Technical Data Sheet

Product Name
SCGC™ LLDPE COMPOUND

Product Type
Polyethylene for Rotational Moulding

Product Grade
S15

Product Description

S15 series is a specialized Linear Low-Density Polyethylene (LLDPE) compound engineered for rotational molding, offering a unique formulation that achieves superior, strong surface adhesion to Polyurethane (PU) foam (1) when applied as an inner insulating layer. This innovative material streamlines the manufacturing process by eliminating the internal surface modification step (such as inner treatment from PE flake) and significantly lowering reject rates by preventing common delamination defects between the PE surface and the PU foam, making it highly recommended for any application that relies on PU foam insulation.

Typical Application

- **Cooler Boxes** with PU foam insulation
- **Non-heavy duty** rotomolded applications

Product Characteristics

- Strong adhesion to PU foam* (Cyclopentane blowing agents)
- Low shrinkage and warpage
- Consistent dimension
- UV-stabilized (UV2) for indoor/ semi-indoor

International Compliance

- S15 series meets the requirements of TIS 656-2556 (Analytical methods for food contact plastics)
- For compliance of specific colors, please contact our technical services

Physical Properties

Properties	Test Method	Typical Value	Unit
Melt Flow Rate	ASTM D 1238 @ 190 °C, 2.16 kg	4.0	g/10 min
Density	ASTM D 1505	0.932	g/cm³
Melting Point	ASTM D 2117	125 (257)	°C (°F)
Crystallization Point	ASTM D 2117	110 (230)	°C (°F)
Heat Deflection Temperature	ASTM D 648 @ 0.455 MPa	58 (138)	°C (°F)
Vicat Softening Temperature	ASTM D 1525	108 (226)	°C (°F)
Mechanical Properties			
Tensile Strength at Yield	ASTM D 638 @ Speed 50 mm/min	17 (2500)	MPa (psi)
Tensile Strength at Break	ASTM D 638 @ Speed 50 mm/min	20 (3000)	MPa (psi)
Elongation at Break	ASTM D 638 @ Speed 50 mm/min	700	%
Flexural Modulus	ASTM D 790	540 (78000)	MPa (psi)
Surface Hardness	ASTM D 2240	55	Shore D

Note: ● The given values are typical value measured on the product. Values herein are not to be constructed as a product specification.

(1) As performance depends on specific PU foam ratio, injection parameters, required color, and molding conditions, please consult the SCGC technical service team for detailed product instructions.

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Processing Guidelines

Molding cycles are determined by the mold material, wall thickness, oven temperature, and shot size. Typical oven temperatures should be set between 250°C and 300°C. For the S15 grade, the recommended Peak Internal Air Temperature (PIAT) is 180–200°C, though this may vary depending on the color shade. This product achieves adhesion to PU foam when molded under optimal oven conditions (ensuring it is not under-cured). Successful adhesion requires the injected PU foam to have a density exceeding 0.036 g/cm3 and to utilize R141b or cyclopentane as blowing agents. Furthermore, this adhesion is possible without the use of PE glue on the surface, provided a specific polyol-to-isocyanate ratio is maintained.

Points of Concerns

- PU Foam adhesion strength improves significantly when the parts are molded within the acceptable cook range or higher.
- Successful adhesion requires the injected PU foam to have a density exceeding 0.036 g/cm3.
- It is not recommended to flame the surfaces of molded parts with an open torch due to risk of thermal degradation and premature failure.
- Inclusion of fillers or recycled materials into the resins either by compounding or dry blending is not recommended due to risk of compromised impact strength.
- Use of pigments above 0.3% by dry blending into natural or/and color compound powder should be avoided due to risks of lower impact strength.
- Additional antioxidants, internal lubricants, or UV stabilizers into the virgin resins during the compounding process should be considered depending on the end applications.
- For black compound, use up the powder as quickly as possible after the package is opened due to a high moisture pick-up that will result to pinholing and poor impact strength.
- The discoloration to the products may be occurred, irrespective of period of time, due to external factors such as gas fading, staining, sublimation, migration, contamination with packaging or chemicals in contact, either directly or indirectly.
- Customer shall be responsible for testing, verification, and approval of final products for fit-for-use in terms of the customer's own use and end user's use both functions and appearance before make warranties of merchantability.

Product Technical Assistance

For technical assistance or further information on this product or any other SCG Chemicals' products, contact your SCG Chemicals technical services at the address as specified below.

Product Available Form

- Color compound powder

Product Packaging

- 25 kg loose bag

Storage

- Store in original container in tidy according to the manual of Handling and Storage from Thai Polyethylene Co., Ltd. / SCGC ICO Polymers Co., Ltd.
- 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 Chemicals technical services.

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 Chemicals technical services.

Related Documents

- The latest version of this document will be available at our website, www.scgchemicals.com, or can be obtained from the SCG Chemicals technical services.
- The following related documents are available on request, and represent various aspects on the usability, safety, recovery and disposal of the product.
  - Safety Data Sheet
  - Declaration of Compliance

Disclaimer

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