

Product Description

M9001RW and Marvel M90 are linear-low density polyethylene (LLDPE) for rotational molding applications. M9001RW is a natural color available in powder and pellet form, whereas M90 is a color compounded form. With excellent stiffness good impact strength and toughness. Both of them are suitable for rotational molding of large water tanks and other general rotational molded articles.

Typical Applications

- Large tanks (5,000-22,500 liters)
- Agricultural storage tanks
- Material handling containers
- Kayak
- Manholes

Product Characteristics

- Meet the requirements of U.S.21 CFR F.D.A. regulation Part 177.1520 clauses (C) for food contact use
- Meet Thai Industrial Standard TIS 816-2538 (1995)
- Meet the requirements of AS/NZS 4020 : 2002 for drinking water
- Excellent rigidity and toughness
- Broad processing window

Physical properties

Properties	Test Method	Value*	Unit
Resin properties			
Melt Index	ASTM D 1238 @ 190°C, 2.16 kg	3.2	g/10 min
Density	ASTM D 1505	0.939	g/cm ³
Melting Point	ASTM D 2117	127 (260)	°C (°F)
Crystallization Point	ASTM D 2117	113 (236)	°C (°F)
Heat Deflection Temperature (HDT)	ASTM D 648	75 (167)	°C (°F)
Vicat Softening Temperature	ASTM D1525	122 (252)	°C (°F)
Mechanical Properties			
Tensile Strength-at-Yield	ASTM D 638 @ Crosshead speed 50 mm/min	210 (21)	kg/cm ² (MPa)
Tensile Strength-at-Break	ASTM D 638 @ Crosshead speed 50 mm/min	280 (28)	kg/cm ² (MPa)
Elongation-at-Break	ASTM D 638 @ Crosshead speed 50 mm/min	1100	%
Flexural Modulus	ASTM D 790 @ Crosshead speed 2 mm/min	7500 (750)	kg/cm ² (MPa)
Surface Hardness	ASTM D 2240	60	Shore D
ARM Impact Strength @ -40°C	ARM Method (5 mm rotomolded sample)	25 (90)	J/mm (lb-ft)
Brittleness Temperature	ASTM D 746	<-60 (140)	°C

*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 M9001RW/RWP is about 200 °C, however the the PIAT of our M90 colored products are varied by color shade.

Point of concern

- Finishing rotational part by flaming, using scrap/filler in compound formulation, or dryblending pigment > 0.5% can decrease mechanical properties of rotational part which is not recommended.

Product Technical Assistance

For technical assistance or further information including other applications, and chemical list for chemical tank on this grade or any other products, please contact Technical service engineer.

Product Available Form

- **M9001RW** = Natural pellet with high level UV resistance (UV20)
- **M9001RWP** = Natural powder (35 mesh) with high level UV resistance (UV20)
- **Marvel M90** = Color compound powder (35 mesh) with high level UV resistance (UV20)

** 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°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.

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