

**FORTIS AD5113****1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER**

<b>Product Name</b>	Fortis AD5113
<b>Product Code</b>	-
<b>Other Names</b>	-
<b>Product Use</b>	Laminating adhesive for polystyrene foam and other substrates.
<b>Supplier Name</b>	Fortis Adhesives and Coatings
<b>Address</b>	177-179 Ordish Road Dandenong South VIC 3175
<b>Telephone Number</b>	03 9706 5448
<b>Emergency Telephone</b>	0425 883 566

**2. HAZARDS IDENTIFICATION****HAZARDOUS SUBSTANCE. DANGEROUS GOODS.**

Classified as hazardous according to the criteria of Safe Work Australia.

<b>Hazards</b>	Xn - Harmful
<b>Risk Phrases</b>	R20 - Harmful by inhalation. R36/37/38 - Irritating to eyes, respiratory system and skin. R40 - Limited evidence of a carcinogenic effect. R42/43 - May cause sensitization by inhalation and skin contact. R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.
<b>Safety Phrases</b>	S1/2 - Keep locked up and out of reach of children. S23 - Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer). S24/25 - Avoid contact with skin and eyes. S36/37 - Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

<b>Ingredient (common name)</b>	<b>CAS Number</b>	<b>Proportion</b>
1,1'-Methylenebis[4-isocyanatobenzene], polymer with 1-isocyanato-2- [(4-isocyanatophenyl) methyl] benzene, methyl oxirane and oxirane	89096-17-3	30-60%
Dichloromethane	75-09-2	30-60%
Diphenylmethane 4,4 di-isocyanate	101-68-8	10-29%
Ingredients deemed not to be hazardous	-	1-9%

**4. FIRST AID MEASURES**

<b>Inhalation</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen through a face mask. In event of cardiac arrest, apply external cardiac massage. Seek immediate medical attention.
<b>Ingestion</b>	Do not induce vomiting. Give water to drink. Never give anything by mouth to an unconscious person. Seek immediate medical attention.
<b>Skin</b>	If skin or hair contact occurs, immediately remove contaminated clothing and wash skin and hair thoroughly with soap and plenty of water. Seek medical attention if symptoms occur. Wash contaminated clothing and other protective equipment before storage or re-use.
<b>Eyes</b>	If in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing for several minutes until all contaminants are washed out completely. Seek immediate medical attention.
<b>Notes to Physician</b>	Treat symptomatically. Effects may be delayed. Following severe exposures the patient should be kept under medical supervision for at least 48 hours. Adrenaline and similar sympathomimetic drugs should be avoided following exposure to methylene chloride.

**5. FIRE FIGHTING MEASURES**

	For major fires call the Fire Brigade. Ensure that an escape path is available from any fire.
<b>Suitable Extinguishing Media</b>	Foam and dry agent (carbon dioxide, dry chemical powder). Water fog (or if unavailable fine water spray) may be used if no other extinguishing medium is available, and then in copious quantities.
<b>Hazardous Combustion Products</b>	Oxides of carbon and nitrogen, isocyanate vapours, hydrogen cyanide, hydrogen chloride and phosgene.
<b>Firefighting Equipment</b>	Wear Safe Work Australia approved self-contained breathing apparatus and full protective clothing.
<b>Unusual Fire or Explosion Hazards</b>	Will burn only under extreme conditions. Decomposes on heating or in contact with hot surfaces or flames, emitting toxic vapour / fumes. Methylene chloride mixtures in air can be ignited with high intensity sources of heat. If safe to do so, remove containers from path of fire. Keep containers cool with water spray to prevent expansion and possible rupture of containers. Due to reaction with water producing CO <sub>2</sub> , a hazardous build-up of pressure could result if contaminated. Reaction between water and hot isocyanate may be vigorous.
<b>Hazchem Code</b>	2Z

**6. ACCIDENTAL RELEASE MEASURES****Spills**

In the event of a major spill, prevent spillage from entering drains or water courses.

Wear full protective equipment including air-line respirator or self-contained breathing apparatus complying with Australian Standard AS 1716, protective clothing and nitrile, rubber, viton, teflon or some polyvinyl alcohol (PVA) gloves. Evacuate general area and deny access to unnecessary and unprotected personnel. Ventilate area of leak or spill.

Stop leak if safe to do so and contain spill. Absorb spillages onto sand, earth or any suitable adsorbent material. Leave to react for at least 30 minutes. Do not absorb onto sawdust or other combustible materials. Shovel into open-top drums for further decontamination. Wash the spillage area with water.

Test the atmosphere for MDI vapour to ensure safe-working conditions prevail prior to re-entry into contaminated area.

**7. HANDLING AND STORAGE****Handling**

Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Provide adequate ventilation.

**Storage**

Store in a cool, dry, well-ventilated area away from water, alcohols, amines, acids and alkalis, reactive organic compounds, sources of heat or ignition and foodstuffs. Keep containers closed when not in use. Keep dry - reacts with water; may lead to drum rupture. Recommended storage temperature 15 - 35° C. Do not use near heated surfaces or flames as toxic decomposition products may be produced. Do not store in contact with aluminium or galvanised steel. Keep containers closed at all times - check regularly for leaks. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected.

**Suitable containers:** stainless steel or mild steel.

**Unsuitable containers:** aluminium, copper, copper alloy and galvanised surfaces.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Exposure Standards  
(Safe Work Australia)****Dichloromethane:**

TWA: 50 ppm /174 mg/m<sup>3</sup>

STEL: - ppm / - mg/m<sup>3</sup>

**Isocyanates, all (as -NCO):**

TWA: - ppm /0.02 mg/m<sup>3</sup>

STEL: - ppm / 0.07 mg/m<sup>3</sup>

**Engineering Controls**

Total enclosure with good general ventilation is recommended when isocyanates are used.

If total enclosure is not possible, local exhaust ventilation is recommended when vapours can be released in excess of established airborne exposure limits. Where local exhaust

<b>Respiratory Protection</b>	ventilation is installed, exhaust vapours should not be vented to the exterior in such a manner as to create a hazard. If high airborne concentrations of the isocyanates are present and minimising exposure by ventilation is not possible, especially during spray-painting or maintenance of machine and ventilation systems, air-line respirators or self-contained breathing apparatus complying with Australian Standard AS 1716 must be used.
<b>Eye Protection</b>	Safety glasses with top and side shields. See Australian Standards AS 1336 and AS/NZS 1337 for more information.
<b>Skin Protection</b>	Protective equipment being resistant to isocyanates - nitrile, rubber, viton, teflon or some polyvinyl alcohol (PVA) gloves and overalls should be worn as specified in Australian Standard AS 2161
<b>Hygienic Practices</b>	Food, beverages and tobacco products should not be stored or consumed where this material is in use. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Clear red liquid
<b>Odour</b>	Penetrating ether-like odour
<b>Solubility in Water</b>	Insoluble
<b>Solubility in Organic Solvents</b>	Soluble
<b>Boiling Point</b>	40°C
<b>Vapour Pressure (@ 20°C)</b>	46.5 kPa ( fir dichloromethane)
<b>Relative Vapour Density (Air=1)</b>	>1
<b>Specific Gravity (g/cm<sup>3</sup>)</b>	0.98
<b>Flash Point</b>	No information available
<b>Flammable Limit – Lower</b>	No information available
<b>Flammable Limit – Upper</b>	No information available
<b>Auto-ignition Temperature</b>	No information available

## 10. STABILITY AND REACTIVITY

<b>Chemical Stability</b>	Stable at room temperature.
<b>Incompatible Materials</b>	Water, alcohols, amines, acids and bases. Forms a detonable mixture with nitric acid. Repeated or prolonged contact with aluminium or light alloys may cause a reaction with gas and pressure build-up.
<b>Hazardous Decomposition Products</b>	Oxides of carbon and nitrogen, isocyanate vapours, hydrogen cyanide.
<b>Hazardous Reactions</b>	Will react exothermically with water and all organic compounds containing active hydrogen groups. Reaction between water and hot isocyanate may be vigorous.
<b>Conditions to Avoid</b>	Avoid high temperatures. Contact with red hot surfaces, sparks or naked flames may generate toxic fumes of phosgene and hydrogen chloride.

**11. TOXICOLOGICAL INFORMATION****Toxicity****Dichloromethane:**

Oral LD<sub>Lo</sub> (human) = 357 mg/kg

Oral LD<sub>50</sub> (rat) = 1600 mg/kg

Intraperitoneal LD<sub>50</sub> (mouse) = 437 mg/kg

Inhalation LC<sub>Lo</sub> (guinea pig) = 5000 ppm/2 hour

Harmful if swallowed or inhaled. May be harmful by skin contact.

Eye and skin irritant. Readily absorbed through the skin.

Asphyxiant. Causes CNS depression. Possibly carcinogenic in humans. Possible mutagen. Experimental reproductive effects.

No adverse effects on blood count, blood pressure, pulmonary function, neurological function, cognitive function, alertness, and coordination were detected when healthy adults were exposed repeatedly to up to 250 ppm of methylene chloride for 7.5 hours/day, 5 days/week for two weeks or in the case of the male subjects, at 500 ppm on two consecutive days.

A chronic inhalation study in mice has shown that methylene chloride is carcinogenic in this species. Malignant tumours were observed in both the liver and lung at levels well above the exposure standard.

**Diphenylmethane 4,4 di-isocyanate:**

Oral LD<sub>50</sub> (rat) = 31690 mg/kg

Inhalation LC<sub>50</sub> (rat) = 178 mg/m<sup>3</sup>/4 hour

Inhalation TC<sub>Lo</sub> (human) = 130 ppm/30 minutes

Eyes (rabbit): 100 µg - Draize - MILD.

Harmful by inhalation or ingestion. May be harmful through skin contact. Eye, skin and respiratory irritant. May cause allergic sensitization.

**Fetotoxicity:**

No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were highly toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations, which were well in excess of defined occupational exposure limits.

**Mutagenicity:**

There is no substantial evidence of mutagenic potential.

**Routes of Exposure**

Inhalation, ingestion, eye and skin

**Acute Health Effects**

Inhalation: A respiratory irritant and potential respiratory sensitiser; repeated inhalation of vapour or aerosol at levels above the occupational exposure standard could cause respiratory sensitisation. Symptoms may include irritation of the eyes, nose, throat and lungs, possibly with dryness of the throat, tightness of the chest and difficulty in breathing. Onset of respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response may develop to even minimal concentrations of MDI to insensitized individuals. Inhalation of high concentrations will lead to

	anaesthetic effects and adverse effects on the central nervous system. Symptoms may include light headedness, nausea, vomiting and headache. Inhalation of very high concentrations can result in loss of consciousness and irregular heart beat and prove suddenly fatal.
Ingestion:	Swallowing large amounts may produce nausea, vomiting diarrhoea and can lead to drowsiness and unconsciousness.
Eye:	Both vapour and liquid are eye irritants.
Skin:	Contact with skin will result in moderate irritation. A skin sensitiser. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitizers including diisocyanates.
<b>Chronic Health Effects</b>	Repeated exposure to high levels may produce liver and kidney damage. Repeated or prolonged skin contact may lead to allergic contact dermatitis.
<b>Existing Conditions Aggravated by Exposure</b>	Conditions aggravated by exposure to the amines present include asthma, skin disorders and allergies, bronchitis, emphysema and eye diseases.
<b>Carcinogenicity</b>	Diphenylmethane 4,4 di-isocyanate is classified by IARC as a Group 3 – Not classifiable as to its carcinogenicity to humans. Dichloromethane is classified by IARC as a Group 2B – Possibly carcinogenic to humans. Diphenylmethane 4,4 di-isocyanate and dichloromethane are classified as Carcinogen Category 3 by Safe Work Australia.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity & Mobility

#### **Aquatic organisms:**

#### **Dichloromethane:**

LC<sub>50</sub> 24hr (Lepomis macrochirus) = 230 mg/L

LC<sub>50</sub> 96hr (Fat head minnow) = 193 mg/L

LC<sub>50</sub> 48hr (Daphnia magna) = 224 mg/L

Highly toxic to algae (EC<sub>50</sub> <1mg/L)

Low toxicity to aquatic organisms.

#### **Diphenylmethane 4,4 di-isocyanate (MDI):**

EC<sub>50</sub> 24hr (Daphnia magna) > 1000 mg/L

Harmless to aquatic organisms.

Avoid contaminating waterways.

A pond study showed gross contamination caused no significant toxic effects on a wide variety of flora in all trophic levels (including fish), no detectable diaminodiphenylmethane (MDA), and no evidence of bioaccumulation of MDI nor MDA.

In air, the predominant degradation process is predicted to be a relatively rapid hydroxyl radical attack, by calculation and by analogy with related diisocyanates.

**13. DISPOSAL CONSIDERATIONS**

<b>Disposal methods and containers</b>	Empty containers <b>MUST BE</b> decontaminated Dispose according to applicable local and state government regulations.
<b>Special precautions for landfill or incineration</b>	Please consult your state Land Waste Management Authority for more information

**14. TRANSPORT INFORMATION**

Classified as a dangerous good according to the Australian Code for the Transport of Dangerous goods by road or rail.

<b>UN Number</b>	1593
<b>Proper Shipping Name</b>	DICHLOROMETHANE MIXTURE
<b>Dangerous Goods Class</b>	6.1
<b>Hazchem Code</b>	2Z
<b>Packing Group</b>	III
<b>Special Precautions</b>	Not applicable
<b>Segregation DG</b>	Not to be loaded with explosives (Class 1), nitromethane, food and food packaging in any quantity, However, exemptions may apply.

**15. REGULATORY INFORMATION**

1,1'-Methylenebis[4-isocyanatobenzene], polymer with 1-isocyanato-2- [(4-isocyanatophenyl) methyl] benzene, methyl oxirane and oxirane, dichloromethane and diphenylmethane 4,4 diisocyanate are listed in the Australian Inventory of Chemical Substances (AICS).

**Poisons Schedule: 5**

**16. OTHER INFORMATION**

<b>Last Revision of MSDS</b>	Rev 1.1 (17/07/2012)
<b>Prepared by</b>	MSDS.COM.AU Pty Ltd <a href="http://www.msds.com.au">www.msds.com.au</a>

<b>Abbreviations Used</b>	IARC: International Agency for Research on Cancer NTP: National Toxicology Program (U.S.) OSHA: Occupational Safety and Health Administration (U.S.) STEL: Short term exposure limit TWA: Time weighted average
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**Emergency Contacts**

<b>Fortis Adhesives and Coatings</b>	<b>03 9706 5448</b>
<b>Fortis Adhesives and Coatings – Emergency Number</b>	<b>0425 883 566</b>
<b>Police and Fire Brigade</b>	<b>000</b>
<b>Poisons Information Centre</b>	<b>13 11 26</b>

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Please read instructions / label before using product.

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