material name : GYPSUM
- B. Usual and different name : SULFURIC ACID, CALCIUM SALT(1 :1), SULFURIC ACID, CALCIUM SALT(1 :1), HEMIHYDRATE);
- C. CAS Number : 13397-24-5
- D. Content : 100%

4. EMERGENCY MEASURES

- A. Contacting eyes
 - Wash your eyes in the running water for 20 minutes or longer.
 - Take immediate medical measures.
- B. Contacting the skin
 - Completely wash the clothes and shoes before reuse.
 - Remove and separate the polluted clothes and shoes.
 - Wash the skin contacting the material in the running water for 20 minutes or longer.
 - Take immediate medical measures.
- C. Inhalation
 - Receive immediate medical measures.
 - Move the person to a place of fresh air.
 - Conduct CRP if the person is not breathing.
 - When it is difficult to breathe, supply oxygen.
- D. Eaten
 - Do not let the unconscious person eat anything.
 - Take immediate medical measures.
- E. Other matters requiring attention
 - Identify the material and provide protective measures until the medical team arrives.

5. MEASURES TO EXPLOSIONS AND FIRES

- A. Proper (and improper) firefighting materials
 - Small-scale fire : dried sand, dried chemicals, alcohol-resistant powder, water spray, other powders, CO2 (proper firefighting material)
 - Large-scale fire : water spray / fog , general powders (proper firefighting materials)
 - Pulsed fusion (improper material)
- B. Specific hazards from chemicals
 - Absorption may be dangerous.
 - Irritating and generating toxic gas in a fire.
 - Some may burn but not easily ignited.
 - Container may explode upon heating.
 - Heat, spart, or flame may ignite.
 - Some liquid causing dizziness and steam causing suffocation.
- C. Protective devices when fighting against fire and preventive measures
 - The leak may cause pollution.
 - Some may be transported at high temperature.
 - If it is not dangerous, move the container from the fire area.
 - Contacts may cause burns on the skin and eyes.
 - In a tank fire, move far away from the tank in flame.
 - In a tank fire, cool the container with a large amount of water after the fire is over.
 - In a tank fire, when there is a high level of sound or discoloration in the pressure discharge device, immediately step back.
 - Make a ditch to dispose of the water and don't let materials get scattered.

6. MEASURES TO LEAKAGE

- A. Measures and protective devices to protect human bodies
 - Give attention to the materials and conditions to be avoided.
 - If it is not dangerous, stop the leakage.
 - Remove all sources of ignition.
 - Ventilate the polluted area.
 - Prevent dusts.
 - Do not touch or walk over the exposed materials.
- B. Measures to protect environment
 - Prevent the introduction to waterways, drains, cells, or closed areas.
- C. Purification or removal
 - When a small amount is leaked, absorb it with sand or non-inflammables and place them in a container.
 - When a large amount is leaked, make a ditch far away from the liquid leakage.
 - When a small amount is leaked, wash the polluted area with a large amount of water.
 - Use a clean shovel to place the leaked material in a clean and dry container and move the container to a place far away from the leakage site.
 - When powders are leaked, cover them with a plastic sheet to prevent diffusion and keep them dry.

7. HANDLING AND STORING

- A. Safe handling
 - Be attentive to materials and conditions to be avoided.
 - Operate by referring to engineering management and personal protective devices.
 - Cleanly wash after handling.
 - Be attentive to high temperature.
- B. Safe storing
 - Keep it closed.
 - Keep it in cool and dry places.
 - Cleanly wash after handling.
 - Be attentive to materials and conditions to be avoided.

8. PREVENTION OF LEAKAGE AND PERSONAL PROTECTIVE DEVICES

- A. Standards for exposure of chemicals and
 - biological standards Korean regulation : TWA - 10mg/m³
 - ACGIH : TWA - 10mg/m³
 - Biological standards for exposure : Irrelevant
- B. Proper engineering management
 - Use fair separation or local ventilation. Or keep the air condition below the exposure standards.
- C. Personal protective device
 - Protection of respiratory organs
 - 1) Wear respiratory organ-protective device that fits the physical and chemical features of the exposed materials, approved by the Korea Occupational Safety & Health Agency.
 - 2) When the exposure density is below 100mg/m³, wear a half facepiece respirator with an appropriate type of filter installed.
 - 3) When the exposure density is below 200mg/m³, wear a loose-fitting hood /helmet motor-type protective device or a continuous flow dust-proof mask.
 - 4) When the exposure density is below 500mg/m³ wear a full-face or electric half facepiece or air-supplying continuous-flow/pressure-requiring respirator with an appropriate filter installed.
 - 5) When the exposure density is below 10000mg/m³ wear a full-face or helmet/hood-type, pressure-requiring air line mask with an appropriate type of filter installed.
 - 6) When the exposure density is below 100000mg/m³ wear a Self Contained Breathing Apparatus(SCBA) or pressure-requiring Self Contained Breathing Apparatus (SCBA) with an appropriate type of filter installed.
 - Eye protection
 - 1) Wear glasses and a face-protective device to protect yourself against chemicals.
 - 2) Install washing facilities and emergency showers near the work site.
 - Hand protection : Wear appropriate anti-chemical gloves.
 - Body protection : Wear appropriate anti-chemical clothes.

9. PHYSIOCHEMICAL FEATURES

- A. Appearance : Composition - Solid, crystal, powder / Color - Achromatic to black
- B. Smell : No smell
- C. Threshold concentration of smell : There is no relevant material.
- D. pH : Not relevant
- E. Melting / freezing points : 1450 °C (anhydrous type)
- F. Initial boiling point and range of boiling point : Not relevant
- G. Flashing point : There is no relevant material.
- H. Evaporation speed : There is no relevant material.
- I. Flammability (solid and air) : Powders (solid)
- J. Upper / lower limit of ignition or explosion range : -/-%
- K. Steam pressure : Not relevant
- L. Solubility : (Water solubility : 0.24% Solvent fusibility : Fusibility : glycerol, acid)
- M. Steam density : Not relevant
- N. Specific gravity : 2.32 (Water=1)
- O. n-Octanol/Water distribution coefficient : Not relevant
- P. Natural ignition temperature : There is no relevant material.
- Q. Decomposition temperature : There is no relevant material.
- R. Viscosity : There is no relevant material.
- S. Molecular weight : 145.15

10. STABILITY AND RESPONSE

- A. Chemical stability and possibility of hazardous responses
 - Stable at room temperature and pressure.
 - Upon heating, the container may explode.
 - Some may burn but may not ignite.
 - In a fire, pungent and toxic gas may occur.
 - Absorption may be dangerous.
 - Some liquids may generate steam that induces dizziness or suffocation.

- C. Materials to be avoided
 - Flammables
 - Pungent and toxic gas
- D. Noxious materials generated upon decomposition : There is no relevant material.

11. INFORMATION ON TOXINITY

- A. Information on the exposure route with a high level of possibility : Irritation, loss of voice
- B. Information on adverse effects on health
 - Acute toxicity
 - Oral : There is no relevant material.
 - Skin : There is no relevant material.
 - Absorption : There is no relevant material.
 - Skin corrosive or pungent : There is no relevant material.
 - Serious eye damage and pungency : There is no relevant material.
 - Oversensitive respiratory organ : There is no relevant material.
 - Skin-sensitive : There is no relevant material.
 - Carcinogenic
 - The Act on Industrial Safety and Health : There is no relevant material.
 - Notice by the Ministry of Labor : There is no relevant material.
 - IARC : There is no relevant material.
 - OSHA : There is no relevant material.
 - ACGIH : There is no relevant material.
 - NTP : There is no relevant material.
 - EU CLP : There is no relevant material.
 - Mutagenicity of reproductive cells : There is no relevant material.
 - Reproductive toxicity : There is no relevant material.
 - Toxicity in a specific target organ (one exposure) : There is no relevant material.
 - Toxicity in a specific target organ (repeated exposure) : There is no relevant material.
 - Hazards upon absorption : There is no relevant material.

12. IMPACT ON ENVIRONMENT

- A. Ecological toxicity
 - Fish : LC50 11060.423 mg/l 96hr
 - Crustacean : LC50 10201.682 mg/l 48hr
 - Birds : LC50 5628.876 mg/l 96hr
- B. Persistence and decomposition
 - Persistence : log Kow -0.17
 - Decomposition : There is no relevant material.
- C. Biological condensability
 - Condensability : There is no relevant material.
 - Biodegradable : There is no relevant material.
- D. Land mobility : There is no relevant material.
- E. Other adverse effects : There is no relevant material.

13. MATTERS THAT REQUIRE ATTENTION WHEN DISCARDING

- A. Method of discard
 - Dusts or crusts or those crushable by an adult's hand must be subject to high-temperature fusion or solidification.
 - Solids that won't be scattered shall be packaged in polyethylene or similar bags and shall be reclaimed in a designated facility.
- B. Be attentive when discarding
 - If provided in the Wastes Management Act, be attentive to the regulations.

14. INFORMATION NECESSARY FOR TRANSPORTATION

- A. UN Number : No information on the UN's classification as to the transported dangerous materials.
- B. Proper shipment title : Irrelevant
- C. Level of danger in transportation : Irrelevant
- D. Level of container : Irrelevant

- E. Marine pollutants : There is no relevant material.
- F. Special safety measures that a user need or need to know to transport and their means
 - Emergency in a fire : Irrelevant
 - Emergency in leakage : Irrelevant

15. LEGAL REGULATIONS

- A. Regulations based on the Industrial Safety and Health Act : Materials whose standards of exposure have been set up
- B. Regulations based on the Hazardous Chemicals Management Act : There is no relevant material.
- C. Regulations based on the Dangerous Materials Safety Management Act : There is no relevant material.
- D. Regulations based on the Wastes Management Act : Designated wastes
- E. Other domestic and foreign statutory regulations Domestic regulations
 - The Residual Pollutants Management Act External regulations : Irrelevant
 - US management Information (OSHA regulation) : Irrelevant
 - US management Information (CERCLA regulation) : Irrelevant
 - US management Information (EPCRA 302 regulation) : Irrelevant
 - US management Information (EPCRA 304 regulation) : Irrelevant
 - US management Information (EPCRA 313 regulation) : Irrelevant
 - US management Information (Rotterdam Treaty) : Irrelevant
 - US management Information (Stockholm Treaty) : Irrelevant
 - US management Information (Montreal Protocol) : Irrelevant
 - EU Classification Information (Result from confirmed classification) : Irrelevant
 - EU Classification Information (danger sign) : Irrelevant
 - EU Classification Information (safety sign) : Irrelevant

16. OTHER MATTERS OF REFERENCE

- A. Sources of materials
 - ECOSAR(fish)
 - ECOSAR(crustacean)
 - ECOSAR(bird)
 - KowWin estimate(residual)
- B. Date of first preparation : 10-JUN
- C. Number of revision and the final revision date
 - Number of revision : 1st
 - Final revision date : 11-JUN
- D. Others