Laser+® rHS
HEAT-SET CONTAINER PET RESIN WITH RECYCLED CONTENT

Laser+® rHS (F50R)

Product Information

polyethylene terephthalate resin

General

Laser+® rHS (F50R) polyethylene terephthalate (PET) resin is designed for conversion to PET packaging by injection stretch blow-molding using commercial heat-set technology. This product contains custom levels up to 15% of Post-Consumer recycled PET incorporated into a single, homogeneous pellet using Single Pellet Technology®.

Product Description

Laser+® rHS (F50R) is a low to moderate copolymer designed for processes requiring faster crystallization rates, higher glass transition and melting points, but balances injection molding cycle speed and superior container performance.

Laser+® rHS (F50R) provides good flow properties and melt strength. It can be used for one- and two-stage injection stretch blow molding processes.

Sales Specifications

Property	Value	Test Method
Intrinsic Viscosity	0.80 ± 0.02	AP-QAR-SOP-0012
Color L* CIE	76 min	AP-QAR-SOP-0011
Color b* CIE	-3.0 ± 3.0	
Acetaldehyde	2 ppm max	AP-QAR-SOP-0010

Certification

Laser+® rHS (F50R) is ideally suited for food packaging applications. A Product Regulatory Information Sheet (PRIS) for Laser+® rHS (F50R) is available upon request. The Laser+® rHS (F50R) contains recycled content as determined in accordance with ISO Standard 14021.

Typical Properties

Property	Value	Test Method
Moisture Content[1]	0.25% max	AP-QAR-SOP-0013
Fines[1]	0.10% max	AP-QAR-SOP-0014
Crystallinity	>35%	AP-QAR-SOP-0016
Melt Point, nominal	240°C	AP-QAR-SOP-0016

[1] As packaged

These values represent the anticipated performance data for these polyester resins and intermediates; they are not intended to be used as design data. We believe this information is the best currently available on the subject. It is offered as a possible helpful suggestion in the experimentation you may care to undertake along these lines. It is subject to revision as additional knowledge and experience is gained. No guarantee of results, assumption of obligation or liability whatsoever in connection with this information is made. This publication is not a license to operate under, or intended to suggest infringement of, any existing patents.

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

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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 -34°F (-37°C) and should preferably be –40°F (-40°C) 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 1 ft^3 per minute (28.3 L/min) of airflow per 1 lb./hr. (0.45 kg/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 240°F (116°C) (or even lower) while maintaining dry airflow through the dryer hopper.

Dehumidified air temperature: Correctly designed equipment should operate at temperatures up to 340°F (171°C) measured on entry to the dryer hopper, with an absolute maximum of 356°F (180°C) to prevent possible discoloration.

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