

SAFETY DATA SHEET

Section 1: IDENTIFICATION

Product Identifier:	Gypsum
Other Means of Identification:	Calcium Sulfate Dihydrate (CaSO ₄ •2H ₂ O)
Product Family:	Absorbent
Recommended Use:	Drilling Fluid Additive
Supplier:	Bri-Chem Supply Ltd. 27075 Acheson Road Acheson, AB T7X 6B1 780-962-9490
24 Hour Emergency:	CHEMTREC (800) 424-9300, 24/7

Section 2: HAZARD(S) IDENTIFICATION

Emergency Overview: CAUTION! This product is not expected to produce any unusual hazards during normal use. Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract. This product does not present an inhalation, ingestion, or contact health hazard unless subjected to operations such as sawing, sanding or machining which result in the generation of airborne particulate. This product contains quartz (crystalline silica) as a naturally occurring contaminant.

Potential Health Effects (See Section 11 for more information)

Acute

Inhalation:	Exposure to dust generated during the handling or use of the product may cause temporary irritation to eyes, skin, nose, throat, and upper respiratory tract. Persons subjected to large amounts of this dust will be forced to leave area because of nuisance conditions such as coughing, sneezing and nasal irritation. Labored breathing may occur after excessive inhalation. If respiratory symptoms persist, consult physician.
Eyes:	Dust can cause temporary mechanical irritation of eyes. If burning, redness, itching, pain or other symptoms persist or develop, consult physician.
Skin:	None known
Ingestion:	None known

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Chronic

Inhalation: Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing. Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. The risk of developing silicosis is dependent upon the exposure intensity and duration.

Eyes: None known

Skin: None known

Ingestion: None known

Target Organs: Eyes, skin and respiratory system.

Primary Routes of Entry: Inhalation, eyes and skin contact.

Carcinogenicity Classification of Ingredient(s): All substances listed are associated with the nature of the raw materials used in the manufacture of this product and are not independent components of the product formulation. All substances, if present, are at levels well below regulatory limits. See Section 11: Toxicology Information for detailed information.

Material	IARC	NTP	ACGIH	CAL-65
Crystalline silica	1	1	A2	Listed

IARC - International Agency for Research on Cancer: 1- Carcinogenic to humans; 2A – Probably carcinogenic to humans; 2B – Possibly carcinogenic to humans; 3 - Not classifiable as a carcinogen; 4 – Probably not a carcinogen.

NTP - National Toxicology Program (Health and Human Services Dept., Public Health Service, NIH/NIEHS): 1- Known to be carcinogen; 2- Anticipated to be carcinogens

ACGIH - American Conference of Governmental Industrial Hygienists: A1 – Confirmed human carcinogen; A2 – Suspected human carcinogen; A3 – Animal carcinogen; A4 - Not classifiable as a carcinogen; A5 – Not suspected as a human carcinogen

CAL-65 - California Proposition 65 “Chemicals known to the State of California to Cause Cancer”

Respirable crystalline silica: IARC: Group 1 carcinogen, NTP: Known human carcinogen. The weight percent of crystalline silica given represents total quartz and not the respirable fraction. The weight percent of respirable silica has not been measured in this product.

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Food and Drug Administration [CFR Title 21, v.3, sec 184.1230] -

Calcium Sulfate is generally recognized as Safe (GRAS)

Potential Environmental Effects:

Toxicity studies of gypsum performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect. (See Section 12 for more information.)

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Material	WT %	CAS #
Gypsum	>95	13397-24-5/14798-04-0
Crystalline Silica	<1	14808-60-7^

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory and the Canadian Domestic Substances List (DSL).

^The weight percent for silica represents total quartz and not the respirable fraction

Section 4: FIRST-AID MEASURES

First-Aid Measures

Inhalation:	Remove to fresh air. Leave the area of exposure and remain away until coughing and other symptoms subside. Other measures are usually not necessary, however if conditions warrant, contact physician.
Eyes:	In case of contact, do not rub or scratch your eyes. To prevent mechanical irritation, flush thoroughly with water for 15 minutes. If irritation persists, consult physician.
Skin:	Wash with mild soap and water. If irritation persists, consult physician.
Ingestion:	This product is not intended to be ingested or eaten. If gastric disturbance occurs, call physician.
Medical Conditions Which May Be Aggravated:	Pre-existing upper respiratory and lung diseases such as, but not limited to, bronchitis, emphysema and asthma. Pre-existing skin diseases such as, but not limited to, rashes and dermatitis.
Notes to Physician:	Treatment should be directed at the control of symptoms and the clinical condition

Section 5: FIRE-FIGHTING MEASURES

General Fire Hazards:	None known
Extinguishing Media:	Water or use extinguishing media appropriate for surrounding fire

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Special Fire Fighting Procedures:	Wear appropriate personal protective equipment. See Section 8
Unusual Fire/Explosion Hazards:	None known
Hazardous Combustion Products:	Above 1450°C – decomposes to calcium oxide (CaO) and sulfur dioxide (SO ₂)
Flash Point:	Not determined
Method Used:	Not applicable
Upper Flammable Limit (UFL):	Not determined
Lower Flammable Limit (UFL):	Not determined
Auto Ignition:	Not applicable
Flammability Classification:	Not applicable
Rate of Burning:	Not applicable

Section 6: ACCIDENTAL RELEASE MEASURES

Containment:	No special precautions. Wear appropriate personal protective equipment. See Section 8.
Clean-Up:	Use normal clean up procedures. No special precautions.
Disposal:	Follow all local, state, provincial and federal regulations. Never discharge large releases directly into sewers or surface waters.

Section 7: HANDLING AND STORAGE

Handling:	Avoid dust contact with eyes and skin. Wear the appropriate eye and skin protection against dust (See Section 8). Minimize dust generation and accumulation. Avoid breathing dust. Wear the appropriate respiratory protection against dust in poorly ventilated areas and if TLV is exceeded (see Sections 2 and 8). Use good safety and industrial hygiene practices.
Storage:	Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities (see Section 10).

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Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Material	WT%	TLV (mg/m ³)	PEL (mg/m ³)
Gypsum	>95	10	15 (T) / 5 (R)
Crystalline Silica	<1	0.025 (R)	0.1 (R)

(T)–Total; (R)–Respirable; (NE)–Not Established; (C)–Ceiling; (STEL)–Short-term exposure limit
(F)–Fume; (Du)–Dust; (M)–Mist

ppm-part per million; f/cc-fiber per cubic centimeter; mppcf- million particles per cubic foot

Engineering Controls: Provide ventilation sufficient to control airborne dust levels. If user operations generate airborne dust, use ventilation to keep dust concentrations below permissible exposure limits. Where general ventilation is inadequate, use process enclosures, local exhaust ventilation, or other engineering controls to control dust levels below permissible exposure limits.

Respiratory Protection: Wear a NIOSH/MSHA-approved respirator equipped with particulate cartridges when dusty in poorly ventilated areas, and if TLV is exceeded. A respiratory program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. If engineering controls are not possible, wear a properly fitted NIOSH/MSHA-approved particulate respirator.

Other Personal Protective Equipment

Eye/Face: Wear eye protection, safety glasses or goggles, to avoid possible eye contact.

Skin: Wear gloves and protective clothing to prevent repeated or prolonged skin contact.

General: Selection of Personal Protective Equipment will depend on environmental working conditions and operations

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White to off-white

Odor: Low to no odor

Odor Threshold: Not determined

Physical State: Solid/Powder

pH @ 25°C ~7

Melting Point: Not applicable

Freezing Point: Not applicable

Boiling Point: Not applicable

Flash Point: Not determined

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Evaporation Rate (BuAc=1):	Not applicable
Upper Flammable Limit (UFL):	Not determined
Lower Flammable Limit (LFL):	Not determined
Vapor Density (Air = 1):	Not applicable
Specific Gravity (H₂O = 1):	~2.32 (Gypsum)
Solubility in Water (g/100g):	~ 21 (Gypsum)
Partition Coefficient:	Not determined
Auto-ignition Temp:	Not determined
Decomposition Temp:	2642°F/1450°C
Viscosity:	Not applicable
Particle Size:	Varies
Bulk Density:	~ 45-150 lb/ft ³ / 0.7 – 2.5 kg/m ³
Molecular Weight:	~ 172 g/mole
VOC Content:	Zero g/L
Percent Volatile:	Zero
Vapor Pressure (mm Hg):	Not applicable

Section 10: STABILITY AND REACTIVITY

Stability:	Stable
Conditions to Avoid:	Contact with incompatibles (see below)
Incompatibility:	None known
Hazardous Polymerization:	None known
Hazardous Decomposition:	Above 1450°C – Calcium Oxide (CaO) and Sulfur Dioxide (SO ₂)

Section 11: TOXICOLOGICAL INFORMATION

Acute Effects:	The acute oral toxicity study [OECD TG 420] of calcium sulfate dihydrate showed that this chemical did not cause any changes even at 2,000 mg/kg b.w. Therefore, the oral LD50 value was more than 2,000- mg/kg b.w. for female rats. Gypsum paste applied experimentally to the eyes of rabbits was not an irritant. Gypsum dust particulate has shown an irritant action on mucous membranes of the respiratory tract and eyes. The sulfate ion has caused gastro-intestinal disturbance in humans following large oral doses. Limited
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studies involving the repeated inhalation of an (unspecified) calcium sulfate failed to identify any particular target organs in monkeys, rats and hamsters. No evidence of mutagenicity was found in Ames bacterial tests.

**Chronic Effects /
Carcinogenicity:**

Crystalline Silica: Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing. The weight percent of respirable crystalline silica may not have been measured in this product. Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. Smoking in combination with silica exposures increases the risk of cancer. The risk of developing silicosis is dependent upon the exposure intensity and duration. In June 1997, IARC classified crystalline silica (quartz and cristobalite) as a human carcinogen. In making the overall evaluation, the IARC Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs. IARC states that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

Section 12: ECOLOGICAL INFORMATION

Environmental Toxicity: This product has no known adverse effect on ecology. Toxicity studies of gypsum performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect.

Ecotoxicity Value: Not determined

Section 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of material in accordance with federal, state, and local regulations. Never discharge directly into sewers or surface waters. Consult with environmental regulatory agencies for guidance on acceptable disposal practices.

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Section 14: TRANSPORT INFORMATION

U.S. DOT Information:	Not a hazardous material per DOT shipping requirements. Not classified or regulated.
Shipping Name:	Same as product name
Hazard Class:	Not classified
UN/NA #:	None. Not classified.
Packing Group:	None
Label (s) Required:	Not applicable
GGVSec/MDG Code:	Not classified
ICAO/IATA-DGR:	Not applicable
RID/ADR:	None
ADNR:	None

Section 15: REGULATORY INFORMATION

United States Regulations

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory.

Material	WT %	302	304	313	CERCLA	CAA Sec.112	RCRA Code
Gypsum	>95	NL	NL	NL	NL	NL	NL
Crystalline Silica	<1	NL	NL	NL	NL	NL	NL

Key

NL = Not listed

SARA Title III Section 302 (EPCRA) Extremely Hazardous Substances: Threshold Planning Quantity (TPQ)

SARA Title III Section 304 (EPCRA) Extremely Hazardous Substances: Reportable Quantity (RQ)

SARA Title III Section 313 (EPCRA) Toxic Chemicals: X= Subject to reporting under section 313

CERCLA Hazardous Substances: Reportable Quantity (RQ)

CAA Section 112 (r) Regulated Chemicals for Accidental Release Prevention: Threshold Quantities(TQ)

RCRA Hazardous Waste: RCRA hazardous waste code

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Canadian Regulations

This product has been classified in accordance with the hazard criteria of Controlled Product regulations and the MSDS contains all the information required by the Controlled Products Regulations. All ingredients of this product are included in the Canadian Domestic Substances List (DSL).

Material	WT%	IDL Item #	WHMIS Classification
Gypsum	>95	Not listed	Not listed
Crystalline Silica	<1	1406	D2A

IDL Item#: Canadian Hazardous Products Act – Ingredient Disclosure List Item #

WHMIS Classification: Workplace Hazardous Material Information System

Risk and Safety Phrases defined by European Union Directive 67/548/EEC (Annex III and IV)

R-Phrase(s): R36/37/38

S-Phrase(s): S51 S38 S39

Section 16: OTHER INFORMATION

Label Information

CAUTION!

Dust can cause irritation to eyes, skin and respiratory tract. Wear eye, skin and respiratory protection as necessary per working conditions. If eye contact occurs flush with water for 15 minutes. Do not ingest. If ingested, call physician. Product safety information: 800-507-8899 or usg. com. Customer Service: 800 USG-4-YOU (800 874- 4968). KEEP OUT OF REACH OF CHILDREN.

Information for Handling and Identification of Chemical Hazards

NFPA Ratings:

Health: 1

Fire: 0

Reactivity: 0



HMIS Ratings:

Health: 1

Fire: 0

Reactivity: 0

HEALTH	*	1
FLAMMABILITY		0
PHYSICAL HAZARD		0
PERSONAL PROTECTION	E	

0=Minimal Hazard

1= Slight Hazard

2=Moderate Hazard

3=Serious Hazard

4=Severe Hazard

E – Safety glasses, gloves and dust respirator, * - Contains silica

Key/Legend:

ANSI American National Standards Institute

ACGIH American Conference of Governmental Industrial Hygienists

CAA Clean Air Act

CAS Chemical Abstracts Service (Registry Number)

CERCLA Comprehensive Environmental Response, Compensation and Liability Act of 1980

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CFR	Code of Federal Regulations
DOT	United States Department of Transportation
DSL	Canadian Domestic Substances List
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning & Community Right-to-know Act
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
MSHA	Mine Safety and Health Administration
NDSL	Canadian Non-Domestic Substances List
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Health and Safety Administration
PEL	Permissible Exposure Limit
PPE	Personal Protection Equipment
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act of 1986
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
UN/NA#	United Nations/North America number
WHMIS	Workplace Hazardous Material Information System

Disclaimer:

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Prepared by: Bri-Chem Supply Ltd.

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