



PRODUCT INFORMATION

TECHNICAL DATASHEET

7/5/2019

Introduction

DIPRANE™ 540 Series is a Polyester based PU elastomer system. The DIPRANE™ C540 Polyol can be reacted with DIPRANE M 540/95 Prepolymer and with increasing quantities of DIPRANE C chain extender to produce a range of polyurethane elastomers from 55 Shore A to 95 Shore A hardness.

DIPRANE™ 540 Series **Three Component Elastomer System**

Component Properties

Polyol Component

Product Reference	DIPRANE™ C540 Polyol
Appearance	Whitish, waxy solid at 25°C
Viscosity	500 - 1000 mPas at 70°C
Specific Gravity	1.13 – 1.17 g/ml at 70°C

Isocyanate Component

Product Reference	DIPRANE™ M 540/95 Prepolymer
Appearance	White solid at 25°C
Viscosity	2500 – 3000 mPas at 50°C
Specific Gravity	1.14 – 1.16 g/ml at 50°C

Chain Extender Component

Product Reference	DIPRANE™ C
Appearance	Whitish, solid below 20°C
Viscosity	1.01 – 1.03 at 25°C
Specific Gravity	55 – 75 mPas at 25°C

These are typical values and should not be construed as specifications.

Mix Ratio – Parts by weight

Hardness (Shore A)	55	60	65	68	70	73	75
DIPRANE™ C 540 Polyol	122	100.87	89.17	77.46	70.1	62.75	52.76
DIPRANE™ C	4.29	5.25	5.78	6.3	6.63	6.96	7.41
DIPRANE™ M 540/95 Prepolymer	100	100	100	100	100	100	100

Hardness (Shore A)	80	85	88	90	92	95
DIPRANE™ C 540 Polyol	42.77	31.1	19.33	12	5.39	0
DIPRANE™ C	7.86	8.38	8.91	9.24	9.54	9.78
DIPRANE™ M 540/95 Prepolymer	100	100	100	100	100	100

Cured System – Typical Properties

Property	Test Method	Unit	Value				
Shore Hardness	ISO 868	°A	55	60	65	68	70
100% Modulus	ISO 527-Type 5 (2mm)	MPa	1	1.4	1.7	2	2.3
300% Modulus	ISO 527	MPa	1.3	2.1	3.1	4	4.8
Tensile Strength at Break	ISO 527	MPa	18	33	40	44	44
Elongation at Break	ISO 527	%	790	760	750	740	730
Angle Tear Strength	ISO 34 – Pt B, Proc A	N/mm	31	42	52	63	70
Compression Set (22/70)	ISO 815	%	55	55	50	44	43
Resilience	ISO 4662	%	57	57	55	54	53
Abrasion resistance	ISO 4649	mm3	50	50	50	50	45

Property	Test Method	Unit	Value				
Shore Hardness	ISO 868	°A	73	75	80	85	88
100% Modulus	ISO 527-Type 5 (2mm)	MPa	2.7	3.2	3.8	4.9	6.1
300% Modulus	ISO 527	MPa	5.6	7.2	8.9	11	14.3
Tensile Strength at Break	ISO 527	MPa	44	47	50	48	47
Elongation at Break	ISO 527	%	710	710	710	710	630
Angle Tear Strength	ISO 34 – Pt B, Proc A	N/mm	77	85	93	107	115
Compression Set (22/70)	ISO 815	%	42	38	33	26	15
Resilience	ISO 4662	%	52	50	48	46	44
Abrasion resistance	ISO 4649	mm3	38	37	37	43	50

Property	Test Method	Unit			
Shore Hardness	ISO 868	°A	90	92	95
100% Modulus	ISO 527-Type 5 (2mm)	MPa	7.3	8.5	9.7
300% Modulus	ISO 527	MPa	17	18.7	19.7
Tensile Strength at Break	ISO 527	MPa	47	49	45
Elongation at Break	ISO 527	%	600	600	600
Angle Tear Strength	ISO 34 – Pt B, Proc A	N/mm	126	132	142
Compression Set (22/70)	ISO 815	%	21	22	20
Resilience	ISO 4662	%	44	44	43
Abrasion resistance	ISO 4649	mm3	50	40	40

These are typical values and should not be construed as specifications.

Processing Details

The following information is given as a guide to processing this product. It is recommended that optimum conditions for a specific application are determined experimentally. Our Technical Service Department can offer more detailed advice.

Recommended Processing Temperatures

Polyol Component	70 - 80°C
Isocyanate Component	70 - 80°C
Chain Extender	40 - 50°C
Mould Temperature:	100-120°C
Pot – life (250g):	3 - 10 minutes
Demould time: 20 – 90 minutes'	20 – 90 minutes

These are typical values and should not be construed as specifications.

Recommended Cure Cycle

To help achieve optimal mechanical properties of DIPRANE™ 540 castings, a post-cure of 16 - 24 hours at approximately 90 - 100°C is recommended followed by a minimum of 7 days at ambient. It is important that moulds be heated to the recommended temperature in order to achieve satisfactory demould times and subsequent curing of the elastomer.

Additional Processing Details

Machine Mixing

Our Technical Service Department can offer advice on suitable two or three component polyurethane dispensing equipment for processing DIPRANE™ 540 series elastomers.

Hand Mixing

When hand mixing, the following procedures should be adhered to:-

- 1) Pre-condition the components to the recommended temperature.
- 2) DIPRANE™ C540 Polyol should be mixed before use.
- 3) Weigh out the required quantities of DIPRANE™ C540 Exp. Polyol, DIPRANE C, and required level of Catalyst into the mixing vessel and mix together.
- 4) Weigh the required amount of DIPRANE™ M 540 Prepolymer into the vessel and mix thoroughly for approximately one minute.
- 5) Put the mixture under vacuum (5 torr min) for 1 - 2 minutes or until bubbling ceases.
- 6) Pour the reaction mixture into heated moulds, which have been treated with mould release agent.

Storage and Handling

		Shelf life
Polyol Component	Store in tightly sealed containers at a temperature of 0 - 30°C. Raise to the processing temperature and mix well before use. Avoid contact with moisture. Storage at low temperatures may result in freezing of the polyol component, should this occur it should be melted out by raising to the processing temperature and mixed thoroughly before use.	12 months
Isocyanate Component	Store in tightly sealed containers at a temperature of 25 - 35°C. Avoid contact with moisture. Storage below the recommended minimum temperature may result in freezing of the Isocyanate. If the Isocyanate does not fully melt out when raised to the processing temperature it may be necessary to re-melt at a temperature of 60 - 70°C following the procedures laid down in the information sheet 'Safe Handling – Pure, Modified and Polymeric MDI' Form No. 109-01224X-1009P&M.	12 months

More detailed information on the storage and handling of polyurethane components can be obtained by contacting Dow Technical Service Department.

Packaging

Polyol Component	200 kg, 25kg
Isocyanate Component	225 kg, 25kg
Chain Extender	205 kg, 25kg
Catalyst	25kg

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Safety Considerations

Safety Data Sheets (SDS) are available from The Dow Chemical Company (Dow). SDS are provided to help customers satisfy their own handling, safety and disposal needs, and those that may be required by locally applicable health and safety regulations. SDS sheets are updated regularly. Therefore, please request and review the most current SDS before handling or using any product. Copies of the SDS are available on request through the nearest Dow Sales office.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to help ensure that Dow products are not used in ways for which they were not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products.

Contact information:

For more information about this product please call The Dow Chemical Company.

North America: 1-800-447-4369
Latin America: (+55) 11-5184-8722
Europe: (+31) 11-567-2626
Asia/Pacific: (+60) 3-7965-5392
<http://www.dowhyperlast.com>

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED

