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Erapol EMD135N-4K-Eracure 45 Series

HIGH PERFORMANCE PTMEG BASED URETHANE
ELASTOMER

TECHNICAL DATASHEET

Erapol EMD135N-4K-Eracure 45 Series is a 4-component system based on MDI-PTMEG which when reacted can give a range of hardness varying from 60 to 95 ShA.

The **Erapol EMD135N-4K-Eracure 45 Series** has some clear performance advantages over some of the more traditional high performance polyurethane elastomers. The polyurethane elastomers exhibit excellent physical properties, including good tensile strength, high resilience and excellent wear characteristics as well as outstanding hydrolytic stability. There are also clear advantages in terms of processing, including low viscosity at processing temperatures and lower chemical hazards when handling the components.

Application

The **Erapol EMD135N-4K-Eracure 45 Series** is ideally suited to machine dispensing, especially where large mouldings are required. Typical uses for Erapol EMD elastomers are wheels and rollers, seals, gaskets, bushes, linings and marine products.

Product Specification

	EMD135 ISOCYANATE PREPOLYMER (A)	EMD135N POLYOL CURATIVE NO CAT (B)	ERACURE 45
% NCO	13.5 ± 0.2	-	-
Specific Gravity at 25°C	1.09	1.01	1.00
Viscosity at 40°C (cps)	750 - 950	400 - 600	70
Colour	Water Clear	Hazy	Clear

Handling Precautions

The **Erapol EMD135 Part A** is based on MDI and not regulated for transport, and so are particularly suited for applications where the use of TDI prepolymers and the generation of TDI vapours might be of a concern. We strongly advise that the product's MSDS be read prior to use.



This information is of general nature and is supplied without recommendation of 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.

Processing Procedure

The **Erapol EMD135 Part A** is liquid at room temperature. The **Eracure 45 (Part C)** is liquid at temperatures above 15°C. The **EMD135N Part B** must be melted at 60°C.

It is recommended that Part A and B be processed at 40-50°C, Part C processed at 25°C.

1. **Erapol EMD135 Part A** should be weighed into unlined metal, plastic or glass containers and heated to the recommended processing temperature 40-50°C and thoroughly degassed at -95 kpa of vacuum until excessive foaming stops.
2. The **EMD135N Part B** should be added to the **Part A** followed by the addition of **Eracat MFD** and **Eracure 45**. It is recommended that Part A and B all be processed at 40-50°C, Eracure 45 (Part C) at 25°C. After adding the Part B and C mix thoroughly for 1-2 minutes, being careful not to introduce air into the mixture, and degas at -95 kPa for 1-2 minutes.
3. Pour the mixed polyurethane into moulds that have been preheated to 90-100°C and pre-coated with release agent - **Salease**.
4. Post cure in a 90-100°C oven for 16 hours.

Additional Catalysis

The demould times of the **EMD135N** products can be reduced significantly by using catalysts. Era Polymers strongly suggests contacting the sales team for specific details. Machine processing is advised when rapid demould times are required.

Mixing and Curing Conditions

	60A	65A	70A	75A	80A	85A	90A	95A
EMD135 Part A (ppw)	100	100	100	100	100	100	100	100
EMD135N Polyol Curative (ppw)	180	150	120	105	90	60	45	30
Eracure 45 (ppw)	5.6	7.0	8.4	9.1	9.8	11.2	11.9	12.6
Eracat MFD (ppw)	2.6	2.4	1.4	1.2	0.8	0.6	0.6	0.4
(% at head)	0.90	0.92	0.62	0.56	0.40	0.34	0.38	0.28
Recommended % Theory	95	95	95	95	95	95	95	95
Part A Temperature (°C)	40	40	40	40	40	40	40	40
Polyol Curative Temperature (°C)	40	40	40	40	40	40	40	40
Eracure 45 Temperature (°C)	25	25	25	25	25	25	25	25
Mould temperature (°C)	90-100	90-100	90-100	90-100	90-100	90-100	90-100	90-100
Oven Temperature (°C)	90-100	90-100	90-100	90-100	90-100	90-100	90-100	90-100
Pot Life (mins)	5 - 8	5 - 8	5 - 8	5 - 8	5 - 8	5 - 8	5 - 8	5 - 8
Demould Time at 90-100°C (mins)	60	45	45	45	30	30	30	30
Post Cure Time at 90-100°C (hrs)	16	16	16	16	16	16	16	16

The above results are based on 200 grams of mixed sample at 40°C.



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Physical Properties

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

Physicals	60A	65A	70A	75A	80A	85A	90A	95A	Method
Hardness (Shore A)	60 ± 3	65 ± 3	70 ± 3	75 ± 3	80 ± 3	85 ± 3	90 ± 3	95 ± 3	AS1683.15
Tensile Strength MPa (psi)	21 (3046)	26 (3770)	28 (4061)	31 (4496)	32 (4641)	34 (4931)	36 (5221)	36 (5221)	AS1683.11
100% Modulus MPa (psi)	1.5 (218)	2.3 (334)	3.0 (435)	4.0 (580)	5.3 (769)	7.2 (1044)	8.8 (1276)	11.0 (1595)	AS1683.11
300% Modulus MPa (psi)	3.8 (551)	6.1 (885)	8.0 (1160)	9.8 (1421)	11.0 (1595)	13.8 (2002)	16.3 (2364)	18.3 (2654)	AS1683.11
Elongation (%)	620	615	585	578	590	608	587	550	AS1683.11
Angle Tear Strength, Die C (kN/m)	30	48	52	68	80	91	102	117	AS1683.12
Trouser Tear Strength (kN/m)	16	19	24	25	45	47	57	69	AS1683.12
DIN Resilience (%)	70	67	66	65	64	66	62	60	DIN 53512
DIN Abrasion Resistance 10N (mm ³)	30	33	30	25	30	34	36	44	AS1683.21
DIN Abrasion Resistance 5N (mm ³)	14	11	10	9.2	8.5	14	15	20	AS1683.21
Compression Set/22hrs at 70°C (%)	10	11	12	12	13	15	17	20	ASTM D395-B
Cured Density	1.05	1.06	1.06	1.07	1.07	1.10	1.11	1.13	AS1683.4