



TECHNICAL DATA SHEET

CareTips L0003

Product Description

CareTips L0003 are thermoplastic water-soluble polymers made of milk proteins. Our material is bio-sourced, printable, biodegradable, compostable and transformable by all conventional plastics processing industry. Lactips pellets can be transformed in film by blown-film-extrusion. Typical applications are film packaging for detergent tablets, agrochemicals or any other unidose water soluble application.

Physical Material Properties of CareTips L0003

Property	Result
Density (g/cm ³)	1.25
pH at 10 %	6.8
Glass Transition Temperature** (°C)	60
Transformation Temperature (°C)	90 - 120
Viscosity at 15 % (mPa.s)	30
Water Content at 50 % RH* (%)	10

*RH: Relative Humidity

**For pellets conditioned at 50% RH

Physical Properties of the Blown Film

For a blown film of 45 µm ($\pm 5\mu\text{m}$) conditioned for 24h at 23 °C and 50 % RH

Property	Result	Test Method
Young Modulus Longitudinal (MPa)	250 \pm 20	internal method according to ASTM D882
Maximal Strength Longitudinal (MPa)	6.5 \pm 1	internal method according to ASTM D882
Elongation at Break Longitudinal (%)	19 \pm 2	internal method according to ASTM D882
Strength at Break Longitudinal (MPa)	5.4 \pm 1	internal method according to ASTM D882
Rate of Water (%)	11.5 \pm 1	Fischer Karl titration

Oxygen permeability at 0% RH, 23°C of our film using ASTM D3985 standard: 1.8 \pm 0.1 cc/(m².day)

Oxygen permeability at 50% RH, 23°C of our film using ASTM D3985 standard: 48 \pm 5 cc/(m².day)

Solubility of Blown Film

For a blown film of 45 μm ($\pm 5\mu\text{m}$) conditioned for 24h at 23 °C and 50 % RH

Condition	Disintegration (s)	Dissolution (min)
20 °C Demineralized Water	<60	<10
40 °C Demineralized Water	<30	<5

Storage

To maintain the quality of CareTips L0003 during storage, it is recommended to keep the product in its original container (sealed plastic aluminium bags), away from heat or direct light sources. Recommended conditions of storage are: 15-25 °C; 45-60 % RH.

Note

The information submitted in this document are based on our current knowledge and experience. It is essential to realize a test campaign before use of our product. In case of technological advancement, characteristics data can be modified. These indications are not to be considered as a guarantee of specific properties in final use conditions. Lactips must be consulted in case of particular applications of our product.