

DuPont™ Surlyn® 8940

Surlyn® resins Product Data Sheet

Description

Product Description

Surlyn® 8940 is a sodium ionomer thermoplastic resin. It is available for use in conventional extrusion and injection equipment, to create various sheets or shapes.

Surlyn® 8940 thermoplastic resin is an advanced ethylene/methacrylic acid (E/MAA) copolymer, in which the MAA acid groups have been partially neutralized with sodium ions.

Restrictions

Material Status

- Commercial: Active

Typical Characteristics

Features

Sodium Ionomer

Characteristics / Benefits

Embrittlement Temperature ----- (-106C) ----- ASTM D746
 Abrasion Resistance ----- 370 NBS Index ----- ASTM D1630
 Flexural Modulus (23C) ----- 350 MPa ----- ASTM D790
 Flexural Modulus (-20C) ----- 717 MPa ----- ASTM D790
 Tensile Elongation @ Break (23C) ---- 470% ----- ASTM D638 / ISO 527-2
 Tensile Strength @ Break (23C) ----- 33 MPa ----- ASTM D638 / ISO 527-2
 Tensile Strength @ Yield (23C) ----- 15 MPa ----- ASTM D638
 Tensile Impact Strength (23C) ----- 485 ft-lb/in2 ----- ASTM D1822
 Tensile Impact Strength (-40C) ----- 360 ft-lb/in2 ----- ASTM D1822
 Hardness (Shore D) ----- 65 ----- ASTM D2240 / ISO 868
 Haze (0.25 inch) ----- 5% ----- ASTM D1003
 Notched Izod Impact (23C) ----- 19.2 ft-lb/in ----- ASTM D256
 Tear Strength (23C) ----- 1.48 kN/m ----- ASTM D624

Applications

Blow Molding / Injection Molding / Sheet Extrusion

Typical Properties

Physical

Nominal Values

Test Method(s)

Density ()

0.95 g/cm³

ASTM D792

ISO 1183

Melt Flow Rate (190°C/2.16kg)

2.8 g/10 min

ASTM D1238

ISO 1133

Thermal

Nominal Values

Test Method(s)

Melting Point (DSC)

94°C (201°F)

ASTM D3418

ISO 3146

Freezing Point (DSC)

59°C (138°F)

ASTM D3418

Vicat Softening Point ()

63°C (145°F)

ASTM D1525

ISO 306

Processing Information

General

Maximum Processing Temperature 285°C (545°F)

General Processing Information Surlyn® 8940 is normally processed at melt temperatures ranging from 185°-285°C (365°-545°F). Actual processing temperatures will usually be determined by either the specific equipment or substrate or one of the other polymers in a coextrusion or coinjection..

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.

FDA Status Information

Surlyn® 8940 resin complies with the provisions of U.S. Food and Drug Administration (FDA) Title 21 Code of Regulations 177.1330.

Safety & Handling

Surlyn® 8940 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:

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This data sheet is effective as of 01/07/2010 8:50 AM and supersedes all previous versions.