

## APET rolls

### Caroclear AGL 10 CX

#### Product Datasheet

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#### Description

Caroclear AGL10 CX is part of CaroGreen range made of Amorphous Polyethylene Terephthalate (APET). It is a super clear polymer used extensively for the packaging industry. It has excellent clarity, coupled with the stiffness similar to Polycarbonate. Our AGL 10 CX grade is designed to offer a cost-effective, environmentally friendly solution for food packaging. It includes regrinds in the core.

#### Applications

Containers, blisters for packaging of food.

#### Key Features

#### Certification/Approvals

The following approvals are available (depending on colour)  
 ISO 9001:2015 and BRC IoP standards  
 Food: 10/2011/EC  
 RoHS: European Legislation 2015/863/CE.

#### Printing

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

#### Thermoforming

Good thermoforming ability, it can be processed on most equipment. This product can be provided with special properties for optimal processing on FFS equipment.

#### Conversion

Gluing can be done with either hot-melt or solvent-based glue.  
 Welding: Thermal, Ultrasonic.

#### Product Availability

#### Colour and Finish

Natural clear or black, gloss finish. This grade incorporates a proportion of recycled content. This may cause some small visual defects such as small black spots, bubbles, gels and tint variation.

#### Thickness

0.25 mm to 0.80 mm.

#### Roll Size Specifications

Gauge	Width	
	Minimum	Maximum
0,25 to 0,30 mm	300 mm	1100 mm
0,31 to 0,80 mm	300 mm	1200 mm

#### Physical properties

Properties	Unit	Standard	Method	Value
Density	g/cm <sup>3</sup>	ISO 1183	-	1.32
Izod (Notched) Impact Strength	kJ/m <sup>2</sup>	ISO 180	1U at 23°C	4.2
Tensile Strength	MPa	ISO 527	50 mm/min	30
Elongation at Break	%	ISO 527	50 mm/min	300
Modulus of Elasticity	MPa	ISO 527	50 mm/min	2000
Vicat Softening Point	°C	ISO 306	A120/oil	80
Water Vapour Transmission Rate	g/m <sup>2</sup> /24 h	ASTM	F1249	7
Permeability CO <sub>2</sub>	cm <sup>3</sup> .m /24.m <sup>2</sup> .atm	ASTM	D1434	49
Permeability O <sub>2</sub>	cm <sup>3</sup> .m /24.m <sup>2</sup> .atm	ASTM	D1434	10

Data from 250 micron film

#### Alternative Solutions

AGL10 70/30 including 30 % recycle content  
 AGL 10 for higher aspect requirement without recycle

#### Available Options

Anti-block options:

- AA: No anti-block,
- EA; Masterbatch anti-blocking agent
- AB; Silicone coated
- EB; Masterbatch anti-blocking agent and silicone coated

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## 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.

#### PETG

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

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