

DuPont™ Surlyn® 1652

Surlyn® resins Product Data Sheet

Description

Product Description

Surlyn® 1652 is available for use in conventional blown, cast film, sheet extrusion and coextrusion equipment. It is also used in extrusion coating and coextrusion coating equipment designed to process polyethylene and ethylene copolymer type resins.

Restrictions

Material Status

- Commercial: Active

Typical Characteristics

Features

Zinc Ionomer

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)	5.2 g/10 min	ASTM D1238	ISO 1133
Thermal	Nominal Values	Test Method(s)	
* Melting Point (DSC)	100°C (212°F)	ASTM D3417	ISO 3146
Freezing Point (DSC)	80°C (176°F)	ASTM D3417	ISO 3146
Vicat Softening Point ()	79°C (174°F)	ASTM D1525	ISO 306

Processing Information

General

- * Maximum Processing Temperature 300°C (572°F)

General Processing Information

Surlyn® 1652 is normally processed at melt temperatures ranging from 185°-285°C (365°-545°F) in flat die equipment. For cast film / sheet, a typical extruder profile is below. Actual processing temperatures will usually be determined by either the specific equipment or substrate or one of the other polymers in a coextrusion.

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 temperature set 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 temperature set profile.
Feed Zone	160°C (320°F)
Second Zone	210°C (410°F)
Third Zone	235°C (455°F)
Fourth Zone	235°C (455°F)
Fifth Zone	235°C (455°F)
Adapter Zone	235°C (455°F)
Die Zone	235°C (455°F)
Extrusion Coating/Lamination Processing	Nominal Values
Extrusion Coating / Lamination Processing	A suggested initial extruder temperature set profile.
Feed Zone	185°C (365°F)
Second Zone	235°C (455°F)
Third Zone	260°C (500°F)
Fourth Zone	285°C (545°F)
Fifth Zone	285°C (545°F)
Adapter Zone	285°C (545°F)
Die Zone	285°C (545°F)

FDA Status Information

SURLYN® 1652 complies with Food and Drug Administration Regulation 21 CFR 177.1330(a) - - Ionomeric resins, subject to the limitations and requirements therein. This Regulation describes polymers that may be used in contact with food, subject

to the finished food-contact article meeting the extractive limitations under the intended conditions of use, as shown in paragraph (c) of the Regulation.

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Regulatory Information

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

Safety & Handling

A Product Safety Bulletin, Material Safety Data Sheet, and more detailed information on compounding and processing Surlyn® resins 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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