# Safety Data Sheet

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** **BEVEDAN**

**Other name(s):** Chargeset Part B

**Recommended Use of the Chemical and Restrictions on Use** Part B of a two component polyurethane system.


**Supplier:** Minova Australia Pty Ltd
**ABN:** ABN: 084 965 962
**Street Address:** 102 Albatross Road,
Nowra, NSW 2541
Australia

**Telephone Number:** 1300 MINOVA (1300 646 682)
**Facsimile:** 1300 FAXMINOVA (1300 329 646)
**Website:** www.minovaglobal.com


**Emergency Telephone:** **1800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

## 2. HAZARDS IDENTIFICATION

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

**Classification of the chemical:**
Acute Inhalation Toxicity - Category 4
Skin Irritation - Category 2
Skin Sensitisation - Category 1
Eye Irritation - Category 2A
Respiratory Sensitisation - Category 1
Carcinogenicity - Category 2
Specific target organ toxicity (single exposure) - Category 3
Specific target organ toxicity (repeated exposure) - Category 2

**SIGNAL WORD:** DANGER

**Hazard Statement(s):**
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.

**Precautionary Statement(s):**

**Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe fumes, mists, vapours, spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing, eye and face protection.
P281 Use personal protective equipment as required.
P285 In case of inadequate ventilation wear respiratory protection.

**Response:**
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P304+P341 IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical attention.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P321 Specific treatment (see First Aid Measures on Safety Data Sheet).
P362 Take off contaminated clothing and wash before reuse.

**Storage:**
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

**Disposal:**
P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

**Poisons Schedule (SUSMP):** S6 Poison.

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Components | CAS Number | Proportion | Hazard Codes |
|---|---|---|---|
| Isocyanic acid, polymethylene polyphenylene ester | 9016-87-9 | >60% | H332 H319 H335 H315 H351 H334 H317 H373 |
| Diphenylmethane-4,4-diisocyanate | 101-68-8 | 30-60% | H315 H317 H319 H332 H334 H335 H351 H373 |
| Diphenylmethanediisocyanate, mixture of 2,4 and 4,4 isomers | 5873-54-1 | <10% | H351 H332 H373 H319 H335 H315 H334 H317 |

## 4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

**Inhalation:**
Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

**Skin Contact:**
If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water and soap. If swelling, redness, blistering or irritation occurs seek medical assistance. An MDI study has demonstrated that a polyglycol-based cleanser or corn oil may be more effective than soap and water.

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

**Ingestion:**
Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by the mouth to an unconscious patient. Seek immediate medical assistance.

**Indication of immediate medical attention and special treatment needed:**
Treat symptomatically. Effects may be delayed.
Ashtma-like symptoms may develop and may be immediate or delayed for several hours after exposure. Extreme asthmatic reactions can be life threatening. Following significant exposure the patient should be kept under medical surveillance for 24-48 hours for signs of respiratory distress.

## 5. FIRE FIGHTING MEASURES

**Suitable Extinguishing Media:**
Fine water spray, alcohol resistant foam, dry agent (carbon dioxide, dry chemical powder).

**Unsuitable Extinguishing Media:**
Water jet.

**Specific hazards arising from the chemical:**
Combustible liquid. On burning will emit toxic fumes, including those of isocyanates, hydrogen cyanide, oxides of carbon and oxides of nitrogen.

**Special protective equipment and precautions for fire-fighters:**
Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. Keep containers cool with water spray. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

## 6. ACCIDENTAL RELEASE MEASURES

**Emergency procedures/Environmental precautions:**
Shut off all possible sources of ignition. Clear area of all unprotected personnel. Work up wind or increase ventilation. If contamination of sewers or waterways has occurred advise local emergency services.

**Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:**
Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Let the material react for at least 30 minutes. Collect in properly labelled containers, with loose fitting lids, for disposal. Wash area down with detergent and excess water. Test the atmosphere for MDI vapour to ensure safe-working conditions prevail prior to re-entry into contaminated area. The compositions of liquid decontaminants are given in Section 16.

## 7. HANDLING AND STORAGE

Classified as a C2 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

This material is a Scheduled Poison S6 and must be stored, maintained and used in accordance with the relevant regulations.

**Precautions for safe handling:**
Avoid skin and eye contact and breathing in vapour, mists and aerosols.

**Conditions for safe storage, including any incompatibilities:**
Store in a cool, dry, well ventilated place and out of direct sunlight. Store between 20°C and 30°C. Store away from foodstuffs. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep dry - reacts with water, may lead to drum rupture. Protect from moisture. Protect from frost. If a container is contaminated, do not reseal it. Keep containers closed when not in use - check regularly for leaks.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters:** No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for constituent(s):

Isocyanates, all (as -NCO): 8hr TWA = 0.02 mg/m$^3$, 15 min STEL = 0.07 mg/m$^3$, Sen

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

STEL (Short Term Exposure Limit) - the airborne concentration of a particular substance calculated as a time-weighted average over 15 minutes, which should not be exceeded at any time during a normal eight hour work day. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.

`Sen' Notice - sensitiser. The substance can cause a specific immune response in some people. An affected individual may subsequently react to exposure to minute levels of that substance and should not be further exposed to the substance.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

**Biological Exposure Indices:** In Australia the following substance is on a list for which health surveillance is required: Isocyanates.

**Appropriate engineering controls:**
Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

**Individual protection measures, such as Personal Protective Equipment (PPE):**
The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, FACE SHIELD OR AIR MASK, GLOVES (Long).
* Not required if wearing air supplied mask.

Wear overalls, impervious gloves and a positive pressure air supplied full-face respirator. Available information suggests that gloves made from the following material(s) should be suitable for intermittent contact, however, due to variations in glove construction and local conditions, a final assessment should be made by the user: butyl rubber, polyethylene, chlorinated polyethylene, ethyl vinyl alcohol laminate ("EVAL"), neoprene, nitrile-butadiene rubber, PVC. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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|---|---|
| **Physical state:** | Liquid |
| **Colour:** | Dark Brown |
| **Odour:** | Characteristic |
| **Odour Threshold:** | 0.4 ppm (MDI, literature) |
| **Solubility:** | Immiscible with water. |
| **Specific Gravity:** | 1.23 at 25°C |
| **Relative Vapour Density (air=1):** | 8.5 (literature) |
| **Vapour Pressure (20 °C):** | <0.00001 mbar |
| **Flash Point (°C):** | >200 |
| **Flammability Limits (%):** | Not available |
| **Autoignition Temperature (°C):** | 600 (literature) |
| **% Volatile by Weight:** | Not available |
| **Solubility in water (g/L):** | Insoluble |
| **Boiling Point/Range (°C):** | Decomposes prior to boiling |
| **Decomposition Point (°C):** | Not available |
| **pH:** | Not applicable |
| **Viscosity:** | 160 - 240 mPa.s at 25 °C (dynamic) |
| **Evaporation Rate:** | Not available |

## 10. STABILITY AND REACTIVITY

**Reactivity:** Reacts with moisture.

**Chemical stability:** Stable under normal conditions of use.

**Possibility of hazardous reactions:** Reacts exothermically with water and organic compounds containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas.

**Conditions to avoid:** Avoid exposure to heat, sources of ignition, and open flame. Avoid exposure to moisture.

**Incompatible materials:** Incompatible with water, alcohols, amines, ammonia, acids, bases, metal compounds, strong oxidising agents and organic compounds containing active hydrogen groups.

**Hazardous decomposition products:** Isocyanates. Hydrogen cyanide. Oxides of carbon. Oxides of nitrogen.

## 11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

**Ingestion:** The product is irritating to the gastro-intestinal tract.

**Eye contact:** An eye irritant.

**Skin contact:** Contact with skin will result in irritation. A skin sensitiser. Repeated or prolonged skin contact may lead to allergic contact dermatitis.

**Inhalation:** Material is irritant to the mucous membranes of the respiratory tract (airways). A respiratory sensitiser. Can cause possible allergic reactions, producing asthma-like symptoms.

**Acute toxicity:** No LD50 data available for the product. For the constituent Polymethylenepolyphenyleneisocyanate:
Oral LD50 (rat): >10,000 mg/kg
Dermal LD50 (rabbit): >9,400 mg/kg
Inhalation LC50 (rat): 0.49 mg/L/4H (dusts and mists)

**Skin corrosion/irritation:** Irritant.
**Serious eye damage/irritation:** Irritant.
**Respiratory or skin sensitisation:** A respiratory and skin sensitiser.

**Chronic effects:** For Isocyanates: Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. These results emphasise the need for protective clothing including gloves to be worn when handling these chemicals or in maintenance work.

**Mutagenicity:** Animal genetic toxicity studies were predominantly negative.

| | |
|---|---|
| **Carcinogenicity:** | Suspected of causing cancer. |
| **Reproductive toxicity:** | No information available. |
| **Specific Target Organ Toxicity (STOT) - single exposure:** | May cause respiratory irritation. |
| **Specific Target Organ Toxicity (STOT) - repeated exposure:** | May cause damage to organs through prolonged or repeated exposure. (lungs) |
| **Aspiration hazard:** | Not classified. |

MDI/PMDI did not cause birth defects in laboratory animals; fetal effects occurred only at high doses which were toxic to the mother.
Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/PMDI (6mg/m$^3$) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects.

## 12. ECOLOGICAL INFORMATION

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|---|---|
| **Ecotoxicity** | Avoid contaminating waterways. |
| **Persistence/degradability:** | The material is not readily biodegradable. In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on data from similar diisocyanates. |
| **Bioaccumulative potential:** | This product shows a low bioaccumulation potential.<br>Bioconcentration Factor (BCF): 92 |
| **Mobility in soil:** | Expected to have low mobility based on product's reactivity with water forming predominantly insoluble polyureas. |
| **Aquatic toxicity:** | Low toxicity to aquatic organisms.<br>24hr EC50 (Daphnia magna): >1,000 mg/L<br>72hr NOEC (Desmodesmus subspicatus - green algae, static, growth rate inhibition): 1,640 mg/L<br>3hr EC50 (activated sludge, static, respiration inhibition): >100 mg/L |
| 96hr LC50 (fish): | >1,000 mg/L (zebra fish) |

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods:**
Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

## 14. TRANSPORT INFORMATION

**Road and Rail Transport**
Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

**Marine Transport**
Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; NON-DANGEROUS GOODS.

**Air Transport**
Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

## 15. REGULATORY INFORMATION

**Classification:**
This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

**Classification of the chemical:**
Acute Inhalation Toxicity - Category 4
Skin Irritation - Category 2
Skin Sensitisation - Category 1
Eye Irritation - Category 2A
Respiratory Sensitisation - Category 1
Carcinogenicity - Category 2
Specific target organ toxicity (single exposure) - Category 3
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**Hazard Statement(s):**
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H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.

**Poisons Schedule (SUSMP):** S6 Poison.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

## 16. OTHER INFORMATION

Supplier Safety Data Sheet; 09/ 2017.

LIQUID DECONTAMINANTS 1: sodium carbonate 5-10%; liquid detergent 0.2 - 2%; water up to 100%.

Decontaminant 2: concentrated ammonia solution 3-8%; liquid detergent 0.2 - 2%; water up to 100%.

Decontaminant 1 reacts slower with diisocyanates but is more environmentally friendly than Decontaminant 2.

Decontaminant 2 contains ammonia. Ammonia presents health hazards. (See supplier safety information).

This safety data sheet has been prepared by Ixom Operations Pty Ltd (Toxicology & SDS Services).

**Reason(s) for Issue:**
Revised Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace.  Since The Supplier cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Supplier representative or The Supplier at the contact details on page 1.

The Supplier's responsibility for the material as shipped is subject to the terms and conditions of sale, a copy of which is available upon request.