

## PETG rolls

### Caroclear MDL60

### Product Datasheet

### Caroclear MDL60

Version 8 13/12/2018

#### Description

Caroclear Glycol Polyethylene Terephthalate (PETG) is a super clear copolymer used extensively for the packaging industry. An easier grade to thermoform compared to APET as it isn't susceptible to crystallisation. It has excellent clarity, coupled with the stiffness similar to Polycarbonate. It also has good gas permeation properties. Caroclear MDL 60 films have been specially developed for the packaging of medical devices such as catheters, filters for body fluid, injection devices and implants., it is extruded with *Eastar* copolyester 6763 from Eastman Chemical Company BV in a clean, dust-free environment, following ISO 9001:2015 and BRC IoP quality systems.

#### Applications

Blisters and trays for the packaging of medical devices (Catheters, Filters, injection devices, implants.....).

#### Key Features

#### Certification/Approvals

The following approvals are available (depending on colour) on request:  
 USP CLASS VI <87>  
 RoHS: Complies with EU legislation 2015/863/EC  
 REACH compliance.

#### Printing

It is not designed for printing. Please contact our sales department if printing is required.

#### Thermoforming

Excellent thermoforming ability that allows complex shapes or high speed without any risk of crystallisation.

#### Conversion

This product is designed to be sealed with a Tyvek lid. It can be sterilised with Gamma Ray, Plasma or Ethylene Oxide. It can be sealed on itself using Thermal, High Frequency and Ultrasonic sealing. It can be glued with hot melt or solvent based adhesives.

#### Product Availability

##### Colour

Natural clear or blue tinted (Eastar 6763 C0006).

##### Finish

Natural gloss.

##### Thickness

0.20 mm to 1.50 mm.

#### Roll Size Specifications

Gauge	Width	
	Minimum	Maximum
0.20 to 0.30 mm	300 mm	660 mm
0.31 to 0.80 mm	300 mm	680 mm
0.81 to 1.25 mm	300 mm	725 mm
1.50 mm	320 mm	840 mm

#### Physical properties

Properties	Unit	Standard	Method	Value
Density	g/cm <sup>3</sup>	ISO 1183	-	1.27
Izod (notched) Impact Strength	kJ/m <sup>2</sup>	ISO 180	1U at 23°C	6,2
Tensile Strength	MPa	ISO 527	50 mm/min	50
Elongation at Break	%	ISO 527	50 mm/min	130
Modulus of Elasticity	MPa	ISO 527	50 mm/min	2000
Vicat Softening Point	°C	ISO 306	A120/oil	82
Water Vapour Transmission Rate	g/m <sup>2</sup> /24 h	ASTM	F1249	7
Permeability CO <sub>2</sub>	cm <sup>3</sup> .m /m <sup>2</sup> .m <sup>2</sup> .atm	ASTM	D1434	49
Permeability O <sub>2</sub>	cm <sup>3</sup> .m /m <sup>2</sup> .m <sup>2</sup> .atm	ASTM	D1434	10

Test conducted on 250microns films

\*The density quoted should only be used as a guide. This value can change depending upon the type and quantity of pigments or additives used.

#### Available Options

External or internal anti-block or without antiblock .

#### Alternative Solutions

Our Medical range of product offers alternative solutions like Caroclear MDL 50 (APET grade). For further information about the full range, please contact our Sales Department.

Offline cutting available up to 0,6 mm : 100 mm width mini

#### Carolex SAS

## Additional Information

### General Description

PET is a thermoplastic polyester (not to be confused with unsaturated polyesters mainly used for composite structures: boats, car body parts...)

Polyester resins are extremely sensitive to humidity, and combined with high temperature conditions (> 70 °C), the polymer chains are broken down by hydrolysis.

They are different types available and a brief description of each is given below:

PET (also known as PETP and PETE)

PET can be found in two molecular states:

- Amorphous (transparent with low heat resistance).
- Crystallised (opaque with high heat resistance).

APET

Amorphous PET: Has excellent transparency due to the lack crystallisation. Ideally temperature conditions should be kept below 80 °C to prevent crystallisation.

CPET

The foil is sold amorphous but crystallises (due to the presence of a nucleating agent) in the mould while thermoforming, which can be very difficult to control. The crystallisation gives the product high temperature resistance and high stiffness.

GPET

This is a copolyester (grafted with a second glycol) that has the advantage of being completely amorphous and never crystallises.

### Thermoforming

To keep the clarity of APET, over heating the sheet must be avoided. Typical sheet temperature of 120 °C to 165 °C, for shortest time possible. Typical mould temperature is around 55 °C to 65 °C. Cold moulds will prevent the material from stretching uniformly.

## Chemical Resistance

APET shows a good resistance to aqueous solutions of salts, acids and alkalis. It also has good resistance to most solvents, alcohols, fats and oils, although very limited resistance to ketones.

## Manufacturing Tolerances

The tolerances below should only be used as a general guide, as embossing and temperature can have an influence.

SHEET GAUGE	Up to 0.20 mm	0.21 to .40 mm	0.41 to 1.00 mm	1.01 to 1.20 mm	1.21 to 1.50 mm
GAUGE	± 10 %	± 7 %	± 4 %	± 3 %	± 3 %
WIDTH	± 1 mm	± 1 mm	± 1 mm	± 1 mm	± 1 mm

**Disclaimer** The information contained in this leaflet is based on our present technical knowledge and experience. In view of the large number of factors that may influence the processing and use of our products, the information does not relieve the processors and manufacturers of the need to carry out their own tests and experiments. Our information does not constitute a legally binding assurance of product availability, of particular properties or of a suitability for a particular use. Patent rights that may exist must be duly observed.

### Carolex SAS

Carolex SAS | Zone Industrielle la Métairie | 49160 Longué-Jumelles | France  
Tél. : +33 2 41526182 | Fax : +33 2 41388085 | E-mail : sales@carolex.fr | www.carolex.fr  
S.A.S au capital 1 905 020 € | RCS Saumur B 319 814 752 00030 | SIRET 319 814 752 00030 | APE 2221Z | N° TVA FR02 319814752