Marlex Polyethylene

PREMIUM EXTRUSION AND RIGID PACKAGING RESINS

Marlex® HMN TR-945 / HMN TR-945G Polyethylene

HIGH DENSITY POLYETHYLENE (HDPE)

This high density polyethylene resin is an ethylene-hexene copolymer tailored for rotational molding applications that require:

- Wide process windows
- Good impact strength
- Good flow combined with fair ESCR
- High modulus
- Durability

This resin is available in two physical forms:

- Pellet form - HMN TR-945
- 35 US mesh powder - HMN TR-945G

Typical applications for HMN TR-945 and HMN TR-945G include:

- Large tanks and other high modulus parts
- Ductwork

This resin meets these specifications:

- ASTM D4976 - PE 233
- FDA 21 CFR 177.1520(c) 3.2a, - Use conditions B through H per 21 CFR 176.170(c) Table 2 for single use articles contacting food types I, II, IV-B, VI-A, VI-B, VII-B, and VIII. Repeated use articles contacting all food types defined in 21 CFR 176.170(c) Table 1. When contacting fatty foods of Types III, IV-A, V, VII-A, and IX described in Table 1, the finished articles are to have a volume of at least 18.9 liters (5 gallons).
- FMVSS.302 burn test
- Long term UV stabilization – ASTM 2565 (Cycle 1): greater than **UV-20**

Nominal Physical Properties[1], [2]	English	SI	Method
Density	---	0.945 g/cm^3	ASTM D1505
Melt Index, 190 °C/2.16 kg	---	6.0 g/10 min	ASTM D1238
ESCR, Condition A (100 % Igepal), F_{50}	70 h	70 h	ASTM D1693
ESCR, Condition A (10 % Igepal), F_{50}	25 h	25 h	ASTM D1693
Durometer Hardness, Type D (Shore D)	63	63	ASTM D2240
Vicat Softening Temperature, Loading 1, Rate A	244 °F	118 °C	ASTM D1525
Brittleness Temperature, Type A, Type I specimen	-103 °F	-75 °C	ASTM D746
Melting Temperature	266 °F	130 °C	ASTM D3418
Crystallization Temperature	235 °F	113 °C	ASTM D3418
Rotational Molded Properties[1], [3]	**English**	**SI**	**Method**
Impact Strength, 1/8" (3.2 mm) thickness, -40 °C	68 ft·lb	92 J	ARM Impact
Impact Strength, 1/4" (6.35 mm) thickness, -40 °C	165 ft·lb	223 J	ARM Impact
Tensile Strength at Yield, 2 in/min, Type IV bar	2,900 psi	20 MPa	ASTM D638
Elongation at Break, 2 in/min, Type IV bar	460 %	460 %	ASTM D638
Flexural Modulus, Tangent - 16:1 span:depth, 0.5 in/min	132,000 psi	910 MPa	ASTM D790
Flexural Modulus, 1 % Secant - 16:1 span:depth, 0.5 in/min	107,000 psi	740 MPa	ASTM D790
Heat Deflection Temperature, 66 psi, Method A	147 °F	64 °C	ASTM D648
Heat Deflection Temperature, 264 psi, Method A	111 °F	44 °C	ASTM D648

1. The nominal properties reported herein are typical of the product, but do not reflect normal testing variance and therefore should not be used for specification purposes. Values are rounded.
2. The physical properties were determined on compression-molded specimens that were prepared in accordance with Procedure C of ASTM D4703, Annex A1.
3. Properties were measured on rotational molded samples with 1/8" (3.17 mm) average thickness, unless otherwise noted. The average peak internal air temperature during molding was above 400 °F.

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