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Erapol EMD93A

HIGH PERFORMANCE MDI ELASTOMER

TECHNICAL DATASHEET

Erapol EMD93A is a high performance hot castable grade, MDI polyurethane elastomer based on PTMEG polyols. This product is an elastomer with outstanding toughness and abrasion properties, which is characteristic of MDI systems. **Erapol EMD93A** is normally cured with 1,4 Butane Diol (BDO) to produce a 93 Shore A elastomer.

Application

This product has been specifically designed for the rebound properties and high hardness for skateboard wheels.

Product Specification

	EMD93A (A)	1,4-BDO (B)
% NCO	8.80 ± 0.25	-
Specific Gravity at 77°F (25°C)	1.02 – 1.08	1.017
Viscosity at 176°F (80°C) (cps)	700 – 1500	71.5
Appearance	Milky White translucent liquid	Clear Liquid

Mixing and Curing Conditions

EMD93A (A)	(pbw)	100
1,4-BDO (B)	(pbw)	8.9
Recommended % Theory		95
EMD93A Temperature	°F (°C)	158 - 176 (70 - 80)
1,4-BDO Temperature	°F (°C)	77 - 86 (25 - 30)
Mixing Time	(mins)	1 – 2
Pot Life at 176°F (80°C)	(mins)	3 – 4
Mould Temperature	°F (°C)	212 - 230 (100 – 110)
Oven Temperature	°F (°C)	212 - 230 (100 – 110)
Demould Time at 230°F (110°C)	(mins)	50
Post Cure Time at 230°F (110°C)	(hrs)	16



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Physical Properties

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

		EMD93A	TEST METHOD
Hardness	(Shore A)	93 ± 3	ASTM D2240
Tensile Strength	psi (MPa)	5076 (35)	ASTM D412
50% Modulus	psi (MPa)	1117 (7.7)	ASTM D412
100% Modulus	psi (MPa)	1392 (9.6)	ASTM D412
200% Modulus	psi (MPa)	1929 (13.3)	ASTM D412
300% Modulus	psi (MPa)	2596 (17.9)	ASTM D412
Elongation	(%)	510	ASTM D412
Angle Tear Strength, Die C	pli (kN/m)	685 (120)	ASTM D624
DIN Resilience	(%)	60	DIN 53512
DIN Abrasion Resistance 10N	(mm ³)	51	ASTM D5963
DIN Abrasion Resistance 5N	(mm ³)	25	ASTM D5963
Cured Specific Gravity	(g/cm ³)	1.1	ASTM D1817
Compressive Stress, 10% deformation	psi (MPa)	435 (3)	AS2498.3 / ASTM D575

Erapol EMD93A can be mixed by hand and can be machine dispensed also.

NOTE: Both Part A and Part B components are moisture sensitive. Once opened, containers should be purged with nitrogen, if they are to be stored for a period of time.

Below 15°C Part A will appear as a white wax like substance. The Part A can be melted overnight by placing the drum or pail in a fan forced hot box at 158-176°F (70-80°C). Care should be exercised in keeping moisture away from the part A. Do not exceed a temperature of 176°F (80°C) when melting out the Part A.

Processing Procedure

1. Carefully weigh the correct amount of **part A** into a container and heat to 158-176°F (70-80°C) and thoroughly degas under vacuum at -95 kPa.
2. Carefully weight correct proportion of the **1,4 Butane Diol** into **Part A** and, mix thoroughly. Be careful not to entrap air whilst mixing. (If there are a lot of bubbles in the sample at this stage, the mixed material can be degassed again.)
3. Pour the mixed materials into moulds that have been preheated to 230°F (110°C) and pre-coated with release agent, being careful to avoid trapping air.
4. Allow casting to cure before demoulding.

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 EMD93A should be used in well-ventilated area. Avoid breathing in vapours and protect skin and eyes from contact.

In case of skin contact 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.