PUR 60 V2 Part A

Polyurethane Casting Resin

Material Safety Data Sheet

1 Identification of the substance/preparation and of the company/undertaking

Product Details
Product: PUR 60 V2 part A
Chemical Name: Polyol blend with amines and additives
Formula
Chemical Family: Polyurethane polyol component
Un No **Hazchem Code**
ERG No. 0 **EAC**

Details of the supplier of the safety data sheet
Supplier: AMT Composites
6 Director Road
Aeroport Spartan Ext 2
Kempton Park, 1619
South Africa

Regulatory / Technical Information: +27 11 392 4232

Emergency telephone number: +27 11 392 4232

2 Hazards Identification:

GHS Classification according to SANS 10234: 2019:

Acute toxicity (Oral)	Category 5 (H303)
Skin irritation	Category 2 (H315)
Skin sensitizer	Category 1B (H317)
Aquatic toxicity (Acute)	Category 3 (H402)
Aquatic toxicity (Chronic)	Category 3 (H412)

Label elements:
SYMBOL: Exclamation mark



Signal word: WARNING

Hazard statements:
H303: May be harmful if swallowed
H315: Causes skin irritation
H317: May cause an allergic skin reaction
H412: Harmful to aquatic life with long lasting effects

Precautionary statements (Prevention):
P264: Wash thoroughly after handling
P261: Avoid breathing vapours
P272: Contaminated work clothing should not be allowed out of the workplace
P280: Wear protective gloves
P273: Avoid release to the environment

Precautionary statements (Response):
P312: Call a doctor if you feel unwell.
P302+P352: IF ON SKIN: Wash with plenty of soap and water
P333+P313: If skin irritation or rash occurs: Get medical advice
P362+P364: Take off contaminated clothing and wash it before reuse.
P391: Collect spillage

Precautionary statements (Disposal):
P501: Dispose of contents/container in accordance with local regulations.

Contains Amine compound (Proprietary) 15 - 25 %

3 Composition

Hazardous Components	Type of product: Mixture Mixture of above with non-hazardous additions: Amine compound (Proprietary) 15 - 25 %

4 First-aid measures

First Aid Skin	Wash with plenty of water for at least 15 minutes. Wash contaminated clothing before re-use.
First Aid Eyes	Flush eyes with water. Hold eyelids open while washing. Seek medical advice.
First Aid Ingested	Induce vomiting if large amounts are ingested. Seek medical advice.
First Aid Inhalation	Immediately remove person to fresh air.

5 Fire-fighting Measures

SMALL FIRES: Water Spray, Foam, Dry Chemical, CO2.
LARGE FIRES: Water spray, fog or standard foam is recommended.
Move container from fire area if you can do so without risk.
Dike fire control water for later disposal; do not scatter the material.
Keep unnecessary personnel away; isolate hazard area and deny entry.
Stay upwind; keep out of low areas and ventilate closed spaces before entering.
Protection of fire fighters: Wear positive pressured self-contained breathing apparatus and protective firefighting clothing.
Hazardous Combustion products: Carbon oxides, nitrogen, sulphur.

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6 Accidental release measures

Evacuate unnecessary personnel.
Breathing apparatus for fire only.
Contain (avoid spillage from entering drains or water courses).
Restrict access to area.
Remove sources of heat and flame.
SPILL OR LEAK:
Do not touch spilled material.
Stop leak if you can do so without risk.
Cover and soak up with a suitable absorbent material and place into containers for later disposal.

7 Handling and Storage

Handling:
Observe the usual precautions for handling chemicals.
Storage:
Store in a cool, dry area. Keep containers tightly closed.
Store away from acids, oxidising agents.

8 Exposure controls / personal protection

Occupational Exposure Limits:	Not established
Controls:	The control measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of substance release. Use a non-sparking, grounded ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside. Supply sufficient replacement air to make up for air removed. Have a safety shower/eye wash fountain readily available in the immediate work area
Personal Protection	If engineering controls and work practices are not effective in controlling this material, then wear suitable personal protection equipment, including chemical safety goggles, boots and impervious gloves. RESPIRATORY PROTECTION: If process creates dust or fumes, wear NIOSH approved respirator. PROTECTIVE GLOVES: Impervious gloves EYE PROTECTION: Safety Goggles if processing. Have appropriate equipment available for use in emergencies. Safety precautions for handling freshly moulded polyurethane parts: Depending on the production parameters, any uncovered surfaces of polyurethane mouldings produced using this raw material may contain traces of substances (e.g. starting and reaction products, catalysts, release agents) with hazardous characteristics (e.g. harmful, irritating, corrosive, sensitising).

In order to prevent skin contact with the traces of these substances, fully buttoned work clothing and protective gloves whose palm and finger areas at least are coated on the outside with nitrile rubber, PVC or polyurethane should be worn when demoulding or handling the freshly moulded polyurethane parts.

9 Physical and chemical properties

Light yellow, milky liquid
Relative Density: 1,03 (± 0,02) at 25 °C
Viscosity: 600 - 800 cPs at 25°C
Not soluble in water.

10 Stability and Reactivity

Conditions to Avoid	Stable under normal conditions. Do not heat above 60°C for protracted periods.
Incompatible Materials	Acids, oxidising agents
Other	May absorb moisture. Keep containers tightly closed.

11 Toxicological Information

EFFECTS OF ACUTE EXPOSURE:

Ingestion:	Small amounts swallowed incidental to normal handling operations are not likely to cause injury.
Eyes:	May cause slight eye irritation.
Inhalation:	Non-hazardous at room temperature. Processing at high temperatures may generate vapour levels sufficient to cause irritation and other effects.
Skin:	Prolonged or repeated exposure may cause skin irritation. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. May cause sensitisation by skin contact.

12 Ecological Information

No ecotoxicological information available.
Harmful to aquatic life with long lasting effects
Do not allow to enter drains or surface waters.

13 Disposal Considerations

Disposal Method Product	Observe prevailing regulations and incinerate or deposit in land fill. This material and its container must be disposed of as hazardous waste.
Disposal Method Packaging	Disposal in accordance with local legal provisions. Empty containers can only be disposed of when the remaining waste products adhering to the container walls have been removed. Remove all labels. Packaging that cannot be cleaned is to be disposed of in the same manner as the product.

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14 Transportation Information

ERG No.	0	EAC
IMDG-Shipping Name	NOT CONTROLLED SUBSTANCE	
IMDG Code	N/A	
Marine Pollutant	No	
Class	Non-hazardous	
Subsidiary Risks	None	

15 Regulatory Information

EEC Hazard Classification	
Risk Phrases	May cause sensitisation by skin contact
	Harmful to aquatic organisms; may cause long-term adverse effects in the aquatic environment
Safety Phrases	Avoid contact with skin
	Wear suitable gloves
	This material and its container must be disposed of as hazardous waste
	Avoid release into environment; refer to special instructions/material safety data sheet
National Legislation	National Road Traffic Act 1996 (Act 93 of 1996)
	Occupational Health and Safety Act 1993 (Act 85 of 1993)
	Hazardous Substances Act 1973 (Act 15 of 1973)
	SANS 10234: 2019

16 Other Information

The information on this sheet corresponds to our present knowledge. It is not a specification and it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage, and use of the product. It is not applicable to unusual or non-standard uses of the product or where instructions and recommendations are not followed.

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Material Safety Datasheet

1.Product and Company Identification

Trade / Commercial Name	PUR Part B		
Chemical Name	Diphenylmethane diisocyanate prepolymer		
Formula			
Chemical Family	MDI based prepolymer		
Synonyms			
Un No		Hazchem Code	1[Z]
ERG No	0	EAC	0

2. Hazards Identification

Contains diphenylmethane-4,4-diisocyanate >= 25 %
Harmful Xn
Harmful by inhalation
Irritating to eyes, respiratory system and skin.
May cause sensitization by inhalation and skin contact.
For their own protection, persons who suffer from hypersensitivity of the respiratory tract (e.g. asthmatics and chronic bronchitis sufferers) should avoid handling this product.
Symptoms affecting the respiratory tract can also occur several hours after overexposure.
Vapours and aerosols are the primary risk to the respiratory tract.
Product will react with water and produce carbon dioxide which can lead to dangerous build up of pressure in sealed containers.

3. Composition

Hazardous Components	Diphenylmethane-4,4-diisocyanate >= 25 %

4. First Aid Measures

First Aid Skin	Wash with plenty of warm water and soap, but preferably with a cleanser based on polyethylene glycol. Consult a doctor in the event of a skin reaction. Soiled, soaked clothing and shoes must be immediately removed, decontaminated and disposed of.
First Aid Eyes	Flush eyes with lukewarm water for a sufficently long period of time (10 minutes). Hold eyelids open while washing. Consult a doctor.

First Aid Ingested	Do not induce vomiting, consult a doctor.
First Aid Inhalation	If aerosol or vapour is inhaled in high concentrations: Remove person to fresh air and keep him warm, let him rest. If there is difficulty in breathing, consult a doctor. Information for the physician: The product irritates the respiratory tract and may trigger sensitisation of the skin and respiratory tract. Treatment of acute irritation and bronchial constriction is primarily symptomatic. Extended medical care may be necessary, depending on the extent of the exposure and the symptoms.

5. Fire Fighting Measures

Extinguishing media: CO2, Foam, Dry Chemical; in cases of large fires, water spray should be used.
Formation of carbon monoxide, nitrogen oxide, isocyanate vapour and traces of hydrogen cyanide are possible in a fire.
Self contained breathing apparatus for firemen.
Evacuate personnel located downwind. Do not allow contaminated extinguishing water into the soil, groundwater or surface waters.

6. Accidental Release Measures

Small spills: Put on protective equipment (see paragraph 8).
Evacuate all persons from the area. Avoid breathing of the fumes.
Contain (avoid spillage from entering drains or water courses) and decontaminate.
Product will react with water and produce a solid polymer and carbon dioxide, the solid polymer is an insoluble product (polyurea).
Cover with damp, fluid-binding material (sand, sawdust or chemical binder based on calcium silicate hydrate)
Transfer to waste container after approx. 1 hour (CO2 formation). Keep damp and in the open air in a safe place for 7 to 14 days.
Restrict access to area.
Waste should be disposed of as described in Chapter 13, "Advise on disposal".
Large spills: Evacuate all personnel not properly equipped with protective equipment and appropriate breathing apparatus.
Only experienced and properly trained personnel should be authorised to attempt to isolate and contain the spill.
Spilled material should not be washed down a drain, into a river or any surface water.
A 3 % protein based foam can be sprayed over the material to reduce vapours until an effective decontamination material can be obtained.
Use a solution of 8 - 10 % sodium carbonate and 2 % liquid soap in water to decontaminate and to convert the residue into harmles polyurea polymer and carbon dioxide.

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7. Handling And Storage

Handling: Observe the usual precautionary measures for chemicals.
Avoid contact with skin.
In all areas where isocyanate aerosol and/or vapour concentrations are produced, exhaust ventilation must be provided in such a way that the OEL is not exceeded.
The air should be drawn away from personnel handling the product and the efficiency of the exhaust equipment should be periodically checked.
Storage: Keep containers tightly closed and dry.
Keep separated from foodstuffs.
Prevent cooling below 20°C and heating above 40°C.
Protection against fire and explosion: Explosion protection not required.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Values for diphenylmethane-4,4-diisocyanate: TWA OEL-RL 0,02 mg/m³ Short term OEL-RL 0,07 mg/m³ SENSITISER
Controls	The control measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of substance release. Use a non-sparking, grounded ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside. Supply sufficient replacement air to make up for air removed. Spraying of the product and using the material at higher temperatures will increase the risk. Have a safety shower/eye wash fountain readily available in the immediate work area.
Personal Protection	If engineering controls and work practices are not effective in controlling this material, then wear suitable personal protection equipment. RESPIRATORY PROTECTION: Required at inadequately ventilated workplaces. If product is sprayed, wear air-fed mask or (for short periods only) a combination of charcoal filter and particlate filter mask (German type A2-P2). EYE PROTECTION: Safety Goggles/face protection. Suitable material for protective gloves: Polychloroprene - CR (>= 0,5 mm) Nitrile rubber - NBR (>= 0,35 mm) Butyl rubber - IIR (>= 0,5 mm) Fluorinated rubber - FKM(>= 0,4 mm) Polyvinylchloride - PVC(>= 0,5 mm)

Store working clothes sepArately. Wash hands before breaks and at end of work. Decontaminate, destroy and dispose of soiled protective clothing (see section13)
Safety precautions for handling freshly moulded polyurethane parts:
Depending on the production parameters, any uncovered surfaces of polyurethane mouldings produced using this raw material may contain traces of substances (e.g. starting and reaction products, catalysts, release agents) with hazardous characteristics (e.g. harmful, irritating, corrosive, sensitising).
In order to prevent skin contact with the traces of these substances, fully buttoned work clothing and protective gloves whose palm and finger areas at least are coated on the outside with nitrile rubber, PVC or polyurethane should be worn when demoulding or handling the freshly moulded polyurethane parts.

9. Physical & Chemical Properties

White to slightly yellow liquid, low odour
Boiling Point: Polymerises at ± 200°C with evolution of CO2
Freezing Point: Approx. 5°C
Relative Density: 1,09 ± 0,02 @ 25°C
Vapour Pressure: Not tested
Value for MDI: < 0,00001 mbar @ 20 °C
Flash Point: Not tested; MDI > 170°C
Flammable Limits: Not determined
Not soluble in water.
Viscosity: 2 000 - 3 000 cps @ 25°C
pH: Not applicable

10. Stability And Reactivity

Conditions to Avoid	Stable at ambient temperatures. Thermal decomposition: Polymerises at about 200°C with evolution of C02.
Incompatible Materials	Reacts with water forming CO2, in closed containers risk of bursting due to increase of pressure. Exotherm reaction with alcohols and amines.
Other	In fire situations, carbon monoxide, nitrous oxides, isocyanate vapours and a small amount of hydrogen cyanide can be produced.

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11. Toxicological Information

Analogous to diphenylmethane-diisocyanate, isomers and homologues:
LD50 Oral, rat (female): >15 000 mg/kg
LC50 inhalation,rat: 490 mg/m³ as aerosol, 4 h exposure
Concentration of the saturated vapour of MDI at 25°C: 0,09mg/m³
Skin contact: dermal LD50 (rabbit) > 9 000 mg/kg
Effects on humans by exposure to the product on the:
Eyes: Causes slight temporary reddening and swelling of the conjunctiva and slight reversable clouding of the cornea. In high concentrations vapour product has irritating effect on eyes and mucous membranes.
Skin: Irritant. In case of longer contact with skin, tanning and irritating effects are possible.
Respiratory tract: In high concentrations vapour of product has irritating effects on eyes and mucous membranes.
Special effects/properties: Experience on humans:
Irritation of the mucous membranes in the nose, throat and lungs, dryness of the throat, pressure on the chest, sometimes accompagnied by breathing difficulties and headaches. Delayed appearance of the symptoms and allergic reaction in susceptible persons possible.
No detrimental effects to health are known where the product is handled properly and industrial hygiene precautions are observed.
EFFECTS OF CHRONIC EXPOSURE:

No evidence that this product is a mutagen, carcinogen or teratogen.
May cause sensitisation by inhalation or skin contact.

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12. Ecological Information

No ecological problems are expected when the product is handled and used with due care.
Immiscible with water. Reacts with water producing CO2 and forming a solid and insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by water soluble solvents. Previous experience shows that polyurea is non-degradable.
Can be slightly hazardous to water.
Biodegradability: 0 % after 28 days (respirometer test)
Acute fish toxicity: LC50 = >1 000 mg/l (Brachydanio rerio 96h)
Daphnia: EC50 = > 1 000 mg/l (24h)
Acute bacteria toxicity: EC50 =>100 mg/l (Tested on activated sludge microorganism 3h)

13. Disposal Considerations

Disposal Method Product	There are no uniform EC regulations for the disposal of chemicals or residues. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. Product waste: May be transported to a controlled incinerator if local regulations are observed. Decontaminated waste (solid) can be disposed of in a landfill. Check with local authority.
Disposal Method Packaging	Disposal in accordance with local legal provisions. After containers have been emptied as thoroughly as possible (e.g. by pouring, scraping or draining until "drip-dry"), any product residue adhering to their walls has been rendered harmless, and the product and hazard labelling has been invalidated, they can be sent to an appropriate collection point set invalidated, they can be sent to an appropriate collection point set up within the framework of the existing take-back scheme of the chemical industry. Containers must be turned into scrap or recycled in compliance with national legislation and environmental regulations.

14. Transport Information

		Hazchem Code	1[Z]
ERG No	0	EAC	0
IMDG-Shipping Name	NOT CONTROLLED SUBSTANCE		
IMDG Code	N/A	IMDG-Packaging Group	N/A

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Marine Pollutant	No
Class	Non-hazardous
Subsidiary Risks	None

15. Regulatory Information

EEC Hazard Classification

Risk Phases	Harmful by inhalation Irritating to eyes, respiratory tract and skin May cause sensitisation by inhalation and skin contact
Safety Phases	Keep locked up and out of reach of children Do not breathe vapour/spray Wear suitable protective clothing and gloves In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
National Legislation	National Road Traffic Act 1996 (Act 93 of 1996) Occupational Health and Safety Act 1993 (Act 85 of 1993) Hazardous Substances Act 1973 (Act 15 of 1973)

16. Other Information

Reason for Alteration: General update.
The information contained herein is based on the present state of our knowledge.
It characterizes the product with regard to the appropriate safety precautions.
It does not represent a guarantee of the properness of the product.
Date issued: 30/7/2009

LAST PAGE

All information is given in good faith but without guarantee in respect of accuracy & no responsibility is accepted for errors or omissions or the consequences thereof.