DMI-65

QUANTUM FILTRATION MEDIUM Pty Ltd

Chemwatch: **5177-82** Version No: **2.1.1.1**

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 2

Issue Date: 28/05/2015 Print Date: 29/05/2015 Initial Date: Not Available S.GHS.AUS.EN

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

Product Identifier	
Product name	DMI-65
Synonyms	Silica Sand/Crystalline Quartz/ Quartz/ Silicon Dioxide, De Iron De Manganese water filtration media
Other means of identification	Not Available
Relevant identified uses o	f the substance or mixture and uses advised against
Relevant identified uses	Water filtration sand media.
Details of the manufacture	er/importer
Registered company name	QUANTUM FILTRATION MEDIUM Pty Ltd
Address	Mungalup Road, Collie 6230 WA Australia
Telephone	+61 1300 303 281
Fax	Not Available
Website	Not Available
Email	info@dmi65.com
Emergency telephone num	nber
Association / Organisation	Not Available
Emergency telephone numbers	+618 97 343 641
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the Model WHS Regulations and the ADG Code.

Poisons Schedule	Not Applicable	
GHS Classification [1]	STOT - RE Category 2	
Legend:	. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from EC Directive 1272/2008 - Annex VI	
Label elements		

GHS label elements



SIGNAL WORD	WARNING
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Hazard s	tatement(s)
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H373 May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s) Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

Precautionary statement(s) Response

P314 Get medical advice/attention if you feel unwell.

Precautionary statement(s) Disposal

P501

Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
14808-60-7	>90	silica crystalline - quartz
Not Available	<9	microline
Not Available	<1	bixbyite
471-34-1	<0.1	calcium carbonate

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	 If dust is inhaled, remove from contaminated area. Encourage patient to blow nose to ensure clear breathing passages. Ask patient to rinse mouth with water but to not drink water. Seek immediate medical attention.
Ingestion	 Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

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

Special hazards arising from the substrate or mixture

Fire Incompatibility

None known.

Advice for firefighters

- When silica dust is dispersed in air, firefighters should wear inhalation protection as hazardous substances from the fire may be adsorbed on the silica particles.
- ▶ When heated to extreme temperatures, (>1700 deg.C) amorphous silica can fuse.
- Alert Fire Brigade and tell them location and nature of hazard.
- ▶ Wear breathing apparatus plus protective gloves in the event of a fire.
- ▶ Prevent, by any means available, spillage from entering drains or water courses.
- $\,\blacktriangleright\,$ Use fire fighting procedures suitable for surrounding area.
- ▶ DO NOT approach containers suspected to be hot.
- ▶ Cool fire exposed containers with water spray from a protected location.
- ▶ If safe to do so, remove containers from path of fire.
- ▶ Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard

Fire Fighting

▶ Non combustible.

▶ Not considered a significant fire risk, however containers may burn.

, silicon dioxide (SiO2)

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

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.
- Use dry clean up procedures and avoid generating dust.

▶ Place in a suitable, labelled container for waste disposal.

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.

Major Spills

- Prevent, by any means available, spillage from entering drains or water courses.
- Recover product wherever possible.
- ▶ IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.
- ▶ ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

- ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs.

Safe handling

- ▶ Use in a well-ventilated area
- ▶ Prevent concentration in hollows and sumps.
 - ▶ DO NOT enter confined spaces until atmosphere has been checked.
 - ▶ DO NOT allow material to contact humans, exposed food or food utensils
 - Avoid contact with incompatible materials.
 - ▶ When handling, **DO NOT** eat, drink or smoke
 - ▶ Keep containers securely sealed when not in use.
 - ▶ Avoid physical damage to containers.

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.
- ▶ Protect containers against physical damage and check regularly for leaks.
- ▶ Observe manufacturer's storage and handling recommendations contained within this MSDS.

For major quantities:

- ▶ Consider storage in bunded areas ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).
- ▶ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local

Conditions for safe storage, including any incompatibilities

Suitable container

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

Silicas

- react with hydrofluoric acid to produce silicon tetrafluoride gas
- react with xenon hexafluoride to produce explosive xenon trioxide

Storage incompatibility

- reacts exothermically with oxygen difluoride, and explosively with chlorine trifluoride (these halogenated materials are not commonplace industrial materials) and other fluorine-containing compounds
- may react with fluorine, chlorates
- are incompatible with strong oxidisers, manganese trioxide, chlorine trioxide, strong alkalis, metal oxides, concentrated orthophosphoric acid, vinyl acetate
- may react vigorously when heated with alkali carbonates

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	silica crystalline - quartz	Silica - Crystalline Quartz (respirable dust) / Quartz (respirable dust)	0.1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	calcium carbonate	Calcium carbonate (a)	10 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
silica crystalline - quartz	Silica, crystalline-quartz; (Silicon dioxide)	0.025 mg/m3	0.025 mg/m3	0.025 mg/m3
calcium carbonate	Limestone; (Calcium carbonate; Dolomite)	27 mg/m3	27 mg/m3	1300 mg/m3
calcium carbonate	Carbonic acid, calcium salt	45 mg/m3	210 mg/m3	1300 mg/m3

Ingredient	Original IDLH	Revised IDLH
silica crystalline - quartz	N.E. mg/m3 / N.E. ppm	50 mg/m3
microline	Not Available	Not Available

calcium carbonate Not Available Not Available	bixbyite	Not Available	Not Available
	calcium carbonate	Not Available	Not Available

Exposure 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. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection.

Personal protection

Appropriate engineering

controls











- Safety glasses with side shields.
- Chemical goggles

Eye and face protection

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. 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]

Skin protection

See Hand protection below

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. Important factors in the selection of gloves include:

- ▶ frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and Hands/feet protection

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- ▶ When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- ▶ When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- ▶ Contaminated gloves should be replaced.

Gloves must only be worn on clean hands

Body protection

See Other protection below

Other protection

- Overalls. P.V.C. apron.
- ▶ Barrier cream.
- Skin cleansing cream.
- Eye wash unit.
- Thermal hazards

Not Available

Respiratory protection

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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Dark odourless granules; insoluble in water.			
Physical state	Divided Solid	Relative density (Water = 1)	2.61	
Odour	Not Available	Partition coefficient n-octanol / water	Not Available	
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available	
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available	
Melting point / freezing point (°C)	1610	Viscosity (cSt)	Not Applicable	
Initial boiling point and boiling range (°C)	2230	Molecular weight (g/mol)	Not Applicable	
Flash point (°C)	Not Applicable	Taste	Not Available	

Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Applicable	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

Information or	toxicological	effects
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Inhaled	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 respirable particles. Acute silicosis occurs under conditions of extremely high silica dust exposure particularly when the particle size of the dust is small. The disease is rapidly progressive and spreads widely through the lungs within months of the initial exposure and causing death within 1 to 2 years.
Ingestion	The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.

Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract

Skin Contact

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Open cuts, abraded or irritated skin should not be exposed to this material

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.

Eye There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

Chronic

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.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

On the basis of limited epidemiological or animal data, it has been concluded that prolonged inhalation of the material, in an occupational setting, may increase

the risk of cancer in humans.

Crystalline silicas activate the inflammatory response of white blood cells after they injure the lung epithelium. Chronic exposure to crystalline silicas reduces lung capacity and predisposes to chest infections.

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. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present.

DMI-65	TOXICITY	IRRITATION
	Not Available	Not Available
silica crystalline - quartz	TOXICITY	IRRITATION
	Not Available	Nil reported
calcium carbonate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Eye (rabbit): 0.75 mg/24h - SEVERE
	Oral (rat) LD50: >2000 mg/kge ^[1]	Skin (rabbit): 500 mg/24h-moderate
Legend:	Nelue obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's msds. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

SILICA CRYSTALLINE -

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

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QUARTZ

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.

* Millions of particles per cubic foot (based on impinger samples counted by light field techniques).

NOTE: the physical nature of quartz in the product determines whether it is likely to present a chronic health problem. To be a hazard the material must enter the breathing zone as respirable particles.

CALCIUM CARBONATE

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

No evidence of carcinogenic properties. No evidence of mutagenic or teratogenic effects.

Acute Toxicity	0	Carcinogenicity	0
Skin Irritation/Corrosion	0	Reproductivity	0
Serious Eye Damage/Irritation	0	STOT - Single Exposure	0
Respiratory or Skin sensitisation	0	STOT - Repeated Exposure	✓
Mutagenicity	0	Aspiration Hazard	0

Legend:

✓ – Data required to make classification available

X – Data available but does not fill the criteria for classification

Data Not Available to make classification

CMR STATUS

Not Applicable

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

DO NOT discharge into sewer or waterways.

Persistence and degradability

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

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging

disposal

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- ▶ DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

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 environmental regulations / legislation specific for the substance or mixture

silica crystalline - quartz(14808-60-7) is found on the following regulatory lists	"Australia Exposure Standards", "Australia Inventory of Chemical Substances (AICS)", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "Australia Hazardous Substances Information System - Consolidated Lists"
calcium carbonate(471-34-1) is found on the following regulatory lists	"Australia Exposure Standards","Australia Inventory of Chemical Substances (AICS)"

National Inventory	Status
Australia - AICS	Υ
Canada - DSL	Υ
China - IECSC	Υ
Europe - EINEC / ELINCS / NLP	Υ
Japan - ENCS	Υ
Korea - KECI	Y
New Zealand - NZIoC	Υ
Philippines - PICCS	Υ
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

Name	CAS No
silica crystalline - quartz	122304-48-7, 122304-49-8, 12425-26-2, 1317-79-9, 14808-60-7, 70594-95-5, 87347-84-0
calcium carbonate	1317-65-3, 13397-26-7, 146358-95-4, 15634-14-7, 198352-33-9, 459411-10-0, 471-34-1, 63660-97-9, 72608-12-9, 878759-26-3

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

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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