

DuPont™ Surlyn® E 185SB

Surlyn® resins Product Data Sheet

Description

Product Description DuPont™ Surlyn® E185SB is an ionomer of ethylene acid acrylate terpolymer.

The resin can be processed in conventional blown film, cast film, sheet extrusion and coextrusion equipment designed to process polyethylene and ethylene copolymer type resins.

Restrictions

Material Status ● Commercial: Active

Typical Characteristics

Composition Zinc Ionomer

Features Surlyn® E185SB can be coextruded with HDPE to provide delamination-type peelable seals. The seal strength can be controlled by processing conditions and/or the thickness of Surlyn® E185SB layer. Thickness is typically in the range of 5 to 15 microns (0.20 to 0.60 mils).

Characteristics / Benefits Other benefits of Surlyn® E185SB include:
 · Very low seal initiation temperature
 · Broad sealing temperature range

Applications Contains "Slip" and "Antiblock"

Delaminating type peelable seal package examples:
 · Bag-in-a box applications such as cereal, crackers, and snacks
 · Slug packs for crackers

Typical Properties

Physical	Nominal Values	Test Method(s)	
* Density ()	0.94 g/cm ³	ASTM D792	ISO 1183
* Melt Flow Rate (190°C/2.16kg)	2.5 g/10 min	ASTM D1238	ISO 1133
Thermal	Nominal Values	Test Method(s)	
* Melting Point (DSC)	89°C (192°F)	ASTM D3418	ISO 3146
Freezing Point (DSC)	62°C (144°F)	ASTM D3418	ISO 3146
Vicat Softening Point ()	60°C (140°F)	ASTM D1525	ISO 306

Processing Information

General

* Maximum Processing Temperature 260°C (500°F)

General Processing Information

Surlyn® E185SB is normally processed at melt temperatures ranging from 160° - 235°C (320° - 455F) in blown film equipment. A typical extruder profile is shown below. Actual processing temperatures will usually be determined by either the specific equipment or one of the other polymers in a coextrusion. Surlyn® E185SB can also be used in cast extrusions and coextrusions.

Materials of construction used in the processing of this resin should be corrosion resistant. Stainless steels of the types 316, 15-5PH, and 17-4PH are excellent, as is quality chrome or nickel plating, and in particular duplex chrome plating. Type 410 stainless steel is satisfactory, but needs to be tempered at a minimum temperature of 600°C (1112°F) to avoid hydrogen-assisted stress corrosion cracking. Alloy steels such as 4140 are borderline in performance. Carbon steels are not satisfactory. While stainless steels can provide adequate corrosion protection, in some cases severe purging difficulties have been encountered. Nickel plating has been satisfactory, but experiments have shown that chrome surfaces have the least adhesion to acid based polymers. In recent years, the quality of chrome plating has been deteriorating due to environmental pressures, and the corrosion protection has not always been adequate. Chrome over top of stainless steel seems to provide the best combination for corrosion protection and ease of purging.

If surface properties of the extruded resin require modification (such as, lower C.o.F. for packaging machine processing), refer to the Conpol® Processing Additive Resins product information guide.

After processing Surlyn®, purge the material out using a polyethylene resin, preferably with a lower melt flow rate than the Surlyn resin in use. The "Disco Purge Method" is suggested as the preferred purging method, as this method usually results in a more effective purging process. Information on the Disco Purge Method can be obtained via your DuPont Sales Representative.

Never shut down the extrusion system with Surlyn® in the extruder and die. Properly purge out the Surlyn® with a polyethylene, and shut down the line with polyethylene or polypropylene in the system.

Blown Film Processing

Nominal Values

Blown Film Processing Information	A suggested initial extruder set temperature profile:
Feed Zone	135°C (275°F)
Second Zone	160°C (320°F)
Third Zone	185°C (365°F)
Fourth Zone	185°C (365°F)
Fifth Zone	185°C (365°F)
Adapter Zone	185°C (365°F)
Die Zone	185°C (365°F)

Cast Film / Sheet Processing

Nominal Values

Cast Film / Sheet Processing	A suggested initial extruder set temperature profile.
Feed Zone	135°C (275°F)
Second Zone	160°C (320°F)
Third Zone	185°C (365°F)
Fourth Zone	210°C (410°F)
Fifth Zone	210°C (410°F)
Adapter Zone	210°C (410°F)
Die Zone	210°C (410°F)

FDA Status Information

Surlyn® E185SB complies with the Food and Drug Administration regulation 21 CFR 175.300 - - 'Resinous and polymeric coatings'. This regulation describes

polymers that may be used as coatings on a metal substrate for packaging, transporting, or holding food, subject to meeting the extractive limitations in the regulation.

Surlyn® E185SB also complies with FDA regulation 21 CFR 175.320 - - 'Resinous and polymeric coatings for polyolefin films', subject to meeting the extractive limitations in the regulation.

Surlyn® E185SB contains 0.45 wt.% of a slip agent that complies with 21 CFR 175.300(b)(3)(xxv) - 'Release agents' and 21 CFR 175.320(b)(3). This slip agent cannot exceed 0.0085 milligram per square centimeter (0.055 milligram per square inch) in the finished food-contact article.

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Regulatory Information

For information on regulatory compliance outside of the U.S., consult your local DuPont representative.

Safety & Handling

For information on appropriate Handling & Storage of this polymeric resin, please refer to the Material Safety Data Sheet..

A Product Safety Bulletin, Material Safety Data Sheet, and/or more detailed information on extrusion processing and/or compounding of this polymeric resin for specific applications are available from your DuPont Packaging and Industrial Polymers representative.

Read and Understand the Material Safety Data Sheet (MSDS) before using this product

Regional Centres

DuPont operates in more than 70 countries. For help finding a local representative, please contact one of the following regional customer contact centers:

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