

NEUTHANE 500 Series

Aliphatic – PTMEG Ether Prepolymers

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The NEUTHANE 500 series are high performance Aliphatic Isocyanate prepolymers designed to produce items for use in extreme application areas.

- a very high level of physical properties
- exceptional dynamic performance
- the highest level of hydrolysis resistance
- ease of use
- low viscosity
- water clarity and UV stability*
- wide hardness range

* depending upon curative used

Typical Applications

High load roll coverings (e.g. steel industry)
 Roller coverings for use in hot/wet environments (e.g. pretreatment and squeegee rolls in the steel industry)
 High temperature applications
 Paper mill rollers

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
- Ensure thorough mixing of curatives prior to use
- Remove air, under vacuum, from the prepolymer components prior to use
- Part used containers should be flushed with dry nitrogen and resealed immediately after use

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. Add pigments and Antifoam, as applicable, whilst mixing
4. It is recommended that air be removed from the prepolymer under vacuum prior to addition of the curative
5. 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)
6. Remove air under vacuum
7. Cast into moulds, preheated to the recommended temperature
8. Cure as recommended

Alternatives

Solvents	- Ester based systems should be considered	NEUTHANE 200 [TDI], 700 [MDI]
Cost	- PTMEG ether-based systems should be considered	NEUTHANE 100 [TDI], 600 [MDI]

NEUTHANE 500 Series –Aliphatic – PTMEG Ether Prepolymers (94 Shore A - 70 Shore D)

NEUTHANE GRADE		555	560	575	595
%NCO (mid-point)	%	5.5	6.0	7.5	9.5
Curative		CA1	CA1	CA1	CA1
Curative # 2		MOCA – Can be used to achieve the same hardness with a pot life > 60 minutes. Typical properties will be reduced by 25%			
Mix Ratio Curative CA1 per 100 Parts Resin	by weight	11.1	12.1	15.1	19.1
Resin Temperature	°C	70	70	70	70
Curative Temperature	°C	30	30	30	30
Recommended Mould Temperature	°C	90	90	90	90
Resin Viscosity (100°C)	cPs	1200	1100	420	380
Pot life (on a 500g mix)	minutes	6	5	5	4
Recommended Cure Temperature / Time	°C / hrs	90 / 16	90 / 16	90 / 16	90 / 16

Hardness	ISO 48-4	Shore A	94	-	-	-
	ISO 48-4	Shore D	-	45	55-60	70
100% Modulus	ISO 37	MPa (lb/in ²)	10.0 (1450)	12.8 (1850)	16.2 (2350)	31.9 (4630)
300% Modulus	ISO 37	MPa (lb/in ²)	23.8 (3450)	32.8 (4750)	36.6 (5300)	-
Tensile Strength	ISO 37	MPa (lb/in ²)	42.4 (6150)	49.7 (7200)	41.4 (6000)	39.0 (5650)
Elongation at Break	ISO 37	%	395	380	320	205
Tear (Die C)	ISO 34-1	kN/m (lbf/in)	80.5 (460)	94.6 (540)	113.8 (650)	137.5 (785)
Abrasion loss	ISO 4649	mm ³	38	47	50	57
Resilience	ASTM D 2632-92	%	41	41	41	49
Specific Gravity		g / cm ³	1.04	1.04	1.05	1.05

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 575 + CA575 CURATIVES – ALIPHATIC – PTMEG ETHER SYSTEMS (70 – 95 SHORE A)

NEUTHANE GRADE		575	575	575	575	575	575
%NCO (mid-point)	%	7.5	7.5	7.5	7.5	7.5	7.5
Curative		CA575-70	CA575-75	CA575-80	CA575-85	CA575-90	CA575-95
Mix Ratio Curative per 100 Parts Resin	by weight	57.0	53.0	48.4	43.9	39.0	34.9
Resin Temperature	°C	70	70	70	70	70	70
Curative Temperature	°C	30	30	30	30	30	30
Recommended Mould Temperature	°C	100	100	100	100	100	100
Viscosity @ 100°C (prepolymer)	cPs	420	420	420	420	420	420
Pot life (on a 500g mix)	minutes	15	10	10	10	10	10
Recommended Cure Temperature / Time	°C / hrs	100 / 16	100 / 16	100 / 16	100 / 16	100 / 16	100 / 16

Hardness	ISO 48-4	Shore A	70	75	80	85	90	95
	ISO 48-4	Shore D	-	-	-	-	-	43
100% Modulus	ISO 37	MPa (lb/in ²)	1.55 (225)	2.7 (390)	5.2 (750)	5.5 (790)	5.8 (840)	6.1 (890)
300% Modulus	ISO 37	MPa (lb/in ²)	6.3 (915)	7.4 (1080)	12.2 (1770)	14.7 (2130)	17.0 (2260)	20.7 (3000)
Tensile Strength	ISO 37	MPa (lb/in ²)	35.4 (5130)	39.6 (5750)	43.2 (6290)	45.5 (6600)	44.4 (6440)	44.1 (6400)
Elongation at Break	ISO 37	%	630	550	480	500	470	450
Tear (Die C)	ISO 34-1	kN/m (lbf/in)	40.6 (230)	55.1 (315)	64.9 (370)	68.5 (390)	73.6 (420)	79.4 (450)
Compression Set	ISO 815-1	%	43	40	38	39	38	37
Abrasion loss	ISO 4649	mm ³	27	25	26	31	29	27
Resilience	ASTM D 2632-92	%	55	50	43	38	39	40
Specific Gravity		g / cm ³	1.02	1.02	1.03	1.03	1.03	1.03

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