

NEUTHANE 600 Series

MDI – PTMEG Ether Prepolymers

Published October 2023 Version 3

The NEUTHANE 600 series are high performance MDI -PTMEG prepolymers designed to produce items for use in extreme application areas.

- a very high level of physical properties
- good dynamic performance
- good hydrolysis resistance
- high resilience
- low viscosity
- extended hardness range with CA curatives

Typical Applications

Wheels (e.g. fork truck, pallet truck and press on bands)
 High performance in-line roller blade wheels (HR grades)
 Roller coverings – wet applications (e.g. steel industry)
 Mining and quarrying (e.g. screen decks, scraper blades)
 Hydrocyclones
 Oil and gas industry (e.g. gaskets)
 Automotive (e.g. suspension bushes)

Processing can be carried out by hand or by dispensing machine

- Avoid prolonged storage of prepolymers at elevated temperatures. This will result in low hardness and lower properties of the cured material
- Avoid moisture contamination of all materials
- Part used containers should be flushed with dry nitrogen and resealed immediately after use
- Development of cure is long compared to TDI systems. Rapid temperature change during the early stages of cure should be avoided

Hand Processing

1. Melt prepolymer at 50-70°C for 12-24 hours (as a guide the grades with the lower NCO value will take longer to melt than those with higher NCO values)
2. Heat the prepolymer and curative to the recommended temperature
3. Ensure NEUTHANE CA14 is dry by heating to 115°C and applying vacuum
4. Add pigments and Antifoam, as applicable, whilst mixing
5. It is recommended that air be removed from the prepolymer under vacuum prior to addition of the curative
6. Add the curative and thoroughly mix ensuring that no unmixed material is left on the container sides (if necessary the mix can be transferred to a second clean container and mixed again)
7. Remove air under vacuum
8. Cast into moulds, preheated to the recommended temperature
9. Cure as recommended

Alternatives

Solvents	- Ester based systems should be considered	NEUTHANE 200 [TDI], 700 [MDI]
Temperature	- PTMEG ether-based systems or Aliphatic should be considered	NEUTHANE 100 [TDI], 500 [H12MDI]

NEUTHANE 600 Series –MDI – PTMEG Ether Prepolymers (80 - 95 Shore A)

NEUTHANE GRADE		660	668	675	695
%NCO (mid-point)	%	6.0	6.8	7.5	9.5
Curative		CA14	CA14	CA14	CA14
Recommended Stoichiometry	%	98.5	98.5	98.5	98.5
Mix Ratio Curative per 100 Parts Resin	by weight	6.33	7.18	7.92	10.03
Resin Temperature	°C	75	75	75	75
Curative Temperature	°C	25	25	25	25
Recommended Mould Temperature	°C	105	105	105	105
Viscosity @ 100°C (prepolymer)	cPs	630	440	410	330
Pot life (on a 500g mix)	minutes	11	9	9	8
Recommended Cure Temperature / Time	°C / hrs	105 / 16 + 24 at RT	105 / 16 + 24 at RT	105 / 16 + 24 at RT	105 / 16 + 24 at RT

Hardness	ISO 48-4	Shore A	80	85	90	95
	ISO 48-4	Shore D	-	-	-	-
100% Modulus	ISO 37	MPa (lb/in ²)	6.2 (900)	8.2 (1190)	12.7 (1840)	13.0 (1880)
300% Modulus	ISO 37	MPa (lb/in ²)	14.3 (2070)	15.7 (2280)	20.5 (2980)	23.9 (3470)
Tensile Strength	ISO 37	MPa (lb/in ²)	42.1 (6100)	38.7 (5620)	42.4 (6150)	42.6 (6180)
Elongation at Break	ISO 37	%	440	450	430	470
Tear Strength	ISO 34-1	kN/m (lbf/in)	71.0 (405)	84.8 (485)	92.0 (525)	119.2 (680)
Compression Set	ISO 815-1	%	25	22	20	16
Abrasion loss	ISO 4649	mm ³	25	26	26	32
Resilience	ASTM D 2632-92	%	45	46	46	45
Specific Gravity		g / cm ³	1.09	1.10	1.10	1.12

Data above represents typical physical properties. Since conditions of use are beyond our control, no warranty is given or implied in respect of any recommendations or suggestions made by ourselves, nor is freedom from patent infringement inferred.



NEUTHANE 600 Series –MDI – PTMEG Ether Prepolymers – High Resilience (80 - 96 Shore A)

NEUTHANE GRADE		660HR	663HR	674HR	695HR	6105HR
%NCO (mid-point)	%	6.0	6.3	7.4	9.5	10.5
Recommended Stoichiometry	%	98.5	98.5	98.5	98.5	98.5
Mix Ratio NEUTHANE CA14 per 100 Parts Resin	by weight	6.33	6.65	7.80	10	6
Resin Temperature	°C	75	75	75	75	75
Curative Temperature	°C	25	25	25	25	25
Recommended Mould Temperature	°C	105	105	105	105	105
Resin Viscosity (100°C)	cPs	620	620	440	450	125
Pot life (on a 500g mix)	minutes	11	10	9	8	6
Recommended Cure Temperature / Time	°C / hrs	105 / 16 + 24 at RT	105 / 16 + 24 at RT	105 / 16 + 24 at RT	105 / 16 + 24 at RT	105 / 16 + 24 at RT

Hardness	ISO 48-4	Shore A	80	84	87	95	96
	ISO 48-4	Shore D	-	-	-	-	-
100% Modulus	ISO 37	MPa (lb/in ²)	6.1 (890)	5.4 (780)	7.2 (1050)	10.0 (1450)	11.8 (1720)
300% Modulus	ISO 37	MPa (lb/in ²)	11.5 (1660)	11.7 (1700)	14.8 (2150)	17.3 (2500)	20.5 (2970)
Tensile Strength	ISO 37	MPa (lb/in ²)	40.2 (5830)	42.8 (6210)	39.4 (5730)	34.5 (5000)	31.0 (4490)
Elongation at Break	ISO 37	%	590	560	540	490	424
Tear (Die C)	ISO 34-1	kN/m (lbf/in)	83.4 (475)	89.4 (510)	98.2 (580)	92.0 (525)	110.0 (630)
Compression Set	ISO 815-1	%	24	21	16	18	92
Abrasion loss	ISO 4649	mm ³	15	12	13	33	42
Resilience	ASTM D 2632-92	%	68	65	59	55	58
Specific Gravity		g / cm ³	1.09	1.10	1.10	1.12	1.07

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