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AUSTRALIA
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Erapol RN3039

POLYESTER TDI PREPOLYMERS

TECHNICAL DATASHEET

Erapol RN3039 is a polyester based urethane prepolymer capped with isocyanate chemical groups. Finished elastomers are formed by reacting these isocyanate groups with di and multi functional amines or polyols to yield high molecular weight thermosetting polymers.

Application

Erapol RN3039 elastomers provide properties generally not available in rubbers, plastics or metals and have improved solvent and oil resistance and better thermal stability than most other "general purpose" rubbers and plastics. Other outstanding properties include high abrasion and tear resistance, excellent load-bearing capacity, toughness and resiliency.

Erapol RN3039 is a unique engineering material that provides the materials engineer with the building blocks to meet specific requirements for his particular application. Through proper selection of a curative and a careful balancing of the stoichiometric ratio, the engineer can control such qualities as tensile and tear strength, abrasion resistance, oil and solvent resistance, load bearing and resiliency.

Product Specification

% NCO	4.3 ± 0.1
Specific Gravity at 25°C	1.2
Viscosity at 80°C (cps)	1600 - 2500
Colour	Clear, light amber

Mixing and Curing Conditions

		RN3039 / MOCA	RN3039 / Isonol 93
Erapol RN3039	(pph)	100	100
MOCA level	(pph)	12.3	-
Isonol 93 level	(pph)	-	8.8
Recommended % Theory		90	-
Erapol Temperature	(°C)	80	80
Curative Temperature	(°C)	120	25
Pot Life	(mins)	4	35
Demould Time at 100°C	(hrs)	1	5
Post Cure Time at 100°C	(hrs)	16	16

Physical Properties

Properties presented below are to be used as a guide and not intended for specification purposes.

		RN3039/MOCA	RN3039/Isonol 93	TEST METHOD
Hardness	(Shore A)	90 ± 5	60 ± 5	AS1683.15
Tensile Strength	MPa (psi)	50 (7252)	41.4 (6005)	AS1683.11
100% Modulus	MPa (psi)	9.5 (1379)	2.1 (305)	AS1683.11
300% Modulus	MPa (psi)	17.9 (2596)	4.8 (696)	AS1683.11
Angle Tear Strength, Die C	(kN/m)	105	31	AS1683.12
Trouser Tear Strength	(kN/m)	50	-	AS1683.12
Elongation	(%)	650	475	AS1683.11
DIN Resilience	(%)	38	-	DIN 53512
DIN Abrasion Resistance 10N	(mm^3)	45	N/A	AS1683.21
DIN Abrasion Resistance 5N	(mm^3)	-	N/A	AS1683.21
Compression Set / 22 hr at 70°C	(%)	31	1	AS1683.13
Cured Specific Gravity	(g/cm^3)	1.27	1.24	AS1683.4

Processing Procedure

Erapol RN3039 should be heated to 80 - 85°C and thoroughly degassed at approximately -95kpa of vacuum until excessive foaming stops.

The Curative should be added to **RN3039**, the MOCA must first be melted at 110 - 120°C prior to mixing and Ethacure 300 processed at room temperature. After adding the curative, mix thoroughly, being careful not to introduce air into the mixture.

Pour mixed RN3039/MOCA or RN3039/Ethacure 300 into moulds that have been preheated at 80 -100°C and precoated with release agent.

Adhesion

Adhesion of Erapol based elastomers to various substrates is at best marginal if a primer is not used. Please consult Era Polymers for specific recommendations to improve adhesion.

Handling Precautions

Erapol RN3039 contains small amounts of free TDI. Therefore the product should be used in well-ventilated areas. Avoid breathing in vapours and protect skin and eyes from contact.

In case of skin contact, immediately remove excess, wash with soap and water. For eye contact, immediately flush with water for at least 15 minutes.

If nose, throat or lungs become irritated from breathing in vapours, remove exposed person to fresh air. Call a physician.