



Surlyn®

thermoplastic resins

Basic Description

DuPont *Surlyn*® brand resins are unique ionomer-class molding and extrusion materials created from DuPont proprietary acid copolymers. Starting with selected molecular weight grades of copolymers such as ethylene/methacrylic acid, DuPont adds zinc, sodium, lithium or other metal salts. Acid neutralization results in the formation of ion clusters (hence the general term, "ionomer") within the resulting polymer matrix.

Surlyn® resins are designed and manufactured by DuPont to deliver premium end-use performance or processing characteristics in a variety of specialized industrial applications.

Performance Features

Surlyn® resins incorporate many of the performance features of the original ethylene-based copolymers, such as chemical resistance, melting range, density, and basic processing characteristics. However, *Surlyn*® resin performance is significantly enhanced in such areas as:

- low temperature impact toughness;
- abrasion resistance;

- chemical resistance;
- transparency;
- melt strength;
- direct adhesion of epoxy and polyurethane finishes; and
- direct adhesion to metal, glass, and natural fibers by heat lamination.

Product Range

DuPont offers a wide selection of *Surlyn*® resins, starting with base resins of varying molecular weight. Proprietary manufacturing technologies allow precise control of acid levels and the degree of acid neutralization occurring with each metal ion type in each resin grade. This precision control enables DuPont to manufacture each grade of its *Surlyn*® product line with high lot-to-lot consistency and end-use reliability.

More than 30 grades of *Surlyn*® currently are available commercially for molding and industrial applications. The range of properties for these resins are shown in Table 1.

Table 1. Selected Properties of *Surlyn*®

Property	Value Range	Test Method
Specific Gravity	0.94 - 0.97	ASTM D 792
Hardness (Shore D)	39 - 68	ASTM D 2240
Flex Modulus (room temp, kpsi)	4.3 - 75	ASTM D790
Tensile Strength (kpsi)	2.1 - 5.4	ASTM D 638
Elongation at Break (%)	285 - 660	ASTM D 638
Melt Flow Index (g/10 min.)	0.7 - 20.0	ASTM D 1238
Vicat Softening Point (°C)	48 - 79	ASTM D 1525-70
Melting Point (°C)	70 - 100	DSC*
Freeze Point (°C)	37 - 69	DSC*
Optical Haze (0.25 in.(6.4 mm))	4 - 27	ASTM D1003A

*As determined by differential scanning calorimetry

For More Information

Complete properties for individual grades of *Surlyn*® thermoplastic resins for molding and industrial extrusion can be found on DuPont's web site.

DuPont technical staff are also available via e-mail and by mail, fax or telephone.

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The technical data contained herein are guides to the use of DuPont resins. The advice contained herein is based upon tests and information believed to be reliable, but users should not rely upon it absolutely for specific applications because performance properties will vary with processing conditions. It is given and accepted at user's risk and confirmation of its validity and suitability in particular cases should be obtained independently. The DuPont Company makes no guarantees of results and assumes no obligations or liability in connection with its advice. This publication is not to be taken as a license to operate under, or recommendation to infringe, any patents.

CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see DuPont Medical Caution Statement, H-50102.



Surlyn®

Only by DuPont



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Mechanical Property Data

MPE; PE PLUS

<i>Property</i>	<i>Nominal Value*</i>	<i>Method</i>
Specific gravity	0.928 gms/cm ³	ASTM D 792
Tensile Strength MD	4400 psi	ASTM D 882
Tensile Strength XD	4000 psi	ASTM D 882
Elongation @ Brk MD	460 %	ASTM D 882
Elongation @ Brk XD	600 %	ASTM D 882
Elmendorf Tear Str. MD	400 gms/mil	ASTM D 1922
Elmendorf Tear StrD	350 gms/mil	ASTM D 1922

* Typical Properties; not to be used as specifications

and

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PRODUCT DATASHEET

Product Identification: **Proflex / Proflex-S**
Description: Polyolefin Copolymer Elastomer

Properties ¹	Test Method	
Density	ASTM D1238	0.95 g/cm ³
Ultimate Tensile Strength	ASTM D638	1520 psi
Ultimate Tensile Elongation	ASTM D638	750%
Flexural Modulus	ASTM D790	3500 psi
Hardness, Shore A	ASTM D2240	84
Melt Point	DSC	169 F
Vicat Softening Point	ASTM D1525	114 F

Proflex-S: Contains an additive to reduce coefficient of friction.

1 Typical properties; not to be used as sales specifications.