

DuPont™ Surlyn® 1650

Surlyn® resins Product Data Sheet

Description

Product Description

Surlyn® 1650 is available for use in conventional blown, cast film, and sheet extrusion equipment. It is also used in coextrusion 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) | 1.8 g/10 min | ASTM D1238 | ISO 1133 |
| Thermal | Nominal Values | Test Method (s) | |
| Melting Point (DSC) | 97°C (207°F) | ASTM D3417 | ISO 3146 |
| Freezing Point (DSC) | 73°C (163°F) | ASTM D3417 | |
| Vicat Softening Point () | 73°C (163°F) | ASTM D1525 | ISO 306 |

Processing Information

General

Maximum Processing Temperature

285°C (545°F)

General Processing Information

Surlyn® 1650 is normally processed at melt temperatures ranging from 160°-260°C (320°-500°F) in blown and flat die equipment. Typical extruder profiles are shown 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 Processing Information | 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) |

FDA Status Information

Surlyn® 1650 conforms to the United States Code of Federal Regulations, Title 21, Paragraph 177.1330 covering its use as a food contact surface subject to the extractives limitations on the finished food contact article as described in the regulation.

Regulatory Information

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

Safety & Handling

Surlyn® 1650 resins as supplied by DuPont are not considered hazardous materials. As with any hot material, care should be taken to protect the hands and other exposed parts of the body when handling molten polymer. At recommended processing temperatures, small amounts of fumes may evolve from the resins. When resins are overheated, more extensive decomposition may occur. Adequate ventilation should be provided to remove fumes from the work area. Disposal of scrap presents no special problems and can be by landfill or incineration in a properly operated incinerator. Disposal should comply with local, state, and federal regulations. Resin pellets can be a slipping hazard. Loose pellets should be swept up promptly to prevent falls. For more detailed information on the safe handling and disposal of DuPont resins, a Material Safety Data Sheet can be obtained from the DuPont Packaging and Industrial Polymers website or by contacting your sales 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:

Americas

DuPont Company, BMP26-2363
Lancaster Pike & Route 141
Wilmington, DE 19805 U.S.A.
Telephone +1 302-774-1161
Toll-free (USA) 800-628-6208
Fax +1 302-999-4399

DuPont do Brasil, S.A.
Alameda Itapecuru, 506
06454-080 Barueri, SP Brasil
Telephone +55 11 4166 8122
Fax +55 11 4166 8720

Asia Pacific

DuPont China Holding Co., Ltd.
Shanghai Branch
399 Keyuan Road, Bldg. 11
Zhangjiang Hi-Tech Park
Pudong New District, Shanghai
P.R. China (Postcode: 201203)
Telephone +86 21 3862 2888
Fax +86-21-3862-2889

Europe / Middle East / Africa

DuPont de Nemours Int'l. S.A.
2, Chemin du Pavillon Box 50
CH-1218 Le Grand Saconnex
Geneva, Switzerland
Telephone +41 22 717 51 11
Fax +41 22 717 55 00

www2.dupont.com/Surlyn/en_US/

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