Technical Datasheet | Polyethylene for Rotational Molding

EL-Lene™ **M735RW/M70**

Product Description

M735RW and M70 are linear-low density polyethylene (LLDPE) for rotational molding applications. M735RW is a natural color PE resin available in a pellet and powder form, whereas M70 is a color compound. With a high melt flow and a balance of impact strength, stiffness, and processability, this grade is suitable for rotational molding of lawn and garden articles, decorative items, and industrial parts.

Typical Applications

- Lawn and garden articles
- Decorative items
- LED lamp covers
- Portable containers
- Automotive articles
- Industrial parts

Product Characteristics

- High melt flow suitable for complex shape
- Superior gloss and surface finish
- Smooth inside surface
- UV8 for outdoor use
- Good rigidity and toughness
- Meet the requirements of U.S.21 CFR F.D.A. regulation Part 177.1520 clauses (C) for food contact use

Physical Properties

Properties	Test Method	Value*	Unit
Resin Properties			
Melt Index	ASTM D 1238 @ 190 °C, 2.16 kg	6.0	g/10 min
Density	ASTM D 1505	0.932	g/cm^3
Melting Point	ASTM D 2117	125 (257)	°C (°F)
Crystallization Point	ASTM D 2117	113 (235)	°C (°F)
Heat Deflection Temperature, 0.455 MPa	ASTM D 648	58 (136)	°C (°F)
Vicat Softenting Temperature	ASTM D 1525	108 (226)	°C (°F)
Mechanical Properties			
Tensile Strength-at-Yield	ASTM D 638 @ Crosshead speed 50 mm/min	17 (2500)	MPa (psi)
Tensile Strength-at-Break	ASTM D 638 @ Crosshead speed 50 mm/min	21 (3100)	MPa (psi)
Elongation-at-Break	ASTM D 638 @ Crosshead speed 50 mm/min	1000	%
Flexural Modulus	ASTM D 790	570 (82700)	MPa (psi)
Surface Hardness	ASTM D 2240	57	Shore D
ARM Impact Strength @ -40 °C	ARM Method (5.5 mm rotomolded sample)	25 (101)	J/mm (lb-ft)
Brittleness Temperature	ASTM D 746	<-60 (-76)	°C (°F)

*Value quoted are the result of tests on representative natural samples and product supplied in all respects.

Processing Guidelines

Molding cycles depend on mold materials and its wall thickness, oven temperature, and shot size. Typical oven temperatures should be set between 250 and 300 °C. The recommended PIAT for M735RW/RWP is about 210 °C; however, the PIAT of M70 color compound varies depending on color shade.

Points of Concerns

Finishing rotational parts by flaming, using scrap/filler in compound formulation, or dryblending pigment > 0.3% can decrease mechanical properties of rotational parts, which is not recommended.

Product Technical Assistance

For technical assistance or further information including other applications, or any other products, please contact Technical service engineer.

Product Available Form

- **M735RW = Natural pellet with high UV resistance (UV8)**
- **M735RWP = Natural powder (35 mesh) with high UV resistance (UV8)**
- **M70 = Color compound powder (35 mesh) with high UV resistance (UV8)**

** Remark : The natural pellet and powder are slightly yellowish in appearance after molded; therefore, it is recommended to be used as colored parts.

Product Packaging

- 25 kg loose bag
- 25 kg bag on pallet

Storage

- Store in original container in tidy according to the manual of Handling and Storage from Thai Polyethylene Company Limited.
- Product(s) should be stored in dry and dust free location at temperature below 50^{o}C and protected from direct sunlight and/or heat, well-ventilated area, away from incompatible materials and food and drink, as this may lead to quality deterioration, which results in odour generation and colour changes and can have negative effects on the physical properties of this product.
- Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
- The storage area should be stable and not be slopped.