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PENATECH HS GROUT MSDS

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Penatech HS Grout 20kg

PRODUCT USE: High strength non-shrink cementitious grout.

SUPPLIER: Company: ITLS-TWA Australia PTY PLT
Address: 250 Princes Highway
Dandenong
VIC, 3175
Australia
Telephone: +61 3 9791 8211
Emergency Telephone: +61 3 9791 8211

SECTION 2: HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

RISK

Risk Codes	Risk Phrases
R37/38	Irritating to respiratory system and skin
R41	Risk of serious damage to eyes
R48/20	Harmful: danger of serious damage to health by prolonged exposure through irritation

SAFETY

Safety Codes	Safety Phrases
S22	Do not breath dust
S24	Avoid contact with skin
S25	Avoid contact with eyes
S36	Wear suitable protective clothing
S37	Wear suitable gloves
S39	Wear eye/face protection
S51	Use only in well ventilated areas
S09	Keep container in a well ventilated place
S401	To clean the floor and all objects contaminated by this material, use water and detergent
S13	Keep away from food, drink and animal feeding stuffs
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre
S46	If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label)

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
silica crystalline - quartz	14808-60-7	30-60
portland cement	65997-15-1	30-60

Note: Manufacturer has supplied full ingredient information to allow CHEMWATCH assessment

SECTION 4: FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration
- Observe patient carefully
- Never give liquid to a person showing signs of being sleep or with reduced awareness; i.e. becoming unconsious

EYE

If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water
- Ensure complete irrigation of the eye by keeping the eyelids apart and away from eye and moving the eyelids occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes

Transport to hospital or doctor without delay

SKIN

If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available)
- Seek medical attention in event of irritation

INHALED

- If fumes or combustion products are inhaled remove from contaminated area
- Lay patient down. Keep warm and rested.
- Prosthese such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures
- Apply artificial respiration if not breating, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

NOTES TO PHYSICIAN

Treat symptomatically

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SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used
- Use extinguishing media suitable for surrounding media

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard
- Wear breathing extinguishing apparatus plus protective gloves in the event of a fire
- Prevent, by any means available, spillage from entering drains or water courses
- Use fire fighting procedures suitable for surrounding area

FIRE/EXPLOSION HAZARD

- Non combustible
- Not considered a significant fire risk, however, containers may burn, silicon dioxide
May emit poisonous fumes
May emit corrosive fumes

FIRE INCOMPATIBILITY

- None known

HAZCHEM

None

SECTION 6: ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources
- Clean up all spills immediately
- Avoid contact with skin and eyes
- Control personal contact with the substance, by using protective equipment

MAJOR SPILLS

- Moderate hazard
- CAUTION: Advise personnel in area
- Alert Emergency Services and tell them location and nature of hazard
- Control personal contact by wearing protective clothing
- Prevent, by any means available, spillage from entering drains or water courses

Personal Protective Equipment advice is contained in Section 8 of MSDS

SECTION 7: HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation
- Wear protective clothing when risk of exposure occurs
- Use in a well-ventilated area
- Prevent concretration in hollows and sumps

SUITABLE CONTAINER

- Polyethylene or polypropylene container
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates
- Avoid contact with copper, aluminium and their alloys

STORAGE REQUIREMENTS

- Store in original containers
- Keep containers securely sealed
- Store in a cool, dry area protected from environmental extremes
- Store away from incompatible materials and foodstuff containers

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

SOURCE	MATERIAL	TWA mg/m^3	NOTES
Australia Exposure Standards	silica crystalline-quartz (Silica - Crystalline Quartz)	0.1	(see chapter 14)
Australia Exposure Standards	portland cement (Portland cement (a))	10	(see chapter 14)

MATERIAL DATA

PORTLAND CEMENT
SILICA CRYSTALLINE - QUARTZ
- The concentration of dust, for application of respirable dust limits, is to be determined form the fraction that penetrates a separator whose size collection efficiency is described by a cumulative log-normal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.

PENATECH HS GROUT 20KG:
Not available

SILICA CRYSTALLINE - QUARTZ:
Because the margin of safety of the quartz TLV is not known with certainty and given the associated link between silicosis
and lung cancer it is recommended that quartz concentrations be maintained as far below the TLV as prudent practices will allow.
WARNING: For inhalation exposure ONLY:
This substance has been classified by the ACGIH as A2 Suspected Human Carcinogen.

PORTLAND CEMENT:
for calcium silicate:
containing no asbestos and <1% crystalline silica
ES TWA: 10 mg/m3 inspirable dust
TLV TWA: 10 mg/m3 total dust (synthetic nonfibrous) A4
Although in vitro studies indicate that calcium silicate is more toxic than substances described as "nuisance dusts" is
thought that adverse health effects which might occur following exposure to 10-20 mg/m3 are likely to be minimal. The TLV-TWA is
thought to be protective against the physical risk of eye and upper respiratory tract irritation in workers and to prevent
interference with vision and deposition of particulate in the eyes, ears, nose and mouth.
For calcium oxide:
The TLV-TWA is thought to be protective against undue irritation and is analogous to that recommended for sodium hydroxide.
NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans.
Portland cement is considered to be a nuisance dust that does not cause fibrosis and has little potential to induce adverse
effects on the lung.

PERSONAL PROTECTION

RESPIRATOR

- Type AX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:
- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids,
where abrasive particles are not present.
- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocaoutchouc.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

ENGINEERING CONTROLS

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Fine grey powder; Partly mixes with water.

PHYSICAL PROPERTIES

State	Divided Solid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Applicable
Boilding Range (°C)	Not Applicable	Solubility in water (g/L)	Partly Mscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Applicable
Autoignition Temp (°C)	Not Applicable	Vapour Pressure (kPa)	Negligible
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	1.5
Lower Explosive Limit (%)	Not Applicable	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

SECTION 10: STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTIING TO INSTABILITY

- Presence of incompatible materials
- Product is considered stable
- Hazardous polymerisation will not occur

For incompatible materials - refer to Section 7 - Handling and Storage

SECTION 11: TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Considered an unlikely route of entry in commercial/industrial environments
- Accidental ingestion of the material may be damaging to the health of the individual

EYE

- If applied to the eyes, this material causes severe eye damage

SKIN

- This material can cause inflammation of the skin oncontact in some persons
- The material may accentuate any pre-existing dermatitis condition
- Open cuts, abraded or irritated skin should not be exposed to this material
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects
- Examine the skin prior to the use of the material and ensure that any external damage is suitably protected

INHALED

- The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
- Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
- If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
- Effects on lungs are significantly enhanced in the presence of respirableparticles.

CHRONIC HEALTH EFFECTS

- Harmful: danger of serious damage to health by prolonged exposure through inhalation.
- Harmful: danger of serious damage to health by prolonged exposure through inhalation.
- This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. This has been demonstrated via both short- and long-term experimentation.
- Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
- Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections
- Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect.

CHRONIC HEALTH EFFECTS

Not available. Refer to individual constituents.

CARCINOGEN

Silica dust crystalline in the form, of quartz or cristobalite	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1

SECTION 12: ECOLOGICAL INFORMATION

NO DATA

ECOTOXICITY

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
silica crystalline - quartz	No Data Available	No Data Available		
Portland cement	No Data Available	No Data Available		

SECTION 13: DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14: TRANSPORT INFORMATION

HASCHEM
None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: ADG7, UN, IATA, IMDG

SECTION 15: REGULATORY INFORMATION

POISONS SCHEDULE None

REGULATIONS

Regulations for ingredients

silica crystalline - quartz (CAS: 14808-60-7,122304-48-7,122304-49-8,12425-26-2,1317-79-9, 70594-95-5,87347-84-0) is found on the following regulatory lists;
"Australia - New South Wales Hazardous Substances Prohibited for Specific Uses", "Australia - New South Wales Hazardous Substances Requiring Health Surveillance", "Australia - South Australia - Hazardous Substances Requiring Health Surveillance", "Australia - Tasmania Hazardous Substances Prohibited for Specified Uses", "Australia - Tasmania Hazardous Substances Requiring Health Surveillance", "Australia - Western Australia Hazardous Substances Prohibited for Specified Uses or Methods of Handling", "Australia - Western Australia Hazardous Substances Requiring Health Surveillance", "Australia Exposure

Standards", "Australia Hazardous Substances", "Australia Hazardous Substances Requiring Health Surveillance", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulations 1994 - Hazardous Substances Requiring Health Surveillance", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments" portland cement (CAS: 65997-15-1) is found on the following regulatory lists; "Australia Exposure Standards","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","OECD List of High Production Volume (HPV) Chemicals"
No data for Penatech HS Grout 20kg (CW: 31-8498)

SECTION 16: OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
silica crystalline - quartz	14808- 60- 7, 122304- 48- 7, 122304- 49- 8, 12425- 26- 2, 1317- 79- 9, 70594- 95- 5, 87347- 84- 0

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

Issue Date: 1-May-2012
Print Date: 1-May-2012

This is the end of the MSDS.

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PENATECH HES GROUT MSDS

SECTION 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

PRODUCT NAME:	Penatech HES Grout 20kg
CHEMICAL NAME:	Not Applicable
SYNONYMS:	Not Available
PROPER SHIPPING NAME:	Not Applicable
CHEMICAL FORMULA:	Not Applicable
OTHER MEANS OF IDENTIFICATION:	Not Available
CAS NUMBER:	Not Applicable

Relevant identified uses of the substance or mixture and uses advised against

RELEVENT IDENTIFIED USES:	High early strength non-shrink cementitious grout

Details of the manufacturer/importer

Registered company name:	RLA Polymers Pty Ltd
Address:	215 Colchester Road, Kilsyth 3137 VIC Australia
Telephone:	+61 3 9728 1644
Fax:	+61 3 9728 6009
Website:	Not Available
Email:	Not Available

Emergency telephone number

Association / Organisation:	Not Available
Emergency telephone numbers:	Not Available
Other emergency telephone numbers:	Not Available

SECTION 2: HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

CHEMWATCH HAZARDS RATINGS

	Min	Max
Flammability	0	
Toxicity	2	
Body Contact	3	
Reactivity	0	
Chronic	3	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

RISK

Risk Codes	Risk Phrases(1)
R37/38	Irritating to respiratory system and skin
R50/53	Very toxic to aquatic organisms, may cause long-term adverse in aquatic environment
R41	Risk of serious damage to eyes
R48/20	Harmful: danger of serious damage to health by prolonged exposure through irritation
R49(2)	May cause CANCER by inhalation
R43	May cause SENSITISATION by skin contact

Legend: Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Relevant risk statements are found in section 2

SAFETY

Safety Codes	Safety Phrases
S01	Keep locked up
S07	Keep container tightly closed
S09	Keep container in a well ventilated place
S13	Keep away from food, drink and animal feeding stuffs
S20	When using do not eat or drink
S25	Avoid contact with eyes
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre
S28	After contact with skin, wash immediately with plenty of water
S29	Do not empty into drains
S35	This material and its container must be disposed of in a safe way
S36	Wear suitable protective clothing
S37	Wear suitable gloves
S38	In case of insufficient ventilation, wear suitable respiratory equipment
S39	Wear eye/face protection
S40	To clean the floor and all objects contaminated by this material, use water and detergent
S45	In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if able)
S46	If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label)
S51	Use only in well ventilated areas
S53	Avoid exposure - obtain special instructions before use
S56	Dispose of this material and its container at hazardous or special waste collection plant
S57	Use appropriate container to avoid environmental contamination
S61	Avoid release to the environment. Refer to special instructions/Safety data sheets
S64	If swallowed, rinse mouth with water (only if the person is conscious)

OTHER HAZARDS
Inhalation and/or ingenstion may produce health damage
Cumulative effects may result following exposure

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

CAS No	%(weight)	Name
14808-60-7	30-60	Silica 100G
65997-15-1	30-60	portland cement

Note: Manufacturer has supplied full ingredient information to allow CHEMWATCH assessment

SECTION 4: FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration
- Observe patient carefully
- Never give liquid to a person showing signs of being sleep or with reduced awareness; i.e. becoming unconsious
- Give water to rinse out mouth, then provide liquid slowly and as much as causalty can comfortably drink
- Seek medical advice

EYE

If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water
- Ensure complete irrigation of the eye by keeping the eyelids apart and away from eye and moving the eyelids occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes
- Transport to hospital or doctor without delay
- Removal of contact lenses after an eye injury should only be undertaken by a skilled personnel

SKIN

If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available)
- Seek medical attention in event of irritation

INHALED

- If fumes or combustion products are inhaled remove from contaminated area
- Lay patient down. Keep warm and rested.
- Prosthese such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures
- Apply artificial respiration if not breating, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor without delay

Indication of any immediate medical attention and special treatment needed

Treat symptomatically

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SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used
- Use extinguishing media suitable for surrounding media

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard
- Wear breathing extinguishing apparatus plus protective gloves in the event of a fire
- Prevent, by any means available, spillage from entering drains or water courses
- Use fire fighting procedures suitable for surrounding area

FIRE/EXPLOSION HAZARD

- Non combustible
- Not considered a significant fire risk, however, containers may burn, silicon dioxide
- May emit poisonous fumes
- May emit corrosive fumes

FIRE INCOMPATIBILITY

- None known

SECTION 6: ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources
- Clean up all spills immediately
- Avoid contact with skin and eyes
- Control personal contact with the substance, by using protective equipment

MAJOR SPILLS

- Moderate hazard
- CAUTION: Advise personnel in area
- Alert Emergency Services and tell them location and nature of hazard
- Control personal contact by wearing protective clothing
- Prevent, by any means available, spillage from entering drains or water courses

Personal Protective Equipment advice is contained in Section 8 of MSDS

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SECTION 7: HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation
- Wear protective clothing when risk of exposure occurs
- Use in a well-ventilated area
- Prevent concretration in hollows and sumps

SUITABLE CONTAINER

- Polyethylene or polypropylene container
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates
- Avoid contact with copper, aluminium and their alloys

OTHER INFORMATION

- Store in original containers
- Keep containers securely sealed
- Store in a cool, dry area protected from environmental extremes
- Store away from incompatible materials and foodstuff containers

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS (OEL)
INGREDIENT DATA

SOURCE	MATERIAL	TWA mg/m^3	STEL	PEAK	NOTES
Australia Exposure Standards	Silica - Crystalline Quartz (respirable dust)	0.1	Not Available	Not Available	Not Available
Australia Exposure Standards	portland cement (a)	10	Not Available	Not Available	Not Available

EMERGENCY LIMITS

INGREDIENT	TEEL-0	TEEL-1	TEEL-2	TEEL-3
Penatech HES Grout (20kg)	Not Available	Not Avaiiable	Not Available	Not Available

iNGREDIENT	ORIGINAL IDLH	REVISED IDLH
Silica 100G	N.E. mg/m3 N.E ppm	50 mg/m3
portland cement	N.E. mg/m3 N.E. ppm	5,000 mg/m3

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS
Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

PERSONAL PROTECTION

EYE AND FACE PROTECTION
- Safety glasses with side shields
- Chemical goggles
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task

SKIN PROTECTION
See hand protection below

HANDS/FEET PROTECTION
The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice.
Suitability and durability of glove type is dependent on usage.

BODY PROTECTION
See Other protection below

OTHER PROTECTION
- Overalls
- P.V.C. apron
- Barrier cream

THERMAL HAZARDS
Not Available

RECOMMENDED MATERIAL(S)
GLOVE SELECTION INDEX
Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the computergenerated selection:

Material	CPI

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.
Penatech HES Grout (20kg) Not Available

RECOMMENDED MATERIAL(S)

Type AX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AX P1 Air-line*	- -	AX PAPR-P1 -
up to 50 x ES	Air-line**	AX P2	AX PAPR-P2
up to 100 x ES	-	AX P3	-
		Air-line*	-
100+ x ES	-	Air-line**	AX PAPR-P3

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Fine grey powder; Partly mixes with water.

PHYSICAL PROPERTIES

Physical state	Divided Solid	**Relative density**	(Water = 1) 1.5
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Applicable
pH (as supplied)	Not Applicable	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Applicable
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available

Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm ormN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Negligible	**Gas group**	Not Available
Solubility in water (g/L)	Partly Miscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	See section 7
Chemical stability:	- Unstable in the presence of incompatible materials. - Product is considered stable. - Hazardous polymerisation will not occur.
Possibility of hazardous reactions:	See section 7
Conditions to avoid:	See section 7
Incompatible materials:	See section 7
Hazardous decomposition products:	See section 5

SECTION 11: TOXICOLOGICAL INFORMATION

INHALED
Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

SWALLOWED
- Considered an unlikely route of entry in commercial/industrial environments
- Accidental ingestion of the material may be damaging to the health of the individual

EYE
When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

SKIN
Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

CHRONIC
Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions.

	TOXICITY	IRRITATION
Penatech HES Grout (20kg)	Not Available	Not Available
Silica 100G	Not Available	Y Not Available
portland cement	Not Available	Not Available

SILICA 100G
WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS

The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 um) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite. Crystalline silica is also known to cause silicosis, a non-cancerous lung disease. Intermittent exposure produces; focal fibrosis, (pneumoconiosis), cough, dyspnoea, liver tumours.

PORTLAND CEMENT
The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibodymediated immune reactions.

	⊘		✔
Acute Toxicity	✔	Carcinogenicity	⊘
Skin Irritation/Corrosion	✔	Reproductivity	✔
Serious Eye Damage/Irritation	✔	STOT - Single Exposure	✔
Respiratory or Skin sensitisation	✔	STOT - Repeated Exposure	⊘
Mutagenicity	⊘	Aspiration Hazard	

LEGEND: ✘ – Data required to make classification available
⊘ – Data available but does not fill the criteria for classification
– Data Not Available to make classification

SECTION 12: ECOLOGICAL INFORMATION

TOXICITY

Do not discharge into sewers or waterways.

PERSISTENCE AND DEGRADIBILITY

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
	No Data available for all ingredients	No Data available for all ingredients	No Data available for all ingredients	No Data available for all ingredients

SECTION 13: DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14: TRANSPORT INFORMATION

MARINE POLLUTANT

HAZCHEM Not Appplicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

SECTION 15: REGULATORY INFORMATION

SAFETY, HEALTH AND ENVIRONMENT REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

Silica 100G(14808-60-7) is found on the following regulatory lists
"Australia Exposure Standards", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "Australia Inventory of Chemical Substances (AICS)", "Australia Hazardous Substances Information System - Consolidated Lists"

portland cement(65997-15-1) is found on the following regulatory lists
"Australia Exposure Standards""International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs""Australia Inventory of Chemical Substances (AICS)"

SECTION 16: OTHER INFORMATION

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references
The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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