

## Product Description

M1A (Anti-microbial) is a linear-low density polyethylene (LLDPE) for rotational moulding applications for inner surface. M1A is a color compound containing nanosilver ions which possess anti-bacteria and anti-fungal efficacy which lasts for 5 - 10 years\*.

## Typical Applications

- Inner layers of water storage tanks
- Hygienic parts

## Product Characteristics

- Possess anti-bacteria and anti-fungal capability according to JIS Z 2801:2000
- Nanosilver as an active ingredient
- Effective for 5-10 years\*
- Easy to melt

## International Compliance

- Base resin of M1A meets the requirements of U.S. Food and Drug Administration (FDA) 21 CFR Part 177.1520 Olefin polymers (c) 2.1 for food contact under conditions of use D-G (21 CFR 176.170(c) Table 2), for all food types.
- For compliance of specific colors, please contact our technical service.

## Physical Properties

Property	Test Method	Typical Values	Unit
<b>Resin Properties</b>			
Melt Flow Rate	ASTM D 1238 @ 190°C, 2.16 kg	4.0	g/10 min
Density	ASTM D 1505	0.938	g/cm <sup>3</sup>
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)
<b>Mechanical Properties</b>			
Tensile Strength-at-Yield	ASTM D 638 @ Speed 50 mm/min	20 (2900)	MPa (psi)
Tensile Strength-at-Break	ASTM D 638 @ Speed 50 mm/min	18 (2600)	MPa (psi)
Elongation-at-Break	ASTM D 638 @ 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 rotomoulded sample)	27 (110)	J/mm (lb-ft)
Brittleness Temperature	ASTM D 746	< -60 (-76)	°C (°F)

**Note:** the given values are typical values measured on the representative natural product. Values herein are not to be constructed as a product specification.

\*Depending on customer use and water condition, SCG cannot guarantee the lifetime of the antimicrobial function and does not guarantee to treat water or preserve foods. It is intended to keep slime from growing on the inner surface.

**Processing Guidelines**

Moulding cycles depend on mould 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 M1A is about 215 °C which may vary with a color shade. To use as a tank liner, M1A powder should be added at the end of a heating cycle after a PE skin layer totally melts.

**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.
- M1A is not recommended for parts which exceed 5 mm and 30 min heating.
- M1A is not recommended for products used under direct and intense sunlight.
- Depending on customer use and water condition, SCG cannot guarantee the lifetime of the antimicrobial function.

**Product Technical Assistance**

For technical assistance or further information on this product or any other SCG Chemicals' products, please contact your SCG ICO Polymers / SCG Performance Chemicals technical service at the address or telephone number as specified below.

**Product Available Form**

- Color Compound Powder

**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.

### Safety

- The product is not classified as a hazardous material.
- Please see our Material Safety Data Sheet for details on various aspects of safety, recovery, and disposal of the products; for more information, contact your SCG ICO Polymers / SCG Performance Chemicals technical service.

### Recycling

- The product is suitable for recycling using modern methods of shredding and cleaning. In-house production waste should be kept clean to facilitate direct recycling.
- Please see our Material Safety Datasheet for details on various aspects of safety, recovery and disposal of the products; for more information, contact your SCG ICO Polymers / SCG Performance Chemicals technical service.

### Related Documents

- The latest version of this document will be available at our website, [www.scgchemicals.co.th](http://www.scgchemicals.co.th), or can be obtained from the SCG ICO Polymers / SCG Performance Chemicals technical service.
- The following related documents are available on request, and represent various aspects on the usability, safety, recovery and disposal of the product.
  - Material Safety Datasheet
  - Statement on compliance to food contact regulations

### Disclaimer

- The product can be used only for the application as specified here above.
- To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication, however we do not assume any liability whatsoever for the accuracy and completeness of such information.
- We make no warranties which extend beyond the description contained herein. Nothing herein shall constitute any implied warranty of merchantability or fitness for a particular purpose.
- It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.
- No liability can be accepted in respect of the use of our products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third party materials.