DIVERSE URETHANES

PRODUCT DATA SHEET

PS100 with cross- linker PS200

1. INTRODUCTION

PS200 is a high performance crosslinker to be used with PS100. It produces elastomers with a Shore "A" hardness of 40-90 Shore "A" hardness when used with isocyanate MDI 20802.

Elastomers produced using PS200 are designed for applications where low temperature flexibility, chemical and oil resistance, high mechanical strength and extremely good abrasion resistance is required.

2. CONSIDERATIONS

As with all polyurethane products, the product should not be exposed to very strong acids or bases. The highest temperature at which the product should be used is 80 to 85°C in order to maintain the full physical properties. The material can tolerate short period temperature increases up to approximately 120°C without permanently impairing any of the physical properties.

During processing, the material will experience around 2% shrinkage due to the heat of the reaction. Optimum physical results will be achieved if the elastomers are postcured at a temperature of 80 to 90ºC for a period of 8 hours.

3. PS100 PHYSICAL PROPERTIES

Appearance	:	White opaque liquid
Density @ 25□C (gmc-3)	:	1,08
Vicosity Cps @ 25°C	:	1500 - 1800

4. PS200 PHYSICAL PROPERTIES

Appearance	:	Yellow opaque liquid
Density @ 25°C (gmc-3)	:	1,10

5. **PROCESSING**

PS100 requires to be processed at a temperature of 25□C but can be processed at higher temperatures either to shorten moulding cycle times or to reduce viscosity to suit particular processing methods. PS200 is added to the polyol prior to reacting with Uroc 103 or MDI 20802.

5.1 Temperatures of chemicals should be at about 25ºC prior to processing. Tumble or stir drum of PS100 and PS200 thoroughly to ensure contents are homogeneous.

5.2 Mix components together thoroughly without entraining air.

5.3 Pour the mixture into preheated moulds treated with a suitable release agent.

Allow the mixture to gel and partially cure in the mould. The time required for this operation will vary according to mould design and size, but will be in the region of 30 - 45 minutes.

De-mould the finished piece and post cure overnight at room temperature. Optimum properties are attained after a further seven days at room temperature.

Any metal substrate which is to be lined or coated should be degreased, shot blasted or sandblasted and primed with a suitable priming system to ensure good adhesion of the urethane to the metal.

Table 1 - Mixing Ratios Versus Hardness

MDI 20802 is the MDI that is used in combination with PS100 and crosslinker PS200 to produce elastomers with a Shore “A” Hardness of 40-90.

Table1 - Hardness Table 40 – 90 Shore A

Hardness Shore A	40	55	60	65	70	75	80	85	90
PS100	100	100	100	100	100	100	100	100	100
PS200	4.00	3.70	7.60	8.60	12.50	14.70	18.00	20.60	26.00
MDI 20802	21	23.00	26.00	27.50	31.00	33.00	36.00	38.50	44.00

Please ensure that drums are well mixed prior to use.

Table 2 - Physical Properties Versus Hardness

Property	Method	40	50	60	70	80	90
Hardness (Shore A)	AS1683.15	41	52	62	71	79	89
Density (g/cm^3)	AS1683.4	1.079	1.087	1.094	1.098	1.107	1.116
Tensile strength (MPa) /	AS1683.11	2.3	3.3	4.2	6.3	8.2	12.9
Elongation at break (%)	AS1683.11	295	220	235	260	255	310
100% Elastic Modulus (MPa)	AS1683.11	1.0	1.8	2.2	3.2	4.5	6.4
200% Elastic Modulus (MPa)	AS1683.11	1.6	3.1	3.6	5.2	6.9	8.9
300% Elastic Modulus (MPa)	AS1683.11	-	-	-	-	-	11.9
Angle Tear Strength (kN/m)	AS1683.12	9.9	17.4	24	34.5	46	54.8
Trouser Tear Strength (kN/m)	AS1683.12	1.6	2.7	3.7	6.3	9	13.8

6. **PACKAGING**

6.1 MDI 20802
Standard packs consist of 5kg and 25kg steel drums, but 200kg quantities can be made available on request.

6.2 PS100
Standard packs consist of 5kg and 25kg steel drums, but 200kg quantities can be made available on request.

6.4 PS200
Standard pack consists of 25kg steel drums, but 5kg quantities can be made available on request.

7. **STORAGE**

7.1 PS100 and PS200

Should be stored in a dry environment at ambient temperatures. Prolonged or repeated heating of the material will accelerate decomposition.

PS100 and PS200 are sensitive to moisture; consequently their containers must be stored in a dry area. Partly used containers must be resealed immediately.

8. FIRE

These materials are not readily ignited but like most organic materials it will burn if involved in a fire. Should this happen some of the decomposition products could be harmful if inhaled.

Fire fighting personnel should wear breathing apparatus. Extinguishers suitable for use in such fires are dry chemical powder, Carbon dioxide and BCF.

9. WASTE DISPOSAL OF PS100 AND PS200

Contain spills with dikes or absorbents to prevent migration into sewers or streams. Soak up small spills with sawdust, sand or vermiculite and shovel into container for disposal.

Drums should be completely drained free of liquids and any residues prior to discarding. Discarded drums should be punctured or crushed to render them non-usable.

Customers are advised to check their local, provincial or national legislation governing the disposal of waste materials.

The information provided in this data sheet and otherwise supplied to users is based on our general experience and upon tests which are believed to be reliable However, because we have no control over the exact manner in which the information is used, we cannot guarantee the results to be obtained. Furthermore we make no express or implied warranty of merchantability or fitness of the product for a particular use.

The information contained in this data sheet is correct and accurate to the best of our knowledge but without warranty or liability.

All tests are carried out according to the standard methods used by Diverse Urethanes and details may be supplied on request.

The sales of this product shall be subject to Diverse Urethanes' Standard Condition of Sales.

SAFETY DATA SHEET

PS200

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY / UNDERTAKING

Product Name : PS200
Address/Tel.No. : DIVERSE URETHANES (PTY) LTD
2A HIGH STREET, MODDERFONTEIN, 1645
(011) 608-2584

2. COMPOSITION / INFORMATION ON INGREDIENTS

Product Description : Compounded Polyol Blend* *
Contains hazardous ingredient, aromatic diamine (91/155/EEC).

3. HAZARDS IDENTIFICATION

May cause sensitisation by skin contact.

4. FIRST AID MEASURES

Inhalation : Remove patient from exposure.
Skin contact : Wash skin immediately with water, followed by soap and water. If symptoms (irritation or blistering) persist obtain medical attention. Contaminated clothing should be laundered before re-issue.
Eye Contact : Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain medical attention.
Ingestion : Provided the patient is conscious, wash out mouth with water and give 200 - 300ml (half a pint) of water to drink. Do not induce vomiting. Obtain immediate medical attention.
Further Medical Treatment : Symptomatic treatment and supportive therapy as indicated.

5. FIRE FIGHTING MEASURES

Not classed as flammable.
If involved in a fire, it may emit noxious and toxic fumes.

Extinguishing Media : Normal extinguishing media.

Fire Fighting Protective Equipment	:	Full protective equipment including suitable respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

Ensure suitable personal protection during removal of spillages.
Absorb spillages onto sand, earth or any suitable absorbent material.
Transfer to a container for disposal.
Wash the spillage area clean with water and detergent.

7. HANDLING AND STORAGE

Handling	:	No special precautions required.
Storage	:	Keep containers properly sealed when not in use. See storage recommendation in the Product Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Wear suitable gloves and eye/face protection.

Occupational Exposure Limits

	LTEL	8hr TWA	STEL		Time
HAZARDOUS INGREDIENT(S)	ppm	mg/m³	ppm	mg/m³	mins

No Occupational Exposure Limit Assigned.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Clear Liquid
Flash Point	:	>100

10. STABILITY AND REACTIVITY

Hazardous Reactions	:	None known
Hazardous Decomposition Product(s)	:	None at ambient temperature

11. TOXICOLOGY INFORMATION

This health hazard assessment is based on a consideration of the composition of this product.

Inhalation	:	Unlikely to be hazardous by inhalation because of the low vapour pressure of the material at ambient temperature.
Skin Contact	:	Slight/mild irritant. May cause sensitisation by skin contact.
Eye Contact	:	Slight/mild irritant.

Ingestion : Low oral toxicity.

12. ECOLOGICAL INFORMATION

No information available.

13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimised wherever possible.
Disposal should be in accordance with local, state or national legislation. Bury on an authorised landfill site or incinerate under approved controlled conditions, using incinerators suitable for the disposal of noxious chemical waste.

14. TRANSPORT INFORMATION

UN no. : -
UN Pack Group : -

AIR
ICAO/IATA Class
Primary : -
SEA
IMDG Class
Primary : -
ROAD/RAIL
ADR/RID Class : -
ADR/RID Item No. : -
ADR SIN : -

15. REGULATORY INFORMATION

EEC Classification : Not classified
Hazard Symbol : None classified
Risk Phrases : None classified
Safety Phrases : None required

16. OTHER INFORMATION

This data sheet was prepared in accordance with Directive 91/155/EEC.