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Erapol HC PT 110

MEDIUM PERFORMANCE TDI BASED PREPOLYMER

TECHNICAL DATASHEET

Erapol HC PT 110 is an isocyanate terminated prepolymer which, when processed with methylene bis-2-chloroanilene (MOCA), yields medium performance elastomers of 95 Shore A hardness, with good low temperature properties and hydrolytic stability.

Application

Erapol HC PT 110 is suitable for the preparation of hard, medium performance polyurethane elastomers.

Product Specification

	HC PT 110 PREPOLYMER	MOCA CURATIVE
% NCO	6.30 ± 0.20	-
Specific Gravity at 25°C	1.02 – 1.14	
Viscosity at 80°C (cPs)	350 – 550	-
Melting Point (°C)	-	110 – 115
Appearance	Viscous, clear liquid	Clear to yellow solid pellets
Solubilities		
Mostly insoluble	-	Water
Very soluble		Methylene Chloride
Very soluble		Acetone

Mixing and Curing Conditions

		HC PT 110/MOCA
Erapol HC PT 110	(pph)	100
MOCA Level	(pph)	19.0
Recommended % Theory		95
Erapol Temperature	(°C)	75 - 85
Curative Temperature	(°C)	110 - 115
Pot Life	(mins)	4 - 5
Demould Time at 80°C	(mins)	45 - 60
Post Cure Time at 100°C	(hrs)	16

Note: MOCA pph based on 6.3% NCO.

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Physical Properties

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

		HC PT 110/MOCA	TEST METHOD
Hardness	(Shore A)	95 ± 3	ASTM D2240
Tensile Strength	(MPa)	11.5	ASTM D412
100% Modulus	(MPa)	6.5	ASTM D412
Elongation	(%)	470	ASTM D2240
Coefficient of friction			
Dry	(ng^{-1})	0.022	-
Wet	(ng^{-1})	0.0015	
Abrasion Loss	(mg)	70	ASTM D5963
Compression Set / 22 hr at 70°C	(%)	43	ASTM D395, B
Cured Density	(g/cm^3)	1.12	ASTM D1817

Processing Procedure

1. Melt out **Erapol HC PT 110** overnight at 80°C. **Erapol HC PT 110** should be heated to 80 ± 5°C and thoroughly degassed at -95 kPa of vacuum until excessive foaming stops.
2. The curative should be added to **HC PT 110**, the MOCA must first be melted at 120 - 125°C prior to mixing. After adding the curative, mix thoroughly, being careful not to introduce air into the mixture.
3. Pour mixed materials into moulds that have been preheated to 80 - 100°C and pre-coated with release agent.
4. Allow the mixture to gel or partially cure in the mould at a temperature of 80°C. The time required for this operation will vary according to mould design and size but will be in the region of 45 - 60 minutes.
5. The demoulded article is post-cured for a minimum of 3 hours at 100°C. Optimum properties are attained after a further seven days at room temperature.

Notes:

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°C - 85°C in order to maintain the full physical properties. The material can tolerate short periods of exposure to temperatures up to approximately 120°C without permanently impairing any of the physical properties.

During processing the material will experience around 2% volume shrinkage due to the heat of reaction.

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Handling and Storage

Erapol HC PT 110 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. Call a physician.

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

Recommended storage temperature is 20°C to 30°C. Shelf life is 12 months after receipt of product by customer, when stored in closed, original containers at 25°C.

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