



MATERIAL SAFETY DATA SHEET

HYDROPERM® Metal Casting Plaster 74

MSDS# 52-165-002

Page 1 of 9

United States Gypsum Company

Product Safety: 1 (800) 507-8899

DISTRIBUTED BY FREEMAN MFG & SUPPLY CO. 800-321-8511

Version Date: October 8, 2003

A Subsidiary of USG Corporation

Version: 3

SECTION 1

CHEMICAL PRODUCT AND IDENTIFICATION

PRODUCT(S): HYDROPERM® Metal Casting Plaster 74**CHEMICAL FAMILY:** Calcium Sulfate Hemihydrate ($\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$) and Portland cement

SECTION 2

COMPOSITION, INFORMATION ON INGREDIENTS

MATERIAL	WT%	TLV (mg/m ³)	PEL (mg/m ³)	CAS NUMBER
Plaster of Paris ($\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$)	<75	10	15(T)/5(R)	26499-65-0
Talc	<25	2(R)	20 mppcf	14807-96-6
Portland Cement	<2	10	15(T)/5(R)	65997-15-1
Crystalline Silica	<5	0.05(R)	0.1(R)	14808-60-7

(T) – Total (R) – Respirable (NE) – Not Established

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. Testing of dust from USG plaster of paris has not detected respirable crystalline silica.



Food and Drug Administration [CFR Title 21, v.3, sec 184.1230] – Calcium Sulfate is Generally Recognized as Safe (GRAS).

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

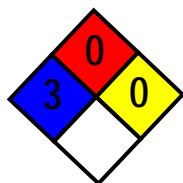
SECTION 3

HAZARD IDENTIFICATION

INFORMATION FOR HANDLING AND IDENTIFICATION OF CHEMICAL HAZARDS

NFPA Ratings:

Health: 3
Fire: 0
Reactivity: 0



HIMS Ratings:

Health: *3
Fire: 0
Reactivity: 1

HEALTH	*	3
FLAMMABILITY		0
PHYSICAL HAZARD		1
PERSONAL PROTECTION		E

0 = Minimal Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

Personal Protection: Use eye & skin protection. Use NIOSH/MSHA-approved respiratory protection when necessary.

*Respirable crystalline silica can cause lung disease and/or cancer. E – Safety glasses, gloves and dust respirator

EMERGENCY OVERVIEW - 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. When mixed with water, this plaster of paris hardens and becomes very hot – sometimes quickly. **DO NOT** attempt to make a cast enclosing any part of the body using this material.

Portland cement is a nuisance dust. However, portland cement is strongly alkaline and can cause severe injury. Contact with eyes or skin can cause irritation and possible irreversible tissue damage, corrosion damage, chemical burning and corneal damage. Wear eye and skin protection. Particulate will also cause mechanical irritation.

Inhalation of dust can cause severe upper respiratory irritation. Contact lenses should not be worn when working with portland cement.

Prolonged and repeated breathing of respirable talc dust may cause lung disease (pneumoconiosis).



SECTION 3 HAZARD IDENTIFICATION (continued)

POTENTIAL HEALTH EFFECTS

ACUTE:

Eyes: Airborne dust or direct contact can irritate or burn eyes. The extent of damage depends on duration of contact. Rapid response is very important to prevent significant damage to the eye (See Section 4, First Aid Measures). Portland cement can cause burns and cornea damage that may result in permanent damage with risk of blindness. Contact lenses should not be worn when working with portland cement.

Skin: When mixed with water, this material hardens and becomes very hot – sometimes quickly. **DO NOT** attempt to make a cast enclosing any part of the body using this material. Failure to follow these instructions can cause severe burns that may require surgical removal of affected tissue or amputation of limb. Direct, prolonged or repeated contact with the skin may cause irritation. Rinse with water until skin is free of material to avoid irritation, then wash skin thoroughly with mild soap and water. Repeated exposure may dry skin.

Contact with wet portland cement can cause severe irritation, redness, rash, and/or chemical burns, including third degree burns. Burns may occur 12 or 48 hours after exposure. Burns may occur without obvious pain at the time of exposure.

Exposure to dry portland cement may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry portland cement contacting wet skin or exposure to moist or wet portland cement may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet cement. Exposed individuals may not feel discomfort until hours after the exposure has ended and significant injury has occurred.

Some individuals may exhibit an allergic response upon exposure to portland cement, possibly due to trace amounts of chromium. The response may manifest in different forms ranging from a mild rash to severe skin ulcers. Individuals already sensitized may react to the first contact with the product. Other individuals may experience a response after years of contact with portland cement products.

Inhalation: Inhalation of portland cement dust can irritate or burn the nose, throat, and mucous membrane of the upper respiratory tract. Signs of excessive exposure to this dust include shortness of breath and reduced pulmonary function. If respiratory symptoms persist, consult physician.

Ingestion: Portland cement can cause chemical burns to the mouth, throat, esophagus and stomach. Can cause a burning sensation in mouth and stomach. Pain and nausea can occur if a sufficient amount is ingested. In severe cases gastrointestinal bleeding or perforation of the esophageal or stomach lining may develop. The effects due to ingestion can be delayed and occur days later. Plaster of paris is non-toxic; however, ingestion of a sufficient quantity could lead to mechanical obstruction of the gut, especially the pyloric region. See First Aid Measures - Ingestion (Section 4).

CHRONIC:

Inhalation: Testing of dust from USG plaster of paris has not detected respirable 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 has not 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. The risk of developing silicosis is dependent upon the exposure intensity and duration.

Bronchitis and emphysema may occur from prolonged portland cement dust inhalation. Prolonged and repeated breathing of respirable talc dust may cause lung disease (pneumoconiosis). The extent and severity of lung injury correlates with the length of exposure and dust concentration.

Skin: Repeated contact may dry the skin, causing cracking or dermatitis. Sensitive individuals may develop an allergic dermatitis.

Eyes: No known effects.

Ingestion: No known effects.

TARGET ORGANS: Eyes, skin and respiratory system.

PRIMARY ROUTES OF ENTRY: Inhalation, eyes and skin contact.



SECTION 4
FIRST AID MEASURES

FIRST AID PROCEDURES:

Eyes: Flush thoroughly with water for 15 minutes. If irritation persists, consult physician.

Skin: Wash with mild soap and water. A commercially available hand lotion may be used to treat dry skin areas. If skin has become cracked, take appropriate action to prevent infection and promote healing. If irritation persists, consult physician.

Inhalation: Remove to fresh air. Leave the area of dust exposure and remain away until coughing and other symptoms subside. Other measures are usually not necessary, however if conditions warrant, contact physician.

Ingestion: This product is not intended to be ingested or eaten. If gastric disturbance occurs, call physician. This product contains gypsum plaster. Plaster of paris hardens and, if ingested, may result in obstruction of the gut, especially the pyloric region. Drinking gelatin solutions or large volumes of water may delay setting.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED: Pre-existing upper respiratory and lung diseases such as, but not limited to, bronchitis, emphysema and asthma may be aggravated by dust exposures. Pre-existing skin diseases such as, but not limited to, rashes, dermatitis. Unusual hypersensitivity to hexavalent chromium (chromium⁺⁶) salts. Some individuals may exhibit an allergic response to portland cement, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Sensitized individuals may react immediately upon contact and others may first experience this effect after years of contact with portland cement products.

Notes to Physician: Treatment should be directed at the control of symptoms and the clinical condition. Treatment should be directed at the control of symptoms and the clinical condition. Skin irritation may occur hours or days after the time of portland cement exposure. The main types of skin reactions seen are dermatitis of the hands, forearms, and feet seborrheic eczema, stasis dermatitis, and, occasionally exfoliative dermatitis.

SECTION 5
FIRE FIGHTING MEASURES

General Fire Hazards: Not expected to burn.

Extinguishing Media: Water or use extinguishing media appropriate for surrounding fire.

Special Fire Fighting Procedures: Wear appropriate personal protective equipment (See section 8).

Unusual Fire and Explosion Hazards: None

Hazardous Combustion Products: Above 1450° C - decomposes to calcium oxide (CaO) and sulfur dioxide (SO₂).

Flash Point: None Known **Auto Ignition:** Not Applicable

Method Used: Not Applicable **Flammability Classification:** Not Applicable, may act as a fire retardant

Upper Flammable Limit (UFL): Not Applicable

Lower Flammable Limit (LFL): Not Applicable **Rate of Burning:** Not Applicable

SECTION 6
ACCIDENTAL RELEASE MEASURES

CONTAINMENT:

No special precautions. Wear appropriate personal protection (See Section 8).

CLEAN-UP:

Use normal clean up procedures. If dry, shovel or sweep up material from spillage and place collected material into a container for recovery or waste disposal. Avoid dust generation. Avoid inhalation of dust and contact with eyes and skin. Wear appropriate protective equipment. Maintain proper ventilation. If vacuum is used to collect dust, use an industrial vacuum cleaner with a high efficiency air filter. If sweeping is necessary, use dust suppressant. Do not use compressed air for clean up. These procedures will help minimize potential exposures. If washed down, may plug drains. If already mixed with water, scrape up and place in container.



SECTION 6 ACCIDENTAL RELEASE MEASURES (continued)

DISPOSAL:

Follow all local, state, provincial and federal regulations. Never discharge large releases directly into sewers or surface waters. Slurry may plug drains. Trace amounts of residue can be flushed to a drain, using plenty of water.

**SECTION 7
HANDLING AND STORAGE**

HANDLING:

Avoid dust contact with eyes. Wear the appropriate eye protection against dust (See Section 8).

Avoid breathing dust. Wear the appropriate respiratory protection against dust in poorly ventilated areas and if TLV is exceeded (see Sections 2 and 8).

Minimize dust generation and accumulation. 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).

Dew point conditions or other conditions causing presence of liquid will harden this material during storage.

Protect product bags or containers from physical damage and weather.

Keep bags or other containers tightly closed to prevent moisture contact.

**SECTION 8
EXPOSURE CONTROLS/PERSONAL PROTECTION**

ENGINEERING CONTROLS:

Provide ventilation sufficient to control airborne dust levels especially respirable crystalline silica.

If user operations generate airborne dust, use ventilation to keep dust concentrations below permissible exposure limits (See Section 2).

Where general ventilation is inadequate, use process enclosures, local exhaust ventilation, or other engineering controls to control dust levels below permissible exposure limits (see Section 2). If engineering controls are not possible, wear a properly fitted NIOSH/MSHA-approved particulate respirator.

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.

OTHER PERSONAL PROTECTIVE EQUIPMENT:

Eye/Face: Wear safety glasses with side shields or goggles for eye protection to avoid irritation and severe chemical burns of the eye.

Contact lenses should not be worn when working with portland cement.

Skin: Wear gloves, long-sleeved shirts and pants to prevent skin contact. Barrier creams may be applied to face, neck, wrist and hands when skin is exposed to help prevent drying of skin. Do not rely on barrier creams for the only skin protection or use in place of gloves.

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
Physical State	Solid (powder)	pH @ 25 ° C	~ 12
Vapor Pressure	Not Applicable	Vapor Density (Air = 1)	Not Applicable
Boiling Point	Not Applicable	Vapor Pressure (mm Hg)	Not Applicable
Freezing Point	Not Applicable	Evaporation Rate (BuAc = 1)	Not Applicable
Melting Point	Not Applicable	Percent Volatile	0
Softening Point	Not Applicable	Particle Size	Varies
Solubility (H₂O) 20°C	~ 0.2g/100 g solution	Molecular Weight	~ 145
Viscosity	Not Applicable	Bulk Density	~ 185 lb/ft ³
Specific Gravity (H₂O = 1)	2.6-3.2		

SECTION 10
CHEMICAL STABILITY AND REACTIVITY

STABILITY:	Stable in dry environments. Dew point conditions or other conditions causing presence of liquid will harden this material.
CONDITIONS TO AVOID:	Contact with acids, water, high humidity, and incompatibles.
INCOMPATIBILITY:	Acids. Exposure to water and acids must be supervised because the reactions are vigorous and produce large amounts of heat.
HAZARDOUS POLYMERIZATION:	Will not occur.
HAZARDOUS DECOMPOSITION:	Above 1450° C - calcium oxide (CaO) and sulfur dioxide SO ₂

SECTION 11
TOXICOLOGICAL INFORMATION

ACUTE EFFECTS:

The sulfate ion has caused gastro-intestinal disturbance in humans following large oral doses. Limited 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.

Plaster of paris:	Oral LD50 rat > 5000 mg/kg	Dermal LD50 – None Determined
	Skin Irritation LD50 – None Determined	Eye Irritation LD50– None Determined

LD₅₀: Not Available for product.
 LC₅₀: Not Available for product.

CHRONIC EFFECTS / CARCINOGENICITY:

Crystalline silica: Testing of dust from USG plaster of paris has not detected respirable 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 has not 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. The risk of developing silicosis is dependent upon the exposure intensity and duration.



SECTION 11 TOXICOLOGICAL INFORMATION (continued)

CHRONIC EFFECTS / CARCINOGENICITY (continued):

Crystalline silica (continued): 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).

Portland cement: NIOSH conducted a portland cement worker study, "The Mortality of U.S. Portland Cement and Quarry Workers", March 1985, which found "There is no excess mortality from all causes of death, lung cancer, non-malignant respiratory disease, or ischemic heart disease" among the workers studied.

Talc: Prolonged and repeated breathing of respirable talc dust may cause lung disease (pneumoconiosis). The extent and severity of lung injury correlates with the length of exposure and dust concentration.

SECTION 12
ECOLOGICAL INFORMATION

ENVIRONMENTAL TOXICITY: Portland cement is expected to be toxic to fish due to its high alkalinity (pH > 12). Discharge of large quantities directly into waterways would be expected to cause significant fish kills.

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. Slurry may plug drains.

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



MATERIAL SAFETY DATA SHEET

HYDROPERM® Metal Casting Plaster 74

MSDS# 52-165-002

Page 7 of 9

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
Plaster of Paris (CaSO ₄ •½H ₂ O)	<75	NL	NL	NL	NL	NL	NL
Talc	<25	NL	NL	NL	NL	NL	NL
Portland Cement	<2	NL	NL	NL	NL	NL	NL
Crystalline Silica	<5	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



Food and Drug Administration [CFR Title 21, v.3, sec 184.1230] – Calcium Sulfate is Generally Recognized as Safe (GRAS).

CANADIAN REGULATIONS

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

MATERIAL	WT%	IDL Item #	WHMIS Classification:
Plaster of Paris (CaSO ₄ •½H ₂ O)	<75	Not Listed	Not Listed
Talc	<25	Not Listed	D2A
Portland Cement	<2	Not Listed	E
Crystalline Silica	<5	1406	D2A

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

WHMIS Classification: Workplace Hazardous Material Information System



SECTION 15 REGULATORY INFORMATION (continued)

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
Respirable Crystalline Silica	1	1	A2	Listed

Portland cement is not listed as a carcinogen by NTP, OSHA, or IARC. It may, however, contain trace amounts of substances listed as carcinogens by these organizations: crystalline silica, hexavalent chromium, lead compounds, mercury compounds, nickel compounds, and possibly other chemicals.

IARC – International Agency for Research on Cancer (World Health Organization)

- 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”

SECTION 16
OTHER INFORMATION

Label Information:

ΔWARNING!

When mixed with water, this material hardens and becomes very hot – sometimes quickly. **DO NOT** attempt to make a cast enclosing any part of the body using this material. Failure to follow these instructions can cause severe burns that may require surgical removal of affected tissue or amputation of limb.

Portland cement is strongly alkaline and contact (including unhardened concrete, mortar, wet cement, or cement mixtures) can cause severe chemical burns, serious eye damage or eye and skin irritation. Exposures to dust generated during mixing, sanding, grinding or cutting dried product can cause severe chemical burns and irritation to eyes, skin, nose, throat, and respiratory tract. Wear gloves, long-sleeved shirts and pants to prevent skin contact. Wear eye protection. Avoid dust inhalation. Use in a well-ventilated area. Wear a NIOSH/MSHA-approved respirator when dusty. Wash thoroughly with soap and water after use. Do not ingest. If ingested, call physician. Prolonged and repeated breathing of respirable talc dust may cause lung disease (pneumoconiosis). Wash thoroughly with soap and water after use. Do not ingest. If ingested, call physician.

Product safety information: (800) 507-8899 or www.usg.com

KEEP OUT OF REACH OF CHILDREN.



SECTION 16 OTHER INFORMATION (continued)

Key/Legend

TLV	Threshold Limit Value
PEL	Permissible Exposure Limit
CAS	Chemical Abstracts Service (Registry Number)
NIOSH	National Institute for Occupational Safety and Health
MSHA	Mine Safety and Health Administration
OSHA	Occupational Health and Safety Administration
ACGIH	American Conference of Governmental Industrial Hygienists
IARC	International Agency for Research on Cancer
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
NFPA	National Fire Protection Association
HMIS	Hazardous Materials Identification System
PPE	Personal Protection Equipment
TSCA	Toxic Substances Control Act
DSL	Canadian Domestic Substances List
NDSL	Canadian Non-Domestic Substances List
SARA	Superfund Amendments and Reauthorization Act of 1986
CAA	Clean Air Act
EPCRA	Emergency Planning & Community Right-to-know Act
RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
UN/NA#	United Nations/North America number
CFR	Code of Federal Regulations
WHMIS	Workplace Hazardous Material Information System

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END