# MATERIAL SAFETY DATA SHEET

## POLYKLEAR MICROSPHERE

## Section 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**IDENTIFICATION**

Product Name **POLYKLEAR MICROSPHERE**

Other Names Hollow Microspheres

**Trade Names:**
Q-CEL Inorganic Microspheres

**USE**

Specialty engineering additive in plastics. e.g. it is added to modify the density; impact resistance; wear resistance; provide thermal or acoustic insulation.

Distributor **SEA Olympus Marketing, Inc.**

Address **LUZON OFFICE:**

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## Section 2. HAZARDS IDENTIFICATION

**Emergency Overview:** Fine, white powder with no odour. Not combustible. Dusts can cause physical irritation to eyes and respiratory system. May cause dry skin and mild irritation.

**Dangerous Goods Information:** Not a Dangerous Good according to the ADG Code.

**Hazardous Substances Information:** Not a Hazardous Substance according to the Criteria of the Australian NOHSC.

**Poison Schedule** Not a Scheduled Poison

**Acute Health Effects**

| | |
|---|---|
| Swallowed | May cause slight irritation to mouth, throat and stomach. |
| Eye | Dusts can cause physical irritation to eyes. May cause redness and tearing. |
| Skin | May cause dry skin and mild skin irritation. |
| Inhaled | Dusts may cause respiratory irritation. May cause sneezing. May cause dryness of the mucous membranes. |

**Chronic Health Effects**

| | |
|---|---|
| All Routes | Prolonged or repeated skin contact may cause dry skin. Defatting of the skin can result in irritation and dermatitis (inflammation of the skin). |

## Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Identity of Ingredients | CAS No. | Prop'n | Risk Phrases as 100% |
|---|---|---|---|
| Sodium Borosilicate Powder | 50815-87-7 or 1344-09-8 and 7775-19-1 | >99.5% | - |
| Moisture (loss on drying at 105°C)Loss on Ignition at 900°C | 7732-18-5 | <0.5%<br>3-7% | - |

## Section 4. FIRST AID MEASURES

| | |
|---|---|
| Swallowed | Immediately rinse mouth with water. Repeat until product is thoroughly removed. Give water to drink. Get medical attention if effects develop or persist. |
| Eye | Immediately rinse with plenty of water for at least 15 minutes. Eyelids to be held open. Obtain medical attention if physical irritation persists. |
| Skin | Wash contaminated skin with plenty of water. Get medical attention if irritation effects develop or persist. |
| Inhaled | Remove victim to fresh air. Get medical attention if health effects develop or persist. |
| **First-Aid Facilities** | Safety shower and eye wash facilities nearby. |
| **Advice to Doctor** | Treat symptomatically as for physical irritation. |

## Section 5 - FIRE FIGHTING MEASURES

| | |
|---|---|
| Fire or Explosion Hazard: | Solid, non combustible powder. Electrostatic discharges may occur when pumping / transferring / pouring the dry powder. |
| Extinguishing Media: | Any extinguishing media suitable for the surrounding area. |
| Combustion Product Hazards | No significant hazardous combustion products. |
| Special Protective Precautions & Equipment | Eye and Respiratory protection where dust clouds are formed. |
| | No other special precautions required. |

## Section 6 - ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| Emergency Procedures | Do not breathe dust. Avoid contact with skin and eyes.<br>***Small spill cleanup***: Vacuum, shovel, sweep or mop up. Avoid raising dust clouds.<br>***Large spill cleanup:*** Keep unnecessary people away. Avoid walking through the spilled material. Vacuum, scoop or shovel up. Avoid raising dust clouds. |
| | Place spillages in clean labeled containers for reuse, recycling or disposal.See *Section 13* for Disposal Considerations |
| Special Issues | Spilled material may be a slipping hazard. |

## Section 7 - HANDLING and STORAGE

| | |
|---|---|
| Safe Handling | Avoid contact with eyes, skin and clothing. Avoid breathing dusts.<br>Keep container closed. Use only in well ventilated areas.<br>Promptly clean up any spills or residues. |
| Safe Storage | Keep containers closed at all times. Store in original containers or in clean metal or plastic containers and keep dry. |

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards: No exposure standards have been established for the borosilicate glass or surfacecoating ingredients in this product by NOHSC (Worksafe Australia).

| SUBSTANCE | TWA | | STEL | |
|---|---|---|---|---|
| | ppm | mg/m3 | ppm | mg/m3 |
| Nuisance Dust, Inspirable | - | 10 | - | - |

This standard is the manufacturer's recommendation for good practice.
All atmospheric contamination should be minimised.

**Design and Engineering Control Measures:** Use in well ventilated area. Avoid generating and inhaling dusts. When transferring the product consider the potential for electrostatic charge build up and the need to dissipate.

**Personal Protective Equipment:** Avoid skin and eye contact. Avoid inhaling the dust. Follow normal industrial safety practices. The use of protective clothing and equipment depends on the degree and nature of exposure. The following personal protective equipment should be used:

(1) Safety glasses, goggles or faceshield as appropriate.
(2) Plastic, Rubber, Leather or Cotton gloves as appropriate.
(3) Safety boots.
(4) Overalls, splash apron or similar protective apparel.
(5) Respiratory protection to AS1715/1716 when dusts levels are present.

Wash contaminated clothing and protective equipment before storing and re-using.
The use of barrier cream is recommended to minimise the skin drying effects of this material.

Where applicable refer to the following Standards:

| | |
|---|---|
| AS/NZS1337 | Eye protectors for industrial applications |
| AS1715 | Selection, use & maintenance of respiratory protective devices |
| AS1716 | Respiratory protective devices |
| AS2161 | Industrial safety gloves and mittens |
| AS2210 | Safety footwear |
| AS3765 | Clothing for protection against hazardous chemicals. |

## Section 9 - PHYSICAL and CHEMICAL PROPERTIES

| | |
|---|---|
| Appearance and Odour | Fine, white powder with no odour. |
| Chemical Formula | $Na_2SiO_3$ / $NaBO_2$ (fused ingredients general formulae) |
| Melting Point / Boiling Point | MP: >350°C BP: Not determined |

| | |
|---|---|
| Decomposition Temperature | |
| Vapour Pressure | Not determined |
| Relative Vapour Density | Not applicable |
| Specific Gravity or Density | Not applicable (as the microsphere is hollow) |
| Bulk Density | 150-500 kg/m$^3$ (with narrow ranges for each grade) |
| Solubility | Insoluble in water. |
| pH | 7 to 9 (of a 5% slurry when left for several hours) (estimated) |
| Percent Volatile | <0.5% |
| Octanol/Water PartitionCo-efficient | Not applicable (not soluble in either fraction) |
| Corrosiveness | No corrosive effects known |

| | |
|---|---|
| **Flammable Properties** | Non combustible |
| solid.Flashpoint | Not applicable |
| Flammability Limits (FL) (%) | Not applicable |
| Autoignition Temp | Not applicable |

| | |
|---|---|
| Particle Size | Mean: 30-125 micrometres (with a narrower range for each grade)<br>Inspirable/Respirable Particles <7 micrometres: <2% (estimated) |

## Section 10 - STABILITY AND REACTIVITY

| | |
|---|---|
| Chemical Stability | Stable. |
| Conditions To Avoid: | Dust cloud formation. |
| Incompatibl eMaterials: | None in particular. Strong bases may eventually dissolve the microspheres.<br>Hydrofluoric Acid solutions will dissolve these microspheres. |
| Unsuitable Container Materials: | None in particular.<br>Containers should allow any electrostatic charges built up to dissipate. |
| Hazardous Decompositio nProducts: | None known. |
| Hazardous Reactions: | |

## Section 11 - TOXICOLOGICAL INFORMATION

Toxicity Data: **Acute Oral Toxicity** LD50 (rat): >5000 mg/kg (estimated)

**Eye Irritation:** May cause physical eye irritation.

**Skin Irritation:** May cause physical skin irritation.

**Oral Toxicity:** When a similar product was tested for acute oral toxicity to rats at a dosage level of 500 mg/kg body weight, all animals survived and gained weight.

**Respiratory Toxicity:** When a similar product was tested for respiratory toxicity in a 6-month intratracheal study in rats, no mortalities, untoward reactions, or observations correlated with exposure to the product. Minimal multifocal inflammation of the lung occurred in 90% of males and 80% of females. No appreciable increase in fibrous tissue was present in these lesions.

**Eye Irritation:** Not an Eye Irritant requiring labelling with R36.
When similar materials were tested for acute eye irritation in rabbits they caused iritis grade 1, redness was observed grade 1-2, chemosis grade 2 was observed as well as fluorescein stain retention.
*Two Q-CEL Microsphere products were tested for Eye Irritation in the USA in 2000:*
Test 1/ 5mg placed into the conjunctival sac: No corneal opacity was noted in any observation period. Iritis of 1 noted in 1 of 3 eyes at 1hr, cleared by 24 hrs. Conjunctival irritation scores of 2 (redness), 2 (chemosis), 2 (discharge) at 1hr noted in 3 eyes that had cleared by 24hrs.
Test 2/ 5mg placed into the conjunctival sac: No corneal opacity or iritis was noted in any observation period. Conjunctival irritation scores of 1-2 (redness), 0-2 (chemosis), 0-2 (discharge) at 1hr noted in 3 eyes that had cleared by 24hrs.

**Human Experience:** 20 years experience handling the product in a manufacturing facility have not lead to any reported skin, eye or respiratory irritation effects.

**Skin Irritation:** When a similar product was tested for skin irritation potential, it caused very slight erythema to abraded skin. Its primary skin irritation index was 0.04, and so was not considered to be a primary skin irritant.

**Carcinogenic Effects:** Not listed as a Carcinogen by the WHO IARC, USA NTP or USA OSHA.

## Section 12 - ECOLOGICAL INFORMATION

| | |
|---|---|
| General: | Avoid contaminating waterways. Insoluble in water. Will float on water due to its hollow nature. Not expected to be an environmental hazard, but may physically block systems. |
| Ecotoxicity Data: | The Boron content in this borosilicate matrix, is not able to be released into the environment in quantities that cause harm.<br>*Note:* Boron is an essential element for growth of plants, but at higher levels, greater than 0.75 mg/l, boron is toxic to some plants, particularly citrus crops. |
| Persistence & Degradability | This material is stable and does not readily degrade (dissolve).<br>It is not expected to bioaccumulate. |
| Mobility | Will float on water. Expected to be immobile in soil. |

## Section 13 - DISPOSAL CONSIDERATIONS

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|---|---|
| Disposal Methods & Containers | Disposal to be in accordance with Local, State & Federal EPA waste regulations.<br>Normally suitable for disposal at approved land waste . |
| Landfill, Incineration | May be landfilled. Not suitable for incineration. |

## Section 14 - TRANSPORT INFORMATION

**ROAD & RAIL:** Not defined as a Dangerous Good: by the Australian Code for the Transport of Dangerous Goods by Road & Rail.

**SEA:** Not a Dangerous Good according to the International Maritime Dangerous Goods Code (IMDG Code).

**AIR:** Not a Dangerous Good according to the International Air Transport Association(IATA) Dangerous Goods Regulations.

## Section 15 - REGULATORY INFORMATION

**Labelling:** **Not a Workplace Hazardous**
**Not a Scheduled Poison**
**Not a Dangerous Good**

**Packaging** Any type. However, consider the potential for electrostatic charge dissipation.

**Australian Chemical Control Schemes**

| | | | |
|---|---|---|---|
| NICNAS – AICS | *All ingredients are on the Australian Inventory of Chemical Substances.* Aust. | | |
| Pesticides & Veterinary Medicine Authority - | Ag & Vet Chemicals | | *Not applicable* |
| Therapeutic Goods Administration - | Medicines | | *Not applicable* |
| Food Standards Australian & New Zealand - | Food | | *Not applicable* |
| Chemicals Weapons Act *Not applicable* | Ozone DepletingSubstance Act | | *Not applicable* |

## Section 16 - OTHER INFORMATION

**Acronyms Used**

| | |
|---|---|
| ADG Code | Australian Dangerous Goods Code for the Transport of Dangerous Goods by Road & Rail |
| NOHSC | Australian National Occupational Health and Safety |
| CommissionWHS | Workplace Hazardous Substance |
| CAS No. | Chemical Abstracts Service Registry Number |
| UN No. | United Nations Dangerous Goods Number |

**MSDS Code Used** This MSDS has been prepared according to the National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011(2003)

*The data presented herein are believed to be accurate and reliable. We require customers to inspect and test our product before use and to satisfy themselves as to contents and suitability for their specific applications. Information herein is to assist customers in determining whether our products are suitable for their applications but not to be taken as a guarantee, express warranty or implied warranty of merchantability or fitness for particular purpose, nor is any protection form any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is limited to replacement of our material and in no event shall we be liable for special, incidental or consequential damages. ©21*

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PolyKlear FIBERGLASS + RESIN

# TECHNICAL DATA SHEET

## POLYKLEAR MICROSPHERE

### PRODUCT DESCRIPTION

***Polyklear Microsphere 5020*** is a white free-flowing powder made of hydrophobic spheres. As a filler, its primary function is to reduce density but enhance other properties as well. It has a density of approximately one-fifth of most thermoset resins. On equal weight basis, ***Polyklear Microsphere 5020*** occupy five times more volume than an equivalent weight resin. It can displace heavy fillers, thus lowering the weight of composite materials. Spheres have the lowest surface area, thus the lowest resin demand.

### PROPERTIES

| | |
|---|---|
| Bulk density | 0.11 g/m$^3$ |
| Effective density | 0.20 g/m$^3$ |
| Mean particle size | 60 $\mu$m |
| Particle size (range) | 5-115 $\mu$m |
| Max. working pressure (isostatic) | 100 psi (34.47MPa) |

### PACKAGING

***Polyklear Microsphere 5020*** comes in 27.5-kg and 1-kg packaging.

### SAFETY INFORMATION

When using this product for prolonged exposure in dusty environments, inhalation may irritate the respiratory tract. NIOSH-approved mask or respirators are recommended when handling this product. Material Safety Data Sheets (MSDS) will be supplied on request.

*SEA Olympus Marketing, Inc. reserves the right to change the information given herein without prior notice. We believe this information to be reliable, but do not guarantee its applicability to the user's process or assume liability for occurrence arising out of its use. The user, by accepting products described herein agrees to be responsible for thoroughly testing any application before committing to production. ©20*

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