Laser+® CSD (D90A)

polyethylene terephthalate resin

Product Information

General

Laser+® CSD (D90A) polyethylene terephthalate (PET) resin is a copolymer formulated for conversion to PET bottles by conventional single or two-stage processing technology.

Product Description

Bi-orientation of Laser+® CSD (D90A) by injection/stretch blow moulding provides optimal barrier and mechanical properties, including superior stress crack resistance. It performs exceptionally well in the manufacture of CSD bottles made from thick-wall preforms, where heat up rate and temperature profile through the wall are important. Laser+® CSD (D90A) is engineered to improve acetaldehyde (AA) performance without sacrificing intrinsic viscosity (IV), to meet increasing demand for CSD applications. Laser+® CSD (D90A) offers superior heat absorption and processing control, even at higher blowing speeds. A slower crystallisation rate enables high injection moulding output.

Sales Specifications

Property	Value	Test Method
Intrinsic Viscosity	0.82 ± 0.02	AP-QAR-SOP-0012
Colour L* CIE	76 min	AP-QAR-SOP-0011
Colour b* CIE	-4 to 0	
Acetaldehyde	1 ppm max	AP-QAR-SOP-0010

Certification

Laser+® CSD (D90A) is ideally suited for food packaging applications. A Product Regulatory Information Sheet (PRIS) for Laser+® CSD (D90A) is available upon request.

Typical Properties

Property	Value	Test Method
Moisture Content[1]	0.2% max	AP-QAR-SOP-0013
Fines[1]	0.10% max	AP-QAR-SOP-0014
Crystallinity	<50%	AP-QAR-SOP-0016
Melt Point, nominal	246°C	AP-QAR-SOP-0016

[1] As packaged

Recycle Content = 0%

CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see “Medical Caution Statement”.

Laser+® CSD (D90A) Product Information

polyethylene terephthalate resin

Material Drying

Proper drying of polyethylene terephthalate (PET) is essential to produce a high-quality part (container, film, etc.) with optimum physical properties. PET is hygroscopic, meaning that when it is exposed to humid atmospheres, it will absorb moisture. In PET, the moisture is not only on the surface but diffuses slowly through the whole pellet and is firmly held by molecular attraction. Before processing the PET, this moisture must be removed. Carefully controlled drying of all PET is an essential requirement for optimum processing performance and final product properties. If drying is not carried out properly, loss in molecular weight, process control and mechanical properties of the PET material may occur during melt processing due to hydrolytic degradation.

Drying of PET polymer involves the diffusion of absorbed moisture from the interior of the polymer pellet to its surroundings and, subsequently the removal of moisture from the bulk of polymer pellets. Moisture removal can be achieved by heating the polymer pellet under dry air or vacuum. In an air-drying system, heated and dehumidified air flows up through a pellet bed and returns to the dehumidifier. The key requirements for a reliable drying process are:

Dehumidified air dew point: This should not be allowed to rise above -37°C (-34°F) and should preferably be –40°C (-40°F) or lower, as measured after the desiccant bed. Always check the correct regeneration temperatures and frequency are being used.

Dehumidified air flow through the pellet bed: Most dryers operate at around 28.3 L/min (1 ft^3 per minute) of airflow per 0.45 kg/hr. (1 lb./hr.) of PET pellet as a minimum requirement, with the airflow at the correct temperature and dew point.

Pellet residence time (drying time): A minimum pellet residence time for PET of four hours and preferably six hours is recommended. This is the theoretical drying time, which is calculated by dividing dryer capacity throughput. Extended periods of high temperature can adversely affect the polymer processing conditions. In the event of a stoppage for an extended period, dry polymer can be stored in the dryer-hopper by reducing the air temperature to 116°C (240°F) (or even lower) while maintaining dry airflow through the dryer hopper.

Dehumidified air temperature: Correctly designed equipment should operate at temperatures up to 171°C (340°F) measured on entry to the dryer hopper, with an absolute maximum of 177°C (350°F) to prevent possible discolouration.

Drying temperature: The ACTUAL pellet temperature should achieve between 149°C (300°F) and 166°C (330° F) measured at the dryer exit.