



SECTION 1
CHEMICAL PRODUCT AND IDENTIFICATION

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A Subsidiary of USG Corporation

Product Safety: 1 (800) 507-8899
www.usg.com
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PRODUCT(S) HYDROPERM® Metal Casting Plaster

CHEMICAL FAMILY / GENERAL CATEGORY Industrial Products, Tooling and Prototyping

SYNONYMS Formulated product containing Plaster of Paris (Calcium Sulfate Hemihydrate) (CaSO₄•½H₂O)

SECTION 2
HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:
ΔWARNING!

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

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. 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.
Eyes	Dust can cause temporary mechanical irritation of eyes. If burning, redness, itching, pain or other symptoms persist or develop, consult physician. Portland Cement is a strongly alkaline material and is very irritating to 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. If burning, redness, itching, pain or other symptoms persist or develop, consult physician.
Skin	None known.
Ingestion	None known.

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



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	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. 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.
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.

POTENTIAL ENVIRONMENTAL EFFECTS: Toxicity studies performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect. 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. (See Section 12 for more information.)

SECTION 3 COMPOSITION, INFORMATION ON INGREDIENTS

MATERIAL	WT%	CAS #
Plaster of Paris (CaSO4•½H2O)	>70	26499-65-0
Talc	<25	14807-96-6
Portland Cement	<2	65997-15-1
Crystalline Silica	<5	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 PROCEDURES

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. Due to portland cement content in this product, if eye contact occurs immediately flush eyes with copious amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this material.
Skin	To prevent the drying effect of plaster of paris, 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. Because of the potential of chemical burns due to the portland cement content of this product, flush exposed skin with copious amounts of water for at least 15 minutes depending on concentration, amount and duration of exposure. Wash with mild soap and water. Immediately remove all contaminated clothing, including footwear. Launder clothing before reuse. If irritation or pain persists get medical attention immediately. 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.
Ingestion	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. Due to the alkalinity caused by the portland cement content of this product, get medical attention immediately.

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. Some individuals with unusual hypersensitivity to hexavalent chromium (chromium+6) salts may exhibit an allergic response to portland cement, due to trace amounts of chromium in the portland cement. 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: 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/ Explosion Hazards	None known		
Hazardous Combustion Products	Above 1450° C - decomposes to calcium oxide (CaO) and sulfur dioxide (SO2).		
Flash Point	Not Determined	Auto Ignition	Not Applicable
Method Used	Not Applicable	Flammability Classification	Not Applicable
Upper Flammable Limit (UFL)	Not Determined	Rate of Burning	Not Applicable
Lower Flammable Limit (LFL)	Not Determined		



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). As a dry powder, dew point conditions or other conditions causing presence of liquid will harden plaster of paris during storage.

SECTION 8
EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	WT%	TLV (mg/m ³)	PEL(mg/m ³)
Plaster of Paris (CaSO ₄ •½H ₂ O)	>70	10	15 (T) / 5 (R)
Talc	<25	2 (R)	20 mppcf
Portland Cement	<2	10	15 (T) / 5 (R)
Crystalline Silica	<5	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.



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OTHER PERSONAL PROTECTIVE EQUIPMENT:

Eye/Face	Due to portland cement content in this product, wear safety glasses with side shields or goggles for eye protection to avoid irritation and severe chemical burns of the eye. Facilities storing or using this material should be equipped with an adequate number of eyewash facilities and safety showers. Contact lenses should not be worn when working with portland cement.
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	Gray to off white	Vapor Density (Air = 1)	Not Applicable
Odor	Low to no odor	Specific Gravity (H ₂ O = 1)	~2.96 (Plaster of Paris), ~2.7 (Talc)
Odor Threshold	Not Determined	Solubility in water (g/100g)	0.15 - 0.40 (Plaster of Paris); Insoluble (Talc)
Physical State	Solid/ Powder	Partition Coefficient	Not Determined
pH @ 25 ° C	~11	Auto-ignition Temp	Not Determined
Melting Point	Not Applicable	Decomposition Temp	Not Determined
Freezing Point	Not Applicable	Viscosity	Not Applicable
Boiling Point	Not Applicable	Particle Size	Varies
Flash Point	Not Determined	Bulk Density	~ 185 lb/ft ³
Evaporation Rate (BuAc = 1)	Not Applicable	Molecular Weight	Mixture
Upper Flammable Limit (UFL)	Not Determined	VOC Content	Zero g/L
Lower Flammable Limit (LFL)	Not Determined	Percent Volatile	Zero
Vapor Pressure (mm Hg)	Not Applicable		

SECTION 10 CHEMICAL STABILITY AND REACTIVITY

STABILITY	Stable.
CONDITIONS TO AVOID	Contact with acids, water, high humidity.
INCOMPATIBILITY	Acids. Exposure to water and acids must be supervised because the reactions are vigorous and produce large amounts of heat.
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 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:

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

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.

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).

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: This product has no known adverse effect on ecology. Toxicity studies performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect. 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.
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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. Trace amounts of residue can be flushed to a drain, using plenty of water.



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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%	3 0 2	3 0 4	3 1 3	CERCLA	CAA Sec. 112	RCRA Code
Plaster of Paris (CaSO4•½H2O)	>70	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

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).



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MATERIAL	WT%	IDL Item #	WHMIS Classification
Plaster of Paris (CaSO4•½H2O)	>70	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

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

R-Phrase(s): None known.

S-Phrase(s): S22

SECTION 16 OTHER INFORMATION

Label Information

Δ WARNING!

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. Dust can be corrosive to eyes, skin, and respiratory tract. Contact can cause severe chemical burns. Avoid breathing dust. Dust can contain silica. Prolonged and repeated breathing of silica dust can cause lung damage and/or cancer. Wear eye, skin and respiratory protection as necessary per working conditions. If eye contact occurs flush immediately with water for 30 minutes. Do not ingest. If ingested, call physician. Frequent breathing of talc dust can cause lung disease (pneumoconiosis). 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:		HMIS Ratings:	<table border="1"> <tr> <td>HEALTH</td> <td>*</td> <td>3</td> </tr> <tr> <td>FLAMMABILITY</td> <td></td> <td>0</td> </tr> <tr> <td>PHYSICAL HAZARD</td> <td></td> <td>1</td> </tr> <tr> <td>PERSONAL PROTECTION</td> <td></td> <td>E</td> </tr> </table>	HEALTH	*	3	FLAMMABILITY		0	PHYSICAL HAZARD		1	PERSONAL PROTECTION		E	0 = Minimal Hazard
HEALTH		*		3												
FLAMMABILITY				0												
PHYSICAL HAZARD				1												
PERSONAL PROTECTION		E														
Health: 3	Health: 3	1 = Slight Hazard														
Fire: 0	Fire: 0	2 = Moderate Hazard														
Reactivity: 0	Reactivity: 1	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
CFR	Code of Federal Regulations
DOT	United States Department of Transportation



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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

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The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for his/her own particular use.

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