

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name	QUARRY PRODUCTS
Synonym(s)	CONCRETE AGGREGATE • CRUSHED ROCK • DUST • FILL • GRAVEL • QUARRY MATERIAL • QUARRY ROCK • RAW MATERIAL • ROAD BASE • SEALING AGGREGATE • SLAB FILL • SPALLS

1.2 Uses and uses advised against

Use(s)	BUILDING MATERIAL • CONSTRUCTION APPLICATIONS
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1.3 Details of the supplier of the product

Supplier name	EB MAWSONS & SONS PTY LTD
Address	141 King George Street, Cohuna, Vic, Australia, 3568
Telephone	(03) 5456 2409
Fax	(03) 5456 2428
Email	Not supplied
Website	Not supplied

1.4 Emergency telephone number(s)

Emergency	Not supplied
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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

GHS Classification(s)	Skin Corrosion/Irritation: Category 2 Serious Eye Damage / Eye Irritation: Category 1 Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory Irritation) Carcinogenicity: Category 1A Specific Target Organ Toxicity (Repeated Exposure): Category 1
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2.2 GHS Label elements

Signal word DANGER

Pictograms



Hazard statement(s)

H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.

Prevention statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.

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Response statement(s)

P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P310 Immediately call a POISON CENTER or doctor/physician.

P362 Take off contaminated clothing and wash before re-use.

Storage statement(s)

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

2.3 Other Hazards

Some susceptible individuals may exhibit an allergic skin response upon exposure to portland cement, possibly due to trace amounts of chromium.

Prolonged exposure to portland cement in the wet form can cause serious, potentially irreversible skin or eye damage in the form of chemical burns. The same serious injury can occur if wet or moist skin or eyes have prolonged contact exposure to dry portland cement.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS number	EC number	Content
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	>60%
PORTLAND CEMENT	65997-15-1	266-043-4	>10%
NON HAZARDOUS INGREDIENTS	Not Available	Not Available	Remainder

Ingredient notes *

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Rinse mouth with water.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

Irritating to the eyes, skin and respiratory system. Chronic over exposure to silica quartz dust may result in silicosis (lung disease). Principal symptoms of silicosis are coughing and breathlessness. Some individuals may exhibit an allergic response upon exposure to this product, possibly due to the trace amounts of chromium present. Crystalline silica and hexavalent chromium compounds are classified as carcinogenic to humans (IARC Group 1).

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

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5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire.

5.4 Hazchem code

None allocated

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from moisture, incompatible substances and foodstuffs. Ensure packages are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end use(s)

None known.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Portland Cement	SWA [AUS]	--	10	--	--
Quartz (respirable dust)	SWA [AUS]	--	0.1	--	--
	SWA [Proposed]	--	0.05	--	--
	WorkSafe VIC	--	0.05	--	--

FULL RESEARCH REPORT

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Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering Controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye/Face Wear dust-proof goggles.
Hand Wear PVC or rubber gloves.
Body When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory Where an inhalation risk exists, wear a Class P1 (Particulate) respirator. At high dust levels, wear an Air-line respirator or a Full-face Class P3 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	COLOURED POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	3 to 10
Vapour density	NOT AVAILABLE
Specific gravity	2.0 to 3.0
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

None known.

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10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Hazardous polymerisation is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), ethanol, acids (e.g. hydrofluoric acid) and interhalogens (e.g. chlorine trifluoride). Water contact may increase product temperature 2°C to 3°C.

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Information available for the product:
	Based on available data, the classification criteria are not met. Ingestion may result in nausea, vomiting and gastrointestinal irritation.
Skin	Causes skin irritation. Contact may result in irritation, redness, pain, rash and dermatitis. Caution: Prolonged contact with wet-mix may cause serious skin burns.
Eye	Causes serious eye damage. Contact with moisture in the eyes may result in irritation, lacrimation, pain, redness, conjunctivitis and possible alkaline burns aided by mechanical irritation and abrasion.
Sensitisation	Not classified as causing respiratory sensitisation. However, some individuals may exhibit an allergic response upon exposure to cement, possibly due to trace amounts of chromium.
Mutagenicity	Insufficient data available to classify as a mutagen.
Carcinogenicity	This product contains trace amounts of 'respirable' crystalline silica and hexavalent chromium compounds which are classified as carcinogenic to humans (IARC Group 1). However, there is sufficient information to conclude that the relative risk of lung cancer from exposure to crystalline silica is increased in persons with silicosis. Therefore preventing the onset of silicosis will also reduce the cancer risk.
Reproductive	Insufficient data available to classify as a reproductive toxin.
STOT - single exposure	Irritating to the respiratory system. Over exposure may result in irritation of the nose and throat, with coughing. High level exposure may result in breathing difficulties.
STOT - repeated exposure	Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused by deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness. In the wet state, the likelihood of an inhalation hazard is reduced.
Aspiration	This product is a solid and aspiration hazards are not expected to occur.

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12. ECOLOGICAL INFORMATION

12.1 Toxicity

This product poses a low ecological risk. It forms a non-toxic, mildly alkaline or neutral slurry when mixed with water.

12.2 Persistence and degradability

Not biodegradable.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

Low mobility in the soil.

12.5 Results of PBT and vPvB assessment

No information provided.

12.6 Other adverse effects

Prevent contamination of drains or waterways.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Reuse or recycle where possible. Alternatively, ensure product is covered with moist soil to prevent dust generation and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	Land Transport (ADG)	Sea Transport (IMDG/IMO)	Air Transport (IATA/ICAO)
14.1 UN number	None allocated	None allocated	None allocated
14.2 UN proper shipping name	None allocated	None allocated	None allocated
14.3 Transport hazard classes	None allocated	None allocated	None allocated
14.4 Packing group	None allocated	None allocated	None allocated

14.5 Environmental hazards Not a Marine Pollutant

14.6 Special precautions for user

Hazchem Code None allocated

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)]

WHS regulatory information

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Ingredient name	CAS number	Regulation	Details
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	Restricted Hazardous Chemicals	Free silica (crystalline silicon dioxide). For abrasive blasting >1%.
		Schedule 14 - Health Monitoring	Crystalline silica

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**

All components are listed on AICS, or are exempt.

15.2 Chemical safety assessment

No information provided.

16. OTHER INFORMATION

Additional information CEMENT CONTACT DERMATITIS: Individuals using wet cement, mortar, grout or concrete could be at risk of developing cement dermatitis. Symptoms of exposure include itchy, tender, swollen, hot, cracked or blistering skin with the potential for sensitisation. The dermatitis is due to the presence of soluble (hexavalent) chromium.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration

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LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m ³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report Status

This ChemAlert report has been independently compiled by RMT's scientific department utilising the original Safety Data Sheet ('SDS') for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. It is an independent collation by RMT of information obtained from the original SDS for this product. Its content has not been authorised or verified by the manufacturer / distributor of the chemical to which it relates.

This ChemAlert report does not constitute the manufacturer's original SDS and is not intended to be a replacement for same. It is provided to subscribers of ChemAlert as a reference tool only, is not all-inclusive and does not represent any guarantee as to the properties of the product. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this ChemAlert report, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this ChemAlert report.

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End of Report

Additional Research Data

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CHEMICAL FOOTPRINT

The following Chemical Footprint (CFP) assessment aims to provide further clarity surrounding the long-term health and environmental impact of hazardous chemicals.

Overall	83
CMR	80
Endocrine	0
Sensitising	35
Physical	0
Environment	15
Waste	20

INGREDIENT TOXICOLOGICAL DATA

PORTLAND CEMENT (65997-15-1) >10%

Physicochemical Sets in an exothermic reaction to a solid of low strength within hours after mixing with water. Continuing slower exothermic reactions harden the product to a tough gray stony mass. Incompatible with acids, acid chlorides, and acid anhydrides when set. Incompatible with ammonium salts and aluminum metal when wet and unset.

QUARTZ (CRYSTALLINE SILICA) (14808-60-7) >60%

Physicochemical Silica is another name for the chemical compound composed of silicon and oxygen with the chemical formula SiO₂, or silicon dioxide. There are many forms of silica. All silica forms are identical in chemical composition, but have different atom arrangements. Silica compounds can be divided into two groups, crystalline (or c-silica) and amorphous silica (a-silica or non-crystalline silica). c-Silica compounds have structures with repeating patterns of silicon and oxygen. a-Silica chemical structures are more randomly linked when compared to c-silica. All forms of silica are odorless solids composed of silicon and oxygen atoms. Silica particles become suspended in air and form non-explosive dusts. Silica may combine with other metallic elements and oxides to form silicates.

Source: CDC-ATSDR Toxic Substances Portal.

Acute Toxicity No guideline studies have been conducted to assess the acute inhalation exposure to crystalline silica. Studies conducted using a single intratracheal instillation of crystalline silica in rodents have shown significant lung pathology such as the formation of silicotic nodules and lung fibrosis (WHO, 2000). However, these studies are not directly relevant for human exposure.

A single intratracheal instillation of quartz (50 mg, particle size <5 mm in diameter) in male rats (strain unspecified) resulted in a three-fold increase in water, protein and phospholipid content in lungs within 28 days of administration (WHO, 2000). In another study, 12 mg of quartz (particle size <5 mm in diameter) was administered to male and female rats (strain unspecified) using a single intratracheal instillation. Discrete silicotic granulomas in the lungs of both sexes were observed 21–30 days after instillation (WHO, 2000).

Source: NICNAS (HUMAN HEALTH TIER II ASSESSMENT FOR Crystalline silica).

Skin corrosion / irritation May cause mechanical irritation to the skin.

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Serious eye damage / irritation	May cause mechanical irritation to the eyes.
Mutagenicity	<p>Genotoxicity assays were conducted on blood samples collected from 50 workers occupationally exposed to stone dust containing 50–60 % silica. After taking smoking status into consideration, the frequency of sister chromatid exchanges was significantly higher in the non-smoking workers exposed to stone dust when compared with matched controls. In a second genotoxicity assay conducted using the same study protocol as above, the observed increased incidence of chromosome aberrations was only statistically significant in the smokers in the cohort (Environment & Health Canada, 2013).</p> <p>DNA damage was assessed in peripheral blood lymphocytes using the Comet assay in a study of foundry and pottery workers occupationally exposed to crystalline silica. No correction for smoking status or other carcinogens was made. DNA damage was reported to be higher in pottery or foundry workers when compared with matched controls (Environment & Health Canada, 2013).</p> <p>In a further study, the presence of micronuclei was evaluated in peripheral blood lymphocytes and nasal epithelial cells from workers occupationally exposed to crystalline silica dust from grinding, bagging and sandblasting jobs. The frequency of micronuclei in exposed workers was three-fold higher in nasal epithelial cells and two-fold higher in peripheral blood lymphocytes compared with matched controls (Environment & Health Canada, 2013). However, no direct correction for smoking status or exposure to other potential carcinogens was considered (Environment & Health Canada, 2013).</p> <p>Source: NICNAS (HUMAN HEALTH TIER II ASSESSMENT FOR Crystalline silica).</p>
Carcinogenicity	<p>The International Agency for Research on Cancer (IARC) has classified the chemical as 'Carcinogenic to humans' (Group 1), based on sufficient evidence for carcinogenicity in humans and experimental animals.</p> <p>The strongest evidence supporting the carcinogenicity of crystalline silica in the lung comes from pooled data and meta-analyses of available data (IARC, 2012). IARC concluded that crystalline silica is a confirmed human carcinogen based largely on nine studies of cohorts in four industry sectors that were considered to be least influenced by confounding factors, including gold mining, quarries and granite works, ceramic/pottery/refractory brick industries and the diatomaceous earth industry (IARC, 2012). Analysis from numerous epidemiology studies indicated that lung cancer tended to increase with the following parameters: cumulative exposure; duration of exposure; peak intensity of exposure; and presence of silicosis (Environment & Health Canada, 2013).</p> <p>Source: NICNAS (HUMAN HEALTH TIER II ASSESSMENT FOR Crystalline silica).</p>
Repeated Dose Toxicity	<p>In humans, inhaled particles of crystalline silica can be transported to other parts of the body through the lymphatic system (US EPA, 1996; Thomas et al., 2000). Two forms of silicosis—accelerated (develops 5–10 years after initial exposure) and chronic (develops 10 years after initial exposure)—have been reported after repeated occupational exposure to crystalline silica dust, mainly that from quartz (US EPA, 1996; WHO, 2000). In a study of 67 gold mine workers in Canada, there was a significant linear relationship between lung quartz concentration and the severity of silicosis. While there were other particles detected in the lung tissue, quartz was the only significant</p>

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indicator of silicosis severity (WHO, 2000).

Epidemiological studies show that the prevalence of radiographic silicosis (as defined by categories 1/0 or 1/1 under the International Labour Organisation (ILO) classification system) increases with average exposure to crystalline silica (WHO, 2000). For example, exposure to <0.05 mg/m³ was associated with a 10 % prevalence of silicosis, whereas exposure to >0.05-0.10 mg/m³ caused silicosis, with a prevalence of 22.5 %, and at exposure concentration >0.10 mg/m³ the prevalence of silicosis was 48.6 % (WHO, 2000).

Further epidemiological data also indicate an exposure-response relationship between respirable crystalline silica (quartz) dust and silicosis in various occupational exposure settings (gold mining, stone/granite industries, brick workers and diatomaceous earth industries). Also, there are data which indicate that exposure to crystalline silica (quartz) dust can increase the risk of developing tuberculosis (TB). However, the relationship between exposure to crystalline silica (quartz) dust and TB risk in the absence of radiographically classified silicosis has not been substantiated through epidemiological studies (WHO, 2000).

Acute silicosis or silico-proteinosis is a rare and fatal condition arising from over exposure to respirable-sized, high quartz content dust over a short period of time. This condition is clinically similar to pulmonary oedema with the symptoms including shortness of breath and fluid accumulation in the upper and middle areas of the lungs. This condition has only been reported in historical case reports such as during the building of the Gauley Bridge hydroelectric tunnel in West Virginia, USA (1930–31). In this case, out of 2000 construction workers digging through high-silica rock without any respiratory protection, 400 workers died on site and 1500 workers were disabled with acute silicosis (US EPA, 1996).

Source: NICNAS (HUMAN HEALTH TIER II ASSESSMENT FOR Crystalline silica).

End of Additional Research Data