

## DuPont™ Surlyn® 1801

### Surlyn® resins Product Data Sheet

#### Description

Product Description	Surlyn® 1801 in an ionomer of an acid copolymer resin. It is available for use in conventional blown and cast film extrusion equipment, designed to process polyethylene type resins.
---------------------	---

#### Restrictions

Material Status	<ul style="list-style-type: none"> <li>Commercial: Active</li> </ul>
-----------------	--

#### Typical Characteristics

Uses	<ul style="list-style-type: none"> <li>Packaging</li> </ul>
Features	Zinc based ionomer

#### Typical Properties

Physical	Nominal Values	Test Method(s)	
Density ( )	0.94 g/cm <sup>3</sup>	ASTM D792	ISO 1183
Melt Flow Rate (190°C/2.16kg)	0.9 g/10 min	ASTM D1238	ISO 1133
Thermal	Nominal Values	Test Method(s)	
Melting Point (DSC)	92°C (198°F)	ASTM D3418	ISO 3146
Freezing Point (DSC)	76°C (169°F)	ASTM D3418	
Vicat Softening Point ( )	71°C (160°F)	ASTM D1525	ISO 306

#### Processing Information

##### General

Maximum Processing Temperature	260°C (500°F)
General Processing Information	Surlyn® 1801 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® 1801 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 Nucrel 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)

<b>FDA Status Information</b>	DuPont™ Surlyn® 1801 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.
<b>Regulatory Information</b>	For Regulatory compliance information outside the United States, please contact your local DuPont representative.
<b>Safety &amp; Handling</b>	Surlyn® 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, BMP26-2215  
Lancaster Pike & Route 141  
Wilmington, DE 19805 U.S.A.  
Telephone +1 302-774-1161  
Toll-free (USA) 800-628-6208 ext. 6  
Fax +1 302-355 4056

DuPont do Brasil, S.A.  
Alameda Itapecuru, 506  
06454-080 Barueri, SP Brasil  
Telephone +55 11 4166 8000  
Fax +55 11 4166 8736

## 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

<http://surlyn.dupont.com>

*The data listed here fall within the normal range of properties, but they should not be used to establish specification limits nor used alone as the basis of design. The DuPont Company assumes no obligations or liability for any advice furnished or for any results obtained with respect to this information. All such advice is given and accepted at the buyer's risk. The disclosure of information herein is not a licence to operate under, or a recommendation to infringe, any patent of DuPont or others. Since DuPont cannot anticipate all variations in actual end-use conditions, DuPont makes no warranties and assumes no liability in connection with any use of this information.*

*CAUTION: Do not use DuPont materials in medical applications involving implantations in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of DuPont POLICY Regarding Medical Applications H-50103-3 and DuPont CAUTION Regarding Medical Applications H-50102-3.*

*Copyright © 2009 DuPont. The DuPont Oval Logo, DuPont™, The miracles of science™, and trademarks designated with "®" are registered trademarks or trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.*

*This data sheet is effective as of 01/05/2010 1:35 PM and supersedes all previous versions.*