

## 1. Identification of Substance & Company

### Product

|                      |   |
|----------------------|---|
| Product name         | Silica Fume   |
| Product code         | NA  |
| HSNO approval        | HSR002545   |
| Approval description | Construction Products (Carcinogenic) Group Standard 2020  |
| UN number            | NA  |
| Proper Shipping Name | NA  |
| DG class             | NA  |
| Packaging group      | NA  |
| Hazchem code         | NA  |
| Uses                 | General building raw material additive / concrete additive, Natural pozzolan for high performance concrete. |

### Company Details

|           |   |
|-----------|---|
| Company   | <b>Golden Bay</b>                               |
| Address   | Portland Road<br>Whangarei, 0178<br>New Zealand |
| Telephone | 09 432 2656 (7.30am – 4 pm, Mon – Fri)          |

**Emergency Telephone Numbers: 0800 764 766 (NZ Poisons Centre)**  
**0800 243 622 (0800 CHEMCALL)**

## 2. Hazard Identification

### Approval

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002545, Construction Products (Carcinogenic) Group Standard 2020). The substance has been classified as hazardous according to the criteria in the Hazardous substances (Hazard Classification) Notice 2020.

### GHS 7 Classes

Carcinogen category 1

### Hazard Statements

H350 - May cause cancer.

### SYMBOLS

**DANGER**



### Other Classifications

There are no other classifications that are known to apply.

### Precautionary Statements

|                   |  |
|-------------------|--|
| <b>Prevention</b> | P103 - Read label before use.<br>P201 - Obtain special instructions before use.<br>P202 - Do not handle until all safety precautions have been read and understood.<br>P281 - Use personal protective equipment as required. |
| <b>Response</b>   | P308+P313 - IF exposed or concerned: Get medical advice/ attention.  |
| <b>Storage</b>    | P405 - Store locked up.  |
| <b>Disposal</b>   | P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.  |



### 3. Composition / Information on Ingredients

| Component                   | CAS/ Identification | Conc (%) |
|-----------------------------|---------------------|----------|
| silicon dioxide (amorphous) | 7631-86-9           | >85%     |
| crystalline silica          | 14808-60-7          | <0.67%   |

This is a commercial product whose exact ratio of components may vary. Trace quantities of impurities are also likely.

### 4. First Aid

#### General Information

You should call the National Poisons Centre if you feel that you may have been harmed by this product. The number is 0800 764 766 (0800 POISON) (24 hr emergency service).

If medical advice is needed, have this SDS, product container or label at hand. If exposed or concerned: Get medical advice/attention.

**Recommended first aid facilities** Ready access to running water is recommended. Accessible eyewash is recommended.

#### Exposure

**Swallowed** Do NOT induce vomiting. Give a glass of water to drink. Contact a doctor if experiencing symptoms.

**Eye contact** If product gets in eyes, wash material from them with running water for several minutes. If symptoms persist, seek medical advice.

**Skin contact** This product is non-irritating to skin. No further measures should be required.

**Inhaled** If coughing, dizziness or shortness of breath is experienced, remove the patient to fresh air immediately. If patient is unconscious, place in the recovery position (on the side) for transport and contact a doctor.

#### Advice to Doctor

Treat symptomatically. See Section 11 for information on potential long term health effects from exposure to very fine crystalline silica dust.

### 5. Firefighting Measures

**Fire and explosion hazards:** There are no specific risks for fire/explosion for this chemical. It is non-combustible.  
**Suitable extinguishing substances:** Not applicable.

**Unsuitable extinguishing substances:** Unknown.

**Products of combustion:** Product does not burn. Dust may form irritating atmosphere. Product will react exothermically with water. Contaminated water will be strongly alkaline. Product may decompose in a fire and produce toxic or corrosive fumes.

**Protective equipment:** Self-contained breathing apparatus. Safety boots, non-flammable overalls, gloves, hat and eye protection.

**Hazchem code:** NA

### 6. Accidental Release Measures

**Containment** If greater than 1000kg is stored, secondary containment and emergency plans to manage any potential spills must be in place. In all cases design storage to prevent discharge to storm water.

**Emergency procedures** In the event of large spillage alert the fire brigade to location and give brief description of hazard. Wear protective equipment to prevent respiratory exposure. Clear area of any unprotected personnel. Sweep up the solid. Avoid creating dust. If appropriate, use a gentle water spray to wet material to minimise dust generation.

**Clean-up method** Collect and seal in properly labelled containers or drums for disposal or recycling.

**Disposal** Sweep up and collect recoverable material into labelled containers for recycling or salvage. This material may be suitable for approved landfill. Dispose of only in accord with all regulations.

**Precautions** Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation.

### 7. Storage & Handling

|                 |   |
|-----------------|---|
| <b>Storage</b>  | Stable under normal use and storage conditions. Store as a slurry with water in process vessels/containers.   |
| <b>Handling</b> | Keep exposure to dusts to a minimum, and minimise the quantities kept in work areas. Minimise dust generation and accumulation. See section 8 with regard to personal protective equipment requirements. Avoid eye contact and inhalation of dust. See section 8 for Exposure control. Dried samples should be handled in a dust box/fume hood with adequate ventilation. |

### 8. Exposure Controls / Personal Protective Equipment

#### Workplace Exposure Standards

A workplace exposure standard (WES) has not been established by WorkSafe NZ for all ingredients of this product. There is a general limit of 3mg/m<sup>3</sup> for respirable particulates and 10mg/m<sup>3</sup> for inhalable particulates when limits have not otherwise been established.

| NZ Workplace Exposure Stds | Ingredient                                  | WES-TWA                                     | WES-STEL |
|----------------------------|---|---|----------|
|                            | Crystalline Silica (all forms) - respirable | 0.05mg/m <sup>3</sup> carcinogen category 1 | no data  |

#### Engineering Controls

In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety at Work Act (2015) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016. Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify processes or increase ventilation.

#### Personal Protective Equipment

|                    |   |
|--------------------|---|
| <b>General</b>     | Personal Protective Equipment (PPE) should not be used as the primary means of exposure protection, except in the event of an accident or emergency situation or where all other means of protection have proven to inadequate.<br>Clean PPE after use, or dispose of as appropriate. Store PPE for re-use in a clean place. Regular training on the correct use of PPE should be provided. In particular the correct fitting and use of respirators and where applicable the cleaning of respirators should be undertaken. |
| <b>Eyes</b>        | Work clothes should not be taken home.<br>Protective eyewear is not normally necessary when using this product. However, it always prudent to use protective eyewear if dust is likely. Special care is required when wearing contact lenses. Soft contact lenses may concentrate irritants. The use of dust tight goggles may be necessary.  |
| <b>Skin</b>        | Avoid repeated or prolonged skin contact. Wear overalls, rubber boots and impervious abrasion resistant gloves. Replace frequently. Gloves should be checked for tears or holes before use. Remove protective clothing and wash exposed areas with soap and water prior to eating, drinking or smoking. Wash contaminated clothing before re-use.   |
| <b>Respiratory</b> | To prevent irritation a well fitted dust mask should be used (this is not recommended when exposure is close to the WES). A fine particulate half or full face respirator with an effective seal is recommended when airborne concentrations approach the WES (section 8). If handling material, it is possible that the silica dust WES will be exceeded hence a respirator with a particulate filter or air supplied respirator will be required.   |



#### WES Additional Information

Not applicable

## 9. Physical & Chemical Properties

|   |   |
|---|---|
| <b>Appearance</b>                         | Grey solid  |
| <b>Odour</b>                              | odourless   |
| <b>Odour threshold</b>                    | no data   |
| <b>pH</b>                                 | no data   |
| <b>Freezing / melting point</b>           | 2000°C  |
| <b>Boiling point</b>                      | >2000°C   |
| <b>Flash point</b>                        | non flammable   |
| <b>Flammability</b>                       | non flammable   |
| <b>Upper &amp; lower flammable limits</b> | no LEL or UEL   |
| <b>Vapour pressure</b>                    | no data   |
| <b>Vapour density</b>                     | no data   |
| <b>Specific gravity / density</b>         | 2.2-2.3, bulk density 300 - 700 kg/m <sup>3</sup>         |
| <b>Solubility</b>                         | Insoluble in water, soluble in concentrated acids/alkalis |
| <b>Partition Coefficient:</b>             | no data   |
| <b>Auto-ignition temperature</b>          | no data   |
| <b>Decomposition temperature</b>          | no data   |
| <b>Viscosity</b>                          | no data   |
| <b>Particle characteristics</b>           | no data   |

## 10. Stability & Reactivity

|   |   |
|---|---|
| <b>Stability</b>                          | Stable  |
| <b>Conditions to be avoided</b>           | Containers should be kept closed in order to avoid contamination. Avoid the creation of dust. |
| <b>Incompatible groups</b>                | Crystalline silica may react with sodium, potassium, zinc and lead oxides to form silicates.  |
| <b>Substance Specific Incompatibility</b> | None known  |
| <b>Hazardous decomposition products</b>   | None known  |
| <b>Hazardous reactions</b>                | Stable  |

## 11. Toxicological Information

### Summary

IF SWALLOWED: No adverse effects anticipated under normal use conditions. Swallowing dust may result in abdominal discomfort.

IF IN EYES: Fine dust may cause irritation when in direct contact. This may cause watering and redness.

IF ON SKIN: No adverse effects anticipated under normal use conditions. Dust from this product may cause irritation from friction. This product is not absorbed through the skin.

IF INHALED: Short term (acute) silicosis can occur with one-off exposures to extremely high levels of fine crystalline silica dust. Other short term effects include irritation, choking and difficulty breathing.

CHRONIC EFFECTS: This substance does contain traces fine respirable crystalline silica. Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC Group 1). The carcinogenicity of silica is related to long term (e.g., 10 years) inhalation of very fine particulate. Carcinogenicity of silica appears linked to development of silicosis (see systematic below) followed by complications and, eventually lung cancer. In addition to silicosis there is some evidence that exposure to respirable crystalline silica may be linked to scleroderma and an increased risk of kidney disease.

### Supporting Data

|                |                        |   |
|----------------|------------------------|---|
| <b>Acute</b>   | <b>Oral</b>            | Not considered acutely toxic if swallowed.  |
|                | <b>Dermal</b>          | Not considered acutely toxic by dermal contact.   |
| <b>Chronic</b> | <b>Inhaled</b>         | The substance is not considered acutely toxic if inhaled, however there may be irritation of the respiratory tract if dust is inhaled. Short term (acute) silicosis (see "systemic" below) can also occur with one-off exposures to extremely high levels of fine crystalline silica dust. Other short term effects include irritation, choking and difficulty breathing. |
|                | <b>Eye</b>             | The mixture is not considered to be an eye irritant. Dust may be an eye irritant (mechanical irritation).   |
|                | <b>Skin</b>            | The mixture is not considered to be a skin irritant.  |
|                | <b>Sensitisation</b>   | No ingredient present at concentrations > 0.1% is considered a sensitizer.  |
|                | <b>Mutagenicity</b>    | No ingredient present at concentrations > 0.1% is considered a mutagen.   |
|                | <b>Carcinogenicity</b> | The dust resulting from this product does contain crystalline silica. Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to   |



### Reproductive / Developmental Systemic

humans (IARC Group 1). Crystalline Silica triggers Carcinogen category 1 classification (confirmed carcinogen). The carcinogenicity of silica is related to long term (e.g., 10 years) inhalation of very fine particulate (e.g., from sand blasting or dry cutting of quartz containing substrates). Carcinogenicity of silica appears linked to development of silicosis (see systematic below) followed by complications and, eventually lung cancer. No ingredient present at concentrations > 0.1% is considered a reproductive or developmental toxicant or have any effects on or via lactation.

### Aggravation of existing conditions

The dust of this product is not considered to be a target organ toxicant. It does contain crystalline silica <1%. Crystalline silica triggers STOT category 1 classification if it is in the form of a fine respirable dust in an occupational (chronic exposure) setting. This is due to the development of silicosis which can occur following exposure to extremely high levels of fine silica dust. Silicosis is a type of pneumoconiosis – a disease of the lung that causes inflammation, scar tissue, lesions and fibrosis in the lung (alveolar). Symptoms include shortness of breath, cough, fever, loss of appetite and cyanosis (bluish skin). Silicosis can occur following prolonged exposure (e.g., 10 years) to relatively high levels of fine crystalline silica dust. Persons with existing lung conditions may be at a higher risk of further adverse health effects (as above). Smokers have an increased risk of lung cancer and silicosis.

## 12. Ecological Data

### Summary

This mixture is not considered harmful or ecotoxic.

### Supporting Data

|                                    |   |
|------------------------------------|---|
| <b>Aquatic</b>                     | No evidence of aquatic toxicity for any of the ingredients present >1%. |
| <b>Bioaccumulation</b>             | No evidence of bioaccumulation  |
| <b>Degradability</b>               | Not applicable.   |
| <b>Soil</b>                        | No evidence of soil toxicity.   |
| <b>Terrestrial vertebrate</b>      | Not considered to be toxic towards terrestrial vertebrates              |
| <b>Terrestrial invertebrate</b>    | No evidence of toxicity towards terrestrial invertebrates.              |
| <b>Biocidal</b>                    | no data   |
| <b>Environmental effect levels</b> | No evidence of aquatic toxicity for any of the ingredients present >1%. |

## 13. Disposal Considerations

|                               |  |
|-------------------------------|--|
| <b>Restrictions</b>           | There are no product-specific restrictions, however, local council and resource consent conditions may apply, including requirements of trade waste consents.  |
| <b>Disposal method</b>        | Disposal of this product must comply with the Hazardous Substances (Disposal) Notice 2017 and the requirements of the Resource Management Act for which approval should be sought from the Regional Authority. The substance must be treated and therefore rendered non-hazardous before discharge to the environment.   |
| <b>Contaminated packaging</b> | Disposal of contaminated packaging must comply with the Hazardous Substances (Disposal) Notice 2017 clause 12. Ensure that the package is rendered incapable of containing any substance and is disposed in a manner that is consistent with the requirements of the substance it contained and the material of the package. If possible reuse or recycle packaging. |

## 14. Transport Information

### Land Transport Rule: Dangerous Goods 2005 - NZS 5433:2007

This mixture is not considered a dangerous good for transport on land.

|                     |    |                              |    |
|---------------------|----|------------------------------|----|
| <b>UN number:</b>   | NA | <b>Proper shipping name:</b> | NA |
| <b>Class(es)</b>    | NA | <b>Packing group:</b>        | NA |
| <b>Precautions:</b> | NA | <b>Hazchem code:</b>         | NA |

## 15. Regulatory Information

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002545, Construction Products (Carcinogenic) Group Standard 2020. All ingredients appear on the New Zealand Inventory of Chemicals NZIoC.

### Specific Controls

Key workplace requirements are:

|                                   |   |
|-----------------------------------|---|
| SDS                               | To be available within 10 minutes in workplaces storing any quantity.   |
| Inventory                         | An inventory of all hazardous substances must be prepared and maintained.   |
| Packaging                         | All hazardous substances should be appropriately packaged including substances that have been decanted, transferred or manufactured for own use or have been supplied |
| Labelling                         | Must comply with the Hazardous Substances (Labelling) Notice 2017.  |
| Emergency plan                    | Required if > 1000kg is stored.   |
| Certified handler                 | Not required.   |
| Tracking                          | Not required.   |
| Bunding and secondary containment | Required if > 1000kg is stored.   |
| Signage                           | Not required.   |
| Location compliance certificate   | Not required.   |
| Flammable zone                    | Not required.   |
| Fire extinguisher                 | Not required.   |

Note: The above workplace requirements apply if only this particular substance is present. The complete set of controls for a location will depend on the classification and total quantities of other substances present in that location.

### Other Legislation

In New Zealand, the use of this product may come under the Resource Management Act and Regulations, the Health and Safety at Work Act 2015 and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, local Council Rules and Regional Council Plans.

## 16. Other Information

### Abbreviations

|                        |   |
|------------------------|---|
| <b>Approval Code</b>   | Approval HSR002545, Construction Products (Carcinogenic) Group Standard 2020 Controls, EPA. <a href="http://www.epa.govt.nz">www.epa.govt.nz</a>  |
| <b>CAS Number</b>      | Unique Chemical Abstracts Service Registry Number   |
| <b>EC<sub>50</sub></b> | Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)   |
| <b>EPA</b>             | Environmental Protection Authority (New Zealand)  |
| <b>HAZCHEM Code</b>    | Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters   |
| <b>HSNO</b>            | Hazardous Substances and New Organisms (Act and Regulations)  |
| <b>IARC</b>            | International Agency for Research on Cancer   |
| <b>LEL</b>             | Lower Explosive Limit   |
| <b>LD<sub>50</sub></b> | Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).   |
| <b>LC<sub>50</sub></b> | Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)   |
| <b>MSDS (SDS)</b>      | Material Safety Data Sheet (or Safety Data Sheet)   |
| <b>NZIoC</b>           | New Zealand Inventory of Chemicals  |
| <b>STEL</b>            | Short Term Exposure Limit - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWA is not exceeded   |
| <b>TWA</b>             | Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)  |
| <b>UEL</b>             | Upper Explosive Limit   |
| <b>UN Number</b>       | United Nations Number   |
| <b>WES</b>             | Workplace Exposure Standard - The airborne concentration of a biological or chemical agent to which a worker may be exposed during work hours (usually 8 hours, 5 days a week). The WES relates to exposure that has been measured by personal monitoring |



using procedures that gather air samples in the worker's breathing zone.

### References

|                          |   |
|--------------------------|---|
| <b>Data</b>              | Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID).  |
| <b>Controls</b>          | EPA notices, <a href="http://www.epa.govt.nz">www.epa.govt.nz</a> , Health and Safety at Work (Hazardous Substances) Regulations 2017, <a href="http://www.legislation.govt.nz">www.legislation.govt.nz</a> |
| <b>WES</b>               | The latest NZ Workplace Exposure Standards, published by WorkSafe NZ and available on their web site – <a href="http://www.worksafe.govt.nz">www.worksafe.govt.nz</a> .                                     |
| <b>Other References:</b> | EU ECHA, ingredients SDS's, ChemIDplus  |

### Review

| Date         | Reason for review                   |
|--------------|-------------------------------------|
| January 2020 | Not applicable – new SDS            |
| March 2023   | HSNO to GHS 7, update to section 11 |

### Disclaimer

This SDS was prepared by Datachem LTD and is based on our current state of knowledge, including information obtained from suppliers. The SDS is given in good faith and constitutes a guideline (not a guarantee of safety). The level of risk each substance poses is relevant to its properties (as summarised in the SDS) AND HOW THE SUBSTANCE IS USED. While guidelines are given for personal protective equipment, such precautions must be relevant to the use. The likely GHS 7 classifications for this SDS have been estimated based on general information from the supplier (e.g., hazard, toxicological). This SDS is copyright Datachem and must not be copied, edited or used for other than intended purpose. To contact the SDS author, email [info@datachem.co.nz](mailto:info@datachem.co.nz) or phone: +64 21 1040951.

