



# MARPOL® LL4M 812

Marco Polo International, LLC - Linear Low Density Polyethylene

Tuesday, January 31, 2023

## General Information

### Product Description

This resin is a butene copolymer designed for injection molding applications that require excellent toughness, good processability and tear resistance.

Recommended Applications: Caps, closures and lids

### General

|                   |                                          |                                               |                                   |
|-------------------|------------------------------------------|-----------------------------------------------|-----------------------------------|
| Material Status   | • Commercial: Active                     |                                               |                                   |
| Availability      | • Africa & Middle East<br>• Asia Pacific | • Europe<br>• Latin America                   | • North America                   |
| Features          | • Butene Comonomer<br>• Copolymer        | • Good Processability<br>• Good Tear Strength | • High Toughness<br>• Low Density |
| Uses              | • Caps                                   | • Closures                                    | • Lids                            |
| Processing Method | • Injection Molding                      |                                               |                                   |

## ASTM & ISO Properties<sup>1</sup>

| Physical                                        | Nominal Value | Unit              | Test Method |
|-------------------------------------------------|---------------|-------------------|-------------|
| Density                                         | 0.926         | g/cm <sup>3</sup> | ASTM D4883  |
| Melt Mass-Flow Rate (190°C/2.16 kg)             | 12            | g/10 min          | ASTM D1238  |
| Environmental Stress-Cracking Resistance (ESCR) | 4.00          | hr                | ASTM D1693B |
| Mechanical                                      | Nominal Value | Unit              | Test Method |
| Tensile Strength (Yield)                        | 11.8          | MPa               | ASTM D638   |
| Tensile Elongation (Break)                      | 510           | %                 | ASTM D638   |
| Flexural Modulus - 1% Secant                    | 293           | MPa               | ASTM D790B  |
| Impact                                          | Nominal Value | Unit              | Test Method |
| Tensile Impact Strength (-40°C)                 | 303           | kJ/m <sup>2</sup> | ASTM D1822  |
| Thermal                                         | Nominal Value | Unit              | Test Method |
| Brittleness Temperature                         | < -70.0       | °C                | ASTM D746   |
| Vicat Softening Temperature                     | 99.4          | °C                | ASTM D1525  |
| Peak Melting Temperature                        | 123           | °C                | ASTM D3418  |

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.