# Futerro® Extrusion

### Polylactic Acid

#### **Futerro**

### Message:

Futerro® PLA polymer extrusion grade is a thermoplastic resin derived from annually renewable resources and is specifically designed for extrusion & thermoforming applications as, dairy containers, food service ware, transparent food containers, blister packaging, cold drink cups. Candy twist wrap, salad and Vegetable bags, window Envelope film, lidding film - Label film, Injection Stretch Blow Molded, or ISBM Bottles for 1:2 stage operations. Ideal for applications such as, Fresh Dairy, Edible Oils, Fresh Water

Futerro® PLA polymer is a clear extrusion sheet grade and is easily processed on conventional extrusion and thermoforming equipment. The material is stable in the molten state, provided that the drying procedures are followed.

| General Information |                                |
|---------------------|--------------------------------|
| Features            | Updatable resources            |
| Uses                | Packaging                      |
|                     | Films                          |
|                     | Cup                            |
|                     | Label                          |
|                     | Bags                           |
|                     | Cover                          |
|                     | Sheet                          |
|                     | Bottle                         |
|                     | Container                      |
|                     | Food service sector            |
|                     | Food container                 |
|                     |                                |
| Appearance          | Clear/transparent              |
| Processing Method   | Injection Stretch Blow Molding |
|                     | Extrusion                      |
|                     | Thermoforming                  |

| Physical                  | Nominal Value | Unit     | Test Method |
|---------------------------|---------------|----------|-------------|
| Density (25°C)            | 1.24          | g/cm³    | ISO 1183    |
| Melt Mass-Flow Rate (MFR) |               |          | ISO 1133    |
| 190°C/2.16 kg             | 2.0 - 4.0     | g/10 min | ISO 1133    |
| 210°C/2.16 kg             | 5.0 - 7.0     | g/10 min | ISO 1133    |
| Free Lactide Content      |               | %        |             |
| L-poly-Lactide Content    | > 99          | %        |             |
| Moisture Content          |               | ppm      |             |
| Mechanical                | Nominal Value | Unit     | Test Method |
| Tensile Modulus           | 3500          | MPa      | ISO 527-2   |
| Tensile Stress            |               |          | ISO 527-2   |
| Yield                     | 60.0          | MPa      | ISO 527-2   |
|                           |               |          |             |

| Fracture                     | 55.0          | MPa   | ISO 527-2   |
|------------------------------|---------------|-------|-------------|
| Tensile Strain (Break)       | 6.0           | %     | ISO 527-2   |
| Flexural Stress              | 90.0          | MPa   | ISO 178     |
| Impact                       | Nominal Value | Unit  | Test Method |
| Notched Izod Impact          | 3.5           | kJ/m² | ISO 180     |
| Thermal                      | Nominal Value | Unit  | Test Method |
| Glass Transition Temperature | 52.0 - 60.0   | °C    | ISO 11357-2 |
| Melting Temperature          | 145 - 175     | °C    | ISO 11357-3 |
| Optical                      | Nominal Value | Unit  | Test Method |
| Transmittance (2000 µm)      | > 90.0        | %     | ISO 14782   |
| Haze (2000 µm)               | < 5.0         | %     | ISO 14782   |
| Fill Analysis                | Nominal Value | Unit  |             |
| Melt Density (230°C)         | 1.08 - 1.12   | g/cm³ |             |
| Extrusion                    | Nominal Value | Unit  |             |
| Drying Temperature           | 90.0          | °C    |             |
| Drying Time                  | 2.0           | hr    |             |
| Suggested Max Moisture       | 0.025         | %     |             |
| Cylinder Zone 1 Temp.        | 180           | °C    |             |
| Cylinder Zone 2 Temp.        | 190           | °C    |             |
| Cylinder Zone 3 Temp.        | 200           | °C    |             |
| Adapter Temperature          | 200           | °C    |             |
| Melt Temperature             | 210           | °C    |             |
| Die Temperature              | 190           | °C    |             |
| Extrusion instructions       |               |       |             |
|                              |               |       |             |

Feed Throat Temperature: 45°CScrew Speed: 20 to 100 rpm

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### Recommended distributors for this material

## Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533 Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

