



(Material Safety Data Sheet)

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; solid, organic liquid and gas drier; cement element; filler for paper; medicine,medicine (for animals)
Restriction in use :	There is no relevant material.
C. Manufacturer/supplier/distributor	
Manufacturer and supplier:	Samwoo Co., Ltd.
Address :	251, Sapyeng-ro, Nam-gu, Ulsan, Korea
Telephone :	+82-52-276-5551
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.
Preliminary measure	
Prevention	There is no relevant material.
Response	There is no relevant material.
Storing	There is no relevant material.
Discard	There is no relevant material.
C. 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

Material name:	GYPSUM
Usual and different name :	SULFURIC ACID, CALCIUM SALT(1:1), SULFURIC ACID, CALCIUM SALT(1:1), HEMIHYDRATE);
CAS NO. :	10034-76-1
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	<p>Receive immediate medical measures.</p> <p>Move the person to a place of fresh air.</p> <p>Conduct CPR if the person is not breathing.</p> <p>When it is difficult to breathe, supply oxygen.</p>
D. Eaten	<p>Do not let the unconscious person eat anything.</p> <p>Take immediate medical measures.</p>
E. Other matters requiring attention	<p>Identify the material and provide protective measures until the medical team arrives.</p>

5. Measures to explosions and fires

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

6. Measures to leakage

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

7. Handling and storing

A. Safe handling	<p>Be attentive to materials and conditions to be avoided.</p> <p>Operate by referring to engineering management and personal protective devices.</p> <p>Cleanly wash after handling.</p> <p>Be attentive to high temperature.</p>
B. Safe storing	<p>Keep it closed.</p>

Keep it in cool and dry places.
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

Wear respiratory organ-protective device that fits the physical and chemical features of the exposed materials, approved by the Korea Occupational Safety & Health Agency.

When the exposure density is below 100mg/m³, wear a half face piece respirator with an appropriate type of filter installed.

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.

When the exposure density is below 500mg/m³, wear a full-face or electric half face piece or air-supplying continuous-flow/pressure-requiring respirator with an appropriate filter installed.

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

Wear glasses and a face-protective device to protect your-self against chemicals. 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 White

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))
A. n-Octanol/Water distribution coefficient	(None)
B. Natural ignition temperature	There is no relevant material.
C. Decomposition temperature	There is no relevant material.
D. Viscosity	There is no relevant material.
E. 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.
B. Conditions to be avoided	Sources of ignition such as heat, spark and flame
C. Materials to be avoided	Flammables Pungent and toxic gas
D. Noxious materials generated upon decomposition	There is no relevant material.

11. Information on toxicity

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	1) Dusts or crusts or those crushable by an adult's hand must be subject to high-temperature fusion or solidification. 2) 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 No.	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	Irrelevant
External regulations	
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 Jan-17

C. Number of revision and the final revision date

Number of revision 2
Final revision date Jan-17

D. Others

※ This Material Safety Data Sheet (MSDS) was prepared based on the MSDS provided by
the Korea Occupational Safety & Health Agency, with partial edition and revision.