

**Flexithane Series Part A & B**

## COMPANY DETAILS

Company: DALCHEM Pty Limited  
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**FLEXITHANE SERIES – Part A**

## IDENTIFICATION

Product Name: FLEXITHANE SERIES Part A  
Other Names: Polyurethane Elastomer  
Manufacturers Product Code: FLEXITHANE SERIES Part A  
UN Number: Not applicable  
Dangerous Goods Class and Subsidiary Risk: Not relevant  
Hazchem Code: Not applicable  
Poisons Schedule Number: Not applicable  
Packaging Group: Not applicable  
Major Recommended Uses: Mould making and casting.  
Major Recommended Method(s) of Application: Hand mix or machine dispensable.  
Physical Description/Properties  
Appearance: Opaque liquid  
Boiling Point (EC): Decomposes at elevated temperatures  
Melting Point (EC): Not applicable  
Vapour Pressure: Nil  
Specific Gravity: 1.03 g/ml (20oC)  
Flashpoint (EC): > 143  
Flammability Limits (%): Not applicable  
Solubility in Water (g/l): slightly soluble

## Ingredients

Chemical Entity CAS Number Proportion  
Polyether polyol mixture 9082-00-2 80-90% w/w  
Proprietary Additives - <10 % w/w  
Aliphatic glycol 111-46-6 to 100 % w/w



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**HEALTH HAZARD INFORMATION**

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**Health Effects****Acute**

Swallowed: Single dose oral toxicity is low.

Eye: May cause slight transient (temporary) eye irritation. Corneal injury is unlikely.

Skin: Upon prolonged or repeated contact can cause skin irritation.

Inhaled: Can cause dizziness in conditions of poor ventilation.

Chronic No specific data available

**First Aid**

Swallowed: Induce vomiting if large amounts are ingested. Consult medical personnel immediately.

Eye: Irrigate with flowing water immediately and continuously for 15 minutes.

Skin: Wash off in flowing water or shower. Remove contaminated clothing and wash before reuse.

Inhaled: Remove subject to fresh air.

First Aid Facilities: It is good practice to have an eye washing facility adjacent to the workplace location.

Advice to Doctor No specific antidote. Supportive care. Treatment based on judgement of the doctor in response to the reactions of the patient.

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**PRECAUTIONS FOR USE**

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Exposure Standards: None established.

Engineering Controls: Good general ventilation is required.

Personal Protection: No respirator protection should be needed to handle Polyol component. An approved air purifying respirator should be used when handling Isocyanate component.

Glove Type: Impervious PVC gloves.

Eye Protection: Safety goggles.

Clothing: Coveralls

Respirator Type: Not required under proper industrial hygienic practice.

Flammability Combustible. Vapour of product is not anticipated to form flammable mixtures with the air at ambient temperatures.

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**SAFE HANDLING INFORMATION**

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**Storage and Transport**

This product is not classified in the Australian Dangerous Goods Code either by reference to a specific substance name or a generic substance name or group. Store in a cool dry area away from any source of ignition, strong acids and oxidising agents.

Storage life: Six months in cool dry area in full sealed containers.

**Spills and Disposal**

Clean Up Spills/Leaks: Absorb spilled material with inert absorbent (sand, vermiculite etc.) and put in closed containers for disposal to approved site. Do not permit to contaminate waterways, sewers or drains.

Precautions for Clean Up Crew: Avoid skin and eye contact; wear gloves, safety glasses and coveralls. Avoid breathing vapours directly.

Disposal Method: Burn in an approved incinerator or remove to authorised disposal area, in accordance with applicable state and/or Local Government regulations.

**Fire/Explosion Hazard**

Hazards of Use/Storage: Will support combustion. No explosion hazard. Do not breathe smoke from burning product.

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List of Dangerous Decomposition May decompose in heat/fire releasing products of or Combustion Products: greater hazard.

Fire Fighting Recommendations:

Types of Extinguisher/Fire-Fighting Agents: Foam, Alcohol resistant foam, CO2 and dry chemical.

Protective Clothing: Wear positive pressure self-contained breathing apparatus, safety glasses, boots, gloves and coveralls.

Reactivity: Stable under normal handling and storage conditions. Incompatible with oxidising materials and strong acids.

#### IDENTIFICATION

Product Name: **FLEXITHANE SERIES Part B**

Other Names: Not available

Manufacturer Product Code: FLEXITHANE SERIES Part B

UN Number: Not applicable

Dangerous Goods Class and Subsidiary Risk: Not applicable

Hazchem Code: Not applicable

Poisons Schedule Number: Not applicable

Packaging Group: Not applicable

Product Use: Raw material for production of polyurethane materials

Recommended Method(s) of Application: Hand mixing and pouring, or machine dispensing.

#### PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White to pale yellow liquid above 18 degree C.

Boiling Range (oC): Decomposes at elevated temperature.

Melting Point (°C): Not applicable

Vapour Pressure: < 0.00001 mm Hg @ 20oC

Specific Gravity: 1.216 g/ml @ 25oC

Flashpoint (°C): > 190 (ASTM D-93, PMCC)

Flammability Limits (%): Not determined

Solubility in Water (g/L): Not soluble, reacts exothermically

#### COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Entity CAS Number Proportion

MDI and polyether prepolymer 68092-58-0 100%

Hazardous according to criteria of Worksafe Australia

#### HEALTH HAZARD INFORMATION

##### Health Effects

Acute – Ingestion: Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.

Acute - Eye: May cause slight eye irritation. Corneal injury is unlikely.

Acute - Skin: Prolonged or repeated exposure may cause skin irritation. May stain the skin. Skin contact may result in allergic skin reactions or respiratory sensitisation but is not expected to result in absorption of amounts sufficient to cause other adverse effects. The LD50 for skin absorption in rabbits is greater than 9400 mg/kg.

Acute - Inhaled: At room temperature, vapours are minimal due to low vapour pressure. However, certain operations may generate vapour or aerosol concentrations sufficient to cause irritation or other adverse effects. Such operations include those in which the material is heated, sprayed or otherwise mechanically dispersed such as drumming, venting or pumping. Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs. May cause respiratory sensitisation in susceptible individuals. MDI concentrations below the exposure standards may cause allergic respiratory reactions in individuals already sensitised. Symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Effects may be delayed. Impaired lung function (decreased ventilatory capacity) has been associated with overexposure to isocyanates.

Chronic Effects: SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/Polymeric MDI aerosols. CANCER INFORMATION: Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/Polymeric MDI (6mg/m<sup>3</sup>) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure standards are expected to protect against these effects. TERATOLOGY (BIRTH DEFECTS): In laboratory animals, MDI, Polymeric MDI did not produce birth defects; other foetal effects occurred only at high doses, which were toxic to the mother.

#### FIRST AID MEASURES

Ingestion: Never give fluids or induce vomiting if patient is unconscious or is having convulsions. If poisoning occurs, contact a doctor or Poisons Information Centre. If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Eye: Flush eyes with plenty of water. Materials containing MDI may react with the moisture of the eye forming a thick material, which may be difficult to wash from the eyes.

Skin: In case of skin contact, immediately flush skin with plenty of water (warm soapy water, if available) for at least 15 minutes while removing contaminated clothing and shoes.

Inhalation: Remove to fresh air. If not breathing, apply mouth-to-mouth resuscitation. If breathing is difficult, qualified personnel should administer oxygen. Call a doctor and/or transport to an emergency hospital.

Other Information: An eye wash fountain, safety shower and a general washing facility should be available in immediate work area.

#### GENERAL ADVICE TO DOCTOR

The manifestations of respiratory symptoms, including pulmonary edema, resulting from acute exposure may be delayed. No specific antidote is known. Supportive care. Treatment based on judgement by the doctor in response to reactions of the patient.

#### PRECAUTIONS FOR USE

##### Exposure Limits

Other Exposure Info: Workplace Exposure Standard (ES) # for: Isocyanates (as -NCO): 0.02 mg/m<sup>3</sup>, TWA: 0.07 mg/m<sup>3</sup>,

STEL: Sen. # Exposure Standard for Atmospheric Contaminants in the Occupational Environment, published by Worksafe Australia. TWA – Time weighted average exposure STEL – Short term exposure limit. Sen. – Sensitizer.

Engineering Controls: Provide general and/or local exhaust ventilation to control airborne levels below the exposure standards.

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## PERSONAL PROTECTION

Contact of the reacting materials with skin or eyes can cause severe burns and may be difficult to remove from the affected areas. Immediately wash affected areas with plenty of water (warm soapy water, if available) and seek medical attention. In addition such contact increases the risk of exposure to Isocyanates vapors. Use only approved protective clothing and equipment when handling this material (refer to Australian Standards below).  
Respiratory Protection: Atmospheric levels should be maintained below the exposure standard. When respiratory protection is required for certain operations, use an approved positive pressure supplied-air respirator. For emergency and other conditions where the exposure standard may be greatly exceeded, use an approved positive pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply.

Skin Protection: Use protective clothing impervious to this material. Selection of specific items such as face shield, gloves, boots, and apron or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water (warm soapy, if available) and launder clothing before reuse.

Glove Type: AS 2161: Industrial Safety gloves and mittens (excluding electrical and medical gloves).

Eye/Face Protection: Use approved safety glasses. If vapour exposure causes eye discomfort, use a full face respirator. Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian Standards, including: AS 1336: Recommended practices for eye protection in the industrial environment. AS/NZS 1337: Eye protectors for industrial application.

AS/NZS 1715: Selection, use and maintenance of respiratory protective devices.

Clothing: AS/NZS 2210: Occupational protective footwear. AS 2919: Industrial clothing FLAMMABILITY

Fire Hazards: Will support combustion. Toxic fumes are released in fire situations. Sources of Ignition: Incompatible with oxidizing agents, acids, alkalis, alcohols, water; keep away from all heat and ignition sources.

## SAFE HANDLING INFORMATION

### STORAGE AND TRANSPORT

Storage Precautions: Store indoors at 15-25 oC in original, unopened containers. Protect from atmospheric moisture. Replace outage with inert dry gas nitrogen. Avoid product temperatures above 50°C and below 5°C. At temperature below 5 oC crystallisation may occur. Crystallised product can be melted by heating overnight to 60-70 oC. Store away from oxidising agents, acids, alkali, amines, direct sunlight or any source of ignition or heat.

## SPILLS AND DISPOSAL

Protect People: Evacuate and ventilate spill area, contain spill, eg: by diking, to prevent entry into sewers, drains or water systems. Wear full protective equipment including respiratory equipment during clean up.

Major Spill: If transportation spill Dial '000' for Police or Fire Brigade. If temporary control of Isocyanates vapour is required a blanket of protein foam (available at most Fire Brigades) may be placed over the spill. Large quantities may be pumped into closed but not sealed containers for disposal.

Minor Spill: Absorb the Isocyanates with sawdust or other absorbent and shovel into open top containers do not make pressure tight. Transport to well-ventilated area (outside) and treat with neutralising solution consisting of a mixture of water and 3-8 % concentrated ammonium hydroxide or 5-10% sodium carbonate. Add about 10 parts of neutraliser per part of isocyanate with mixing. Allow to stand for 48 hours letting evolved carbon dioxide escape.

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**Clean Up:** Decontaminate floor using water/ammonia solution with 1-2% added detergent. Allow to stand over affected area for at least 10 minutes. Cover mops and brooms with plastic and dispose properly (often by incineration).

**Disposal:** Any disposal of product, drain and rinse liquid, or containers, must be in accordance with all State, Territory and/or Local government regulations. Liquids are usually incinerated in an approved facility. Solids are usually also incinerated or land filled in approved facilities. Empty plastic or steel drums should first be decontaminated by filling with water. Let drums stand unsealed for at least 46 hours. Before disposal drums should be drained, triple rinsed with water, and holed or crushed to prevent reuse. The other option is to offer the undamaged, empty decontaminated container to a qualified reconditioner or recycler. A suggested method for disposal of drain and rinse liquids is by treatment in an approved waste water treatment system. Suggested methods for disposal of plastic drums are either disposal in an approved landfill after shredding or incineration in an approved industrial incinerator or other appropriate incinerator facility. Steel drums are commonly crushed for disposal and sent to an approved landfill. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. None of these waste management options should be considered 'arranging for disposal'.

#### FIRE/EXPLOSION HAZARD

**Hazardous Combustion Products:** Isocyanate vapour and mist, carbon dioxide, carbon monoxide, nitrogen oxides and traces of hydrogen cyanide.

**Fire Fighting Equipment:** People who are fighting isocyanate fires must be protected against isocyanate vapours and hazardous combustion products by wearing positive pressure self-contained breathing apparatus and full protective clothing.

**Extinguishing Media:** Carbon dioxide, dry chemical foam. For large-scale fires, alcohol resistant foams are preferred if available. General-purpose synthetic foams or protein foams may function, but much less effectively. Water may be used as a blanket for fire extinguishment. If water is used, it should be used in very large quantities. The reaction between water and isocyanate may be vigorous. If possible, contain fire run off water.

**Fire Fighting Instructions:** Down-wind personnel must be evacuated. Do not reseal contaminated containers. A chemical reaction generating carbon dioxide may occur resulting in rupture of the container. Dense smoke emitted when burned without sufficient oxygen. When using water spray, boil-over may occur when the product temperature reaches the boiling point of water and the reaction forming carbon dioxide will accelerate (Tank-type scenarios, not spills).

#### HAZARDOUS REACTION

##### Chemical Stability

**Conditions to Avoid:** Prolonged heating over 45oC. Stable when stored under normal conditions. Thermal decomposition begins at temperatures above 180oC.

**Incompatibility with other Materials:** Water, acid, bases, alcohols, and metal compounds. Avoid water as it reacts to form heat and carbon dioxide. Enough heat and pressure can be produced to rupture a closed container. The reaction with water is slow at temperatures less than 40oC, but accelerated at higher temperature and in the presence of the above mentioned materials. Some reactions are violent.

**Hazardous Decomposition Products:** Excessive heating can produce isocyanate vapour, mist and other hazardous organic compounds.

**Hazardous Polymerisation:** May occur with incompatible reactants, especially strong bases, water, or temperatures over 180oC.

#### OTHER INFORMATION

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**Toxicology**

Swallowed: The oral LD50 for rats is greater than 10,000 mg/kg.

Skin: The LD50 for skin absorption in rabbits is greater than 9,400 mg/kg.

Mutagenicity: Mutagenicity data on MDI are inconclusive. MDI was weakly positive in some in vitro (test tube) studies; other in vitro studies were negative. A mutagenicity study in animals was negative.

**ECOLOGICAL INFORMATION**

Avoid contaminating waterways, drains, sewers or ground.

Movement & Partitioning: Movement in the environment is expected to be limited by the formation of insoluble polymers.

Degradation & Transportation: Biodegradation is not applicable (for the isocyanate itself) Material is expected to biodegrade only very slowly. Fails to pass OECD modified MITI test; hydrolysis products degrade slowly. Degradation is expected in the atmospheric environment.

Ecotoxicity: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 greater than 100 mg/l in most sensitive species.)

**PACKAGING & LABELLING INFORMATION**

Quantities in excess of 25kg are labelled in accordance with the Code of Practice for Labelling Workplace Substances. Repackaging of this product into quantities less than 25kg to be in accordance with the SUSDP requirements for this substance.

HAZARDOUS SUBSTANCES CLASSIFICATION: Harmful. Irritant. Sensitiser.

**RISK PHRASES:**

R20. Harmful by inhalation.

R36/37/38. Irritating to eyes, respiratory system and skin.

R42. May cause sensitisation by inhalation.

SAFETY PHRASE: S26. In case of contact with eyes, rinse immediately with plenty of water and contact a doctor or Poisons Information Centre.

S28. After contact with skin, wash immediately with plenty of water (warm, soapy water, if available).

S38. In case of insufficient ventilation, wear suitable respiratory equipment. S45. In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre immediately (show the label where possible).

**Manufacturers Advice**

The principal components and additives of this product are included in the Australian Inventory of Chemical Substances (AICS).

References: Isocyanates, National Occupational Health and Safety Commission, July 1990. Worksafe Australia Guide "ISOCYANATE". Australian Government Publishing Service Canberra July 1990. Code WAP90/017 GFO12-1990.

END MSDS FLEXITHANE \*\*\*\*\*

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