SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product:	SabreBond PU HD8001
Product Use:	Hardener
Restrictions of use:	Refer to Section 15
New Zealand Supplier:	Sabre Adhesives Ltd
Address:	42 Cambridge Street South Levin, 5510, New Zealand
Telephone:	+64 (0)6 366 0007
Emergency No:	**0800 764 766 (National Poison Centre)**
Australian Supplier:	Sabre Adhesives Ltd
Address:	Level 6, 10 Herb Elliot Avenue, Sydney NSW, 2127
Telephone No:	+61 2 9098 8244
Emergency No:	**13 11 26 (National Poison Line)**
Date SDS Issued:	18 July 2023

Section 2. Hazards Identification

Australia:
Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia

New Zealand:
This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

NZ - EPA Approval Code: Surface Coatings and Colourants (Carcinogenic) - HSR002679

Pictograms

Signal Word: DANGER

GHS Category	Hazard Code	Hazard Statement
Acute inhalation toxicity Cat. 4	H332	Harmful if inhaled.
Skin irritation Cat. 2	H315	Causes skin irritation.
Eye irritation Cat. 2	H319	Causes serious eye irritation.
Respiratory sensitisation Cat. 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation Cat. 1	H317	May cause an allergic skin reaction.
Carcinogenicity Cat. 2	H351	Suspected of causing cancer.

Specific target organ toxicity – repeated exposure Cat. 2	H373	May cause damage to organs through prolonged or repeated exposure.
specific target organ toxicity – single exposure Cat. 3 respiratory tract irritation	H335	May cause respiratory irritation.

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe fumes, vapours or 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 clothing as detailed in Section 8.
P281	Use personal protective equipment as required.
P285	In case of inadequate ventilation wear respiratory protection.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P362	Take off contaminated clothing and wash it before reuse.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P341	IF INHALED: If breathing is difficult, 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.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

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

Disposal Code	Disposal Statement
P501	Dispose of according to the local authorities

Section 3. Composition of hazardous Ingredients

Ingredients	Wt%	CAS NUMBER.
Diphenylmethane diisocyanate, isomers, homologues	*Approx. 100 made up as below:*	*9016-87-9*
4,4'-Methylenediphenyl diisocyanate	25 - 50	101-68-8
Diphenylmethane-2,4'-diisocyanate	1 - 5	5873-54-1
2,2'-Methylenediphenyl diisocyanate	0.1 - 1	2536-05-5

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.
If on Skin	Take off contaminated clothing and wash before re-use. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/ attention.
If Swallowed	Rinse mouth and drink large quantities of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

Symptoms:

Ingestion:	Not applicable.
Inhalation:	Harmful if inhaled**.** May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin:	Causes skin irritation. May cause an allergic skin reaction.
Eye:	Causes serious eye irritation.
Chronic:	Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure.

Notes to Doctor: Product causes irritation of respiratory tracts and may possibly increase sensitivity of skin and respiratory tracts. Treatment of the acute irritation or bronchial narrowing is mainly symptomatic. Depending on the scale of exposition, as well as aches and pains resulting, long-term medical care may be required.

Section 5. Fire Fighting Measures

Hazard Type	Non Flammable.
Hazards from products	In case of fire may be liberated: Isocyanate vapours, traces of hydrogen cyanide, nitrous fumes, carbon monoxide, carbon dioxide. Do not inhale explosion and combustion gases.
Suitable Extinguishing media	Foam, extinguishing powder, carbon dioxide. Do not use full water jet.
Precautions for firefighters and special protective clothing	Wear a self-contained breathing apparatus and chemical protective clothing. Cool exposed containers with water spray, but avoid contact of the substance with water. Formation of carbon dioxide: Danger of bursting container. Do not allow fire water to penetrate into surface or ground water.
HAZCHEM CODE	**None allocated**

Section 6. Accidental Release Measures

For emergency responders:

Avoid exposure. Provide adequate ventilation. Avoid contact with the substance. Avoid contact with skin and eyes. Do not breathe mist/vapours/spray. Keep unprotected people away. Wear appropriate protective equipment as detailed in Section 8. Take off immediately all contaminated clothing and wash it before reuse. In case of inadequate ventilation wear respiratory protection.

Environmental precautions:
Do not allow to penetrate into soil, waterbodies or drains. In case of release, notify competent authorities.

Methods and material for containment and cleaning up:
Cover with moist liquid binding material (e.g. sand, chemical agent with calcium silicahydrate). After approximately 1 hour, mechanically collect in an open waste container (CO2 build-up). keep moist and allow to stand in a secure area for 7 to 14 days. Special danger of slipping by leaking/spilling product. Dispose as per Section 13.

Section 7. Handling and Storage

Precautions for Handling:

- Read carefully and follow all instructions.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Do not breathe fumes, vapours or spray.
- Wash hands thoroughly after handling.
- Use only outdoors or in a well-ventilated area or local exhaust as needed.
- Contaminated work clothing should not be allowed out of the workplace.
- Wear protective clothing as detailed in Section 8.
- Use personal protective equipment as required.
- In case of inadequate ventilation wear respiratory protection.
- Vent high concentrations of aerosols and/or fumes from the work area.
- Airflow should move away from persons. For information on disposal: see section 13.
- The effectiveness of the facilities must be checked at regular intervals.
- Avoid contact with skin and eyes.
- Work place should be equipped with a shower and an eye rinsing apparatus.
- Keep away from sources of ignition - No smoking.

Precautions for Storage:

- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.
- Keep out of reach of children.
- Keep only in the original container, in a dry area away from heat and direct sunlight.
- Store containers in upright position.
- Recommended storage temperature: 10 °C - 30 °C
- Do not store together with amines, alcohols, Acids or alkalis.
- Keep away from food, drink and animal feeding stuffs.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³
4,4'-Methylenediphenyl diisocyanate [101-68-8]	-	0.02	-	0.07

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices APRIL 2022 13TH EDITION.

Engineering Controls
Provide good ventilation and/or an exhaust system in the work area. Execute works under fume

hood.

Personal Protection Equipment

Eyes	Tightly sealed goggles according to BS EN ISO 16321-1:2022.
Hands	Protective gloves according to EN 374. Glove material: nitrile rubber - NBR - Layer thickness >= 0,35 mm, Butyl caoutchouc (butyl rubber) - IIR - Layer thickness >= 0,5 mm, Fluororubber (Viton) - FKM - Layer thickness >= 0,4 mm, polychloroprene - CR - Layer thickness >= 0,5 mm. Breakthrough time: > 480 min.
Skin	Wear suitable protective clothing.
Respiratory	Respiratory protection must be worn whenever the WEL levels have been exceeded. Recommendation: Use combination filter type A2/P2 according to EN 14387. The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.
General	Obtain special instructions before use. Avoid contact with the substance. Do not breathe fumes, mist, vapours or spray. When using do not eat, drink or smoke. Take off immediately all contaminated clothing and wash it before reuse. Wash hands before breaks and after work. Work place should be equipped with a shower and an eye rinsing apparatus.

Section 9 Physical and Chemical Properties

	Component A
Appearance	Liquid
Colour	Brown
Odour	Almost odourless
Odour Threshold	Not available
pH	Not available
Boiling Point	> 300^{0}C (DIN53171)
Melting/Freezing Point	Not available
Flash Point	>200^{0}C (DIN53171)
Flammability	Non Flammable
Upper and Lower Explosive Limits	Not available
Vapour Pressure	at 20 °C: 1 hPa (EG A4) at 50 °C: 12 hPa (EG A4) at 55 °C: 17 hPa (EG A4)
Vapour Density	Not available
Density	at 20 °C: 1,24 g/mL (DIN 51757)
Solubility in water	at 15 °C: immiscible
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
VOC g/L	Not available
Particle Characteristics	Not available
Viscosity, dynamic	at 25 °C: approx. 200 mPa*s (DIN 53019)
Pour Point	approx. -24 °C (DIN 51556)

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Reactivity	At approximately 200 °C, polymerization and CO2 splitting.
Possibility of hazardous reactions	Violent reaction with amines and alcohols. Contact with Water liberates carbon dioxide.: Heating causes rise in pressure with risk of bursting.
Conditions to Avoid	Protect from moisture contamination. Protect from direct sunlight. Protect from frost. Keep away from heat sources, sparks and open flames.
Incompatible Materials	Water, acids, alkalis, amines and alcohols.
Hazardous Decomposition Products	No hazardous decomposition products when regulations for storage and handling are observed.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable. LD50 Rat, oral (male/female):> 10000 mg/kg (OECD 401)
Dermal	Not applicable. LD50 Rabbit, dermal (male/female): > 9400 mg/kg (OECD 402)
Inhalation	Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. LC50 Rat, inhalative (dust/mist): 0,31 mg/L/4h (OECD 403) ATE inhalative (dust/mist): 1,5 mg/L (expert judgement and weight of evidence determination)
Eye	Causes serious irritation to eyes. Upon direct contact with eyes may cause burning, tearing, redness.
Skin	Causes skin irritation. May cause an allergic skin reaction.

Chronic Effects:

Carcinogenicity	Suspected of causing cancer.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	May cause damage to organs through prolonged or repeated exposure.
Additional Information	Product causes irritation of respiratory tracts and may possibly increase sensitivity of skin and respiratory tracts. Delayed occurrence of discomfort and development of hypersensitivity are possible even at low concentrations of isocyanates. Susceptible persons may develop ailments and allergic reactions with some delay.

Section 12. Ecotoxicological Information

Persistence and degradability	No data available
Biodegradation	Biodegradation: 0 %/28 d (OECD 302C) Product is not readily biodegradable.

Bioaccumulative potential	Bio concentration factor (BCF) Cyprinus carpio (Common Carp): < 14 (OECD 305C, 0,2 mg/L, 42d)
Mobility in soil	No data available
Effects in sewage plants:	Bacterial toxicity: EC50 activated sludge: > 100 mg/L/3 h (OECD 209) Hydrolyzes with water Half-life time: 20h at 25 °C
Other adverse effects	Solubility in water: immiscible Forms carbon dioxide and turns into a hard and insoluble by-product (poly urea) on the water's edge. This reaction is intensified by surface-active substances (e.g. liquid soaps) or water soluble solvents. Based upon current knowledge, poly urea is inert and will not decompose.

Aquatic Toxicity:	
Fish toxicity	LC50 Danio rerio (zebrafish): > 1.000 mg/L/96 h (OECD 203)
Daphnia Toxicity	EC50 Daphnia magna (Big water flea) > 1.000 mg/L/24h (OECD 202) NOEC Daphnia magna (Big water flea): > 10 mg/L/21d (OECD 202)
Algae Toxicity	EC50 Scenedesmus subspicatus, growth rate: > 1.640 mg/L/72h (OECD 201)

Section 13. Disposal Considerations

Disposal Method:
This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled.
Dispose of waste according to applicable legislation.

Precautions or methods to avoid: Do not dispose of with household waste. Do not empty into drains.

Section 14 Transport Information

This product is NOT classified as a Dangerous Good for transport in Australia; ADG 7
This product is NOT classified as a Dangerous Good for transport: NZS 5433:2020

Section 15 Regulatory Information

Australia:
Australia NOHSC – Hazardous according to Safe Work Australia NOHSC 2011 National Code of Practice

Poison Schedule No: Schedule 6

New Zealand:
Classified as hazardous according to Regulation (EC) No. 1272/2008 [CLP] which meets New Zealand jurisdiction criteria as per EPA Hazardous Substances (Safety Data Sheets) Notice 2020.

NZ - EPA Approval Code: Surface Coatings and Colourants (Carcinogenic) - HSR002679

Trigger quantities for this substance:

HSW (HS) Regulations 2017 and EPA Notices	Trigger Quantity
Certified Handler	Not required
Location Certificate	Not required
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	10 000L

Emergency Response Plan	1000L
Secondary Containment	1000L
Restriction of Use	Only use for the intended purpose.

Section 16 Other Information

Glossary

EC_{50}	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC_{50}	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD_{50}	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:
Australia:

1. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.
2. Standard for the Uniform Scheduling of Medicines and Poisons.
3. Australian Code for the Transport of Dangerous Goods by Road & Rail.
4. Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
5. Workplace exposure standards for airborne contaminants, Safe work Australia.
6. American Conference of Industrial Hygienists (ACGIH).
7. Globally Harmonised System of classification and labelling of chemicals.

New Zealand:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices APRIL 2022 13th edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2020
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer
This document has been prepared by TCC (NZ) Ltd and serves as the suppliers Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd or obtained from third party sources 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. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept 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 SDS

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Please contact the Australian Manufacturer or New Zealand distributor, if further information is required.

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