

Product Description

M3804RU and Marvel M20 are linear-low density polyethylene (LLDPE) for indoor/ semi-indoor rotational molding applications. M3804RU is a natural color PE resin available in a pellet and powder form, whereas M20 is the color compound version. These grades are suitable for rotational molding of storage tanks and general applications which are indoor/semi-indoor or for thin wall (less than 5 mm) parts.

Typical Applications

- Water storage tanks
- Small to medium tanks (<5,000 L)
- Material handling containers
- Septic tanks

Product Characteristics

- High stiffness
- Good impact strength
- Fast cooking
- 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 816-2556

Physical Properties

Properties	Test Method	Value*	Unit
Resin Properties			
Melt Index	ASTM D 1238 @ 190 °C, 2.16 kg	4.0	g/10 min
Density	ASTM D 1505	0.938	g/cm ³
Melting Point	ASTM D 2117	125 (257)	°C (°F)
Crystallization Point	ASTM D 2117	113 (236)	°C (°F)
Heat Deflection Temperature, 0.455 MPa	ASTM D 648	65 (149)	°C (°F)
Vicat Softening Temperature	ASTM D 1525	116 (241)	°C (°F)
Mechanical Properties			
Tensile Strength-at-Yield	ASTM D 638 @ Crosshead speed 50 mm/min	20 (2900)	MPa (psi)
Tensile Strength-at-Break	ASTM D 638 @ Crosshead speed 50 mm/min	18 (2600)	MPa (psi)
Elongation-at-Break	ASTM D 638 @ Crosshead speed 50 mm/min	800	%
Flexural Modulus	ASTM D 790	700 (102000)	MPa (psi)
Surface Hardness	ASTM D 2240	60	Shore D
ARM Impact Strength @ -40 °C	ARM Method (5.5 mm rotomolded sample)	27 (110)	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 M3804RU/RUP is about 180 °C; however, the PIAT of M20 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.
- M3804RU/RUP is not recommended for extrusion into color compound. If used, must add additional antioxidants during extrusion process.
- M3804RU/RUP is not recommended for parts which exceed 5 mm or 30 min heating.
- M3804RU/RUP and M20 are not recommended for products used under direct and intense sunlight.

Product Technical Assistance

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

Product Available Form

- **M3804RU** = Natural pellet with low level of antioxidants and UV stabilizers (UV3)
- **M3804RUP** = Natural powder (35 mesh) with low level of antioxidants and UV stabilizers (UV3)
- **Marvel M20** = Color compound powder (35 mesh) with low UV resistance (UV3)

** 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.

EL-Lene™ EL-Pro™ EL-Wax™  MARVEL™

are registered trademarks of SCG Chemicals, Thailand.

SCG ICO Polymers Company Limited

