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Erapol EMD750D

HIGH PERFORMANCE POLYETHER POLYURETHANE

TECHNICAL DATASHEET

Erapol EMD750D is a high performance hot castable grade, MDI polyurethane elastomer based on PTMEG polyol. It can be cured with **EMD750D Polyol Curative**, **TMP** or **TIPA** and gives a range of hardness between 78D and 83D. This material has a longer processing time than other MDI-high hardness materials.

It finds applications in those areas where the outstanding properties of PTMEG based materials are needed which include thermal resistance, hydrolysis resistance and good mechanical properties.

Product Specification

EMD750D PREPOLYMER	
%NCO	19.5 ± 0.2
Specific Gravity at 77°F (25°C)	1.14
Viscosity at 77°F (25°C) (cps)	400
Appearance	Clear yellow liquid

Mixing and Curing Conditions

	EMD750D/Polyol Curative	EMD750D/TMP	EMD750D/TIPA
Erapol EMD750D Prepolymer (pph)	100	100	100
EMD750D Polyol Curative (pph)	40	-	-
TMP Curative (pph)	-	20	-
TIPA Curative (pph)	-	-	28
Recommended % Theory	95	95	95
Prepolymer Temperature °F (°C)	104 (40)	140 (60)	104 (40)
Curative Temperature °F (°C)	77 (25)	176 (80)	77 (25)
Pot Life (mins)	11 - 14	3 - 5	3 - 4
Demold Time at 176°F (80°C) (mins)	30 - 45	15	15
Post Cure Time at 176°F (80°C) (hrs)	16	16	16

* The pot life is based on a 200g mix. In general, larger quantities will have a shorter pot life, smaller quantities will have a longer pot life.



This information is of general nature and is supplied without recommendation or guarantee. It does not make claim to be free from patent infringement. Properties shown are typical and do not imply specification tolerances. Era Polymers cannot accept liability for loss or damage through use. Whilst these technical details are based on expert knowledge, practical experience and laboratory testing, successful application depends upon the nature and conditions in which the products are supplied. Users must, by comprehensive testing, evaluate this product in their own application.

Physical Properties

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

		EMD750D/ Polyol Curative	EMD750D/TMP	EMD750D/TIPA	TEST METHOD
Hardness	(Shore D)	78	80	83	ASTM D2240
Tensile Strength	psi (MPa)	9050 (62.4)	11 719 (80.8)	10 660 (73.5)	ASTM D412
Elongation	(%)	16	14	7	ASTM D412
Angle Tear Strength, Die C	pli (kN/m)	-	1487 (260)	594 (104)	ASTM D624
DIN Resilience	(%)	55	51	46	DIN 53512
DIN Abrasion Resistance 10N	(mm ³)	367	370	340	ASTM D5963
Flexural Modulus	psi (MPa)	362 594 (2500)	558 250 (3849)	308 785 (2129)	ASTM D790
Flexural Strength	psi (MPa)	13 779 (95)	7281 (50.2)	6121 (42.2)	ASTM D790
Izod Impact	(kJ/m ²)	53	49	112	ASTM D4812
Heat Distortion Temperature	(°C)	80	80	80	-
Water Absorption	(%)	0.15	0.15	-	-
Coefficient of Linear Expansion		$5.7 \times 10^{-5} / ^\circ\text{C}$	$5.7 \times 10^{-5} / ^\circ\text{C}$	-	-

Hardness at elevated temperatures

Temperature (°F)	Hardness (Shore D)		
	EMD750D/ Polyol Curative	EMD750D/TMP	EMD750D/TIPA
74	78	80	83
158	52	78	77
212	25	72	66

Processing Procedure

1. **Erapol EMD750D** should be weighed into unlined metal, plastic or glass containers and heated to the recommended processing temperature and thoroughly degassed sufficiently up to -95 kPa of vacuum until excessive foaming stops.
2. The **Curative** should be added to the **EMD750D**. Mix thoroughly for approximately 1 minute, being careful not to introduce air into the mixture, and degas sufficiently up to -95 kPa for further 2-3 minutes.
3. Pour the mixed polyurethane into moulds that have been preheated to 176-194°F (80-90°C) and pre-coated with release agent – Salease or another appropriate release agent.
4. Post cure in a 176°F (80°C) oven for 16 hours.

Handling Precautions

Erapol EMD750D is based on MDI and is particularly suited for applications where the use of TDI prepolymers and the generation of TDI vapours might be of a concern. Please consult the product MSDS for further information.

NOTE: The drums of Part A and B should be sealed after material removed with dry nitrogen to prevent moisture being stored in the material.