# DuPont Packaging & Industrial Polymers

## DuPont™ Surlyn® E185SB

### Surlyn® resins Product Data Sheet

## Description

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| Product Description | Surlyn® E185SB is an ionomer of an acid copolymer resin. It is designed for coextrusion with high-density polyethylene in peelable seals applications. It can be used in extrusion equipment designed to typically process polyethylene resins. |

## Restrictions

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| Material Status | • Commercial: Active |
| Availability | • Latin America, North America, South America |

## Typical Characteristics

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| Uses | • Film<br>Packaging<br>Sealants |
| Composition | % Proprietary Formulation |
| Features | Surlyn® E185SB can be coextruded with HDPE to provide delamination-type peelable seals. The seal strength can be controlled by processing conditions and/or the thickness of Surlyn® E185SB layer. Thickness is typically in the range of 5 to 15 microns (0.20 to 0.60 mils).<br><br>Other benefits of Surlyn® E185SB include:<br>· Very low seal initiation temperature<br>· Broad sealing temperature range |
| Characteristics / Benefits | Contains "Slip" and "Antiblock" |
| Applications | Delaminating type peelable seal package examples:<br>· Bag-in-a box applications such as cereal, crackers, and snacks<br>· Slug packs for crackers |

## Typical Properties

| Physical | Nominal Values | Test Method(s) | |
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| Density () | 0.95 g/cm³ | ASTM D792 | ISO 1183 |
| Melt Flow Rate (190°C/2.16kg) | 3 g/10 min | ASTM D1238 | ISO 1133 |
| **Thermal** | **Nominal Values** | **Test Method(s)** | |
| Melting Point (DSC) | 89°C (192°F) | ASTM D3418 | ISO 3146 |
| Freezing Point (DSC) | 62°C (144°F) | ASTM D3418 | |
| Vicat Softening Point () | 60°C (140°F) | ASTM D1525 | ISO 306 |

## Processing Information

  

| General | |
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| Maximum Processing Temperature | 260°C (500°F) |
| General Processing Information | Surlyn® E185SB 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® E185SB can also be used in cast extrusions and coextrusions.<br><br>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.<br><br>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.<br><br>After processing Surlyn®, purge the material out using a polyethylene resin, preferably with a lower melt flow rate than the Surlyn resin in use.<br>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.<br><br>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 |
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| 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) |

| Cast Film / Sheet Processing | Nominal Values |
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| Cast 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 | 210°C (410°F) |
| Fifth Zone | 210°C (410°F) |
| Adapter Zone | 210°C (410°F) |
| Die Zone | 210°C (410°F) |

  

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| **FDA Status Information** | Surlyn® E185SB conforms to the Code of Federal Regulations, Title 21, Paragraphs 175.300 and 175.320. These regulations cover use of Surlyn E185SB as a coating on metal or polyolefin film, subject to the extractive limitations on the finished food contact article as described in the regulations. |
| **Regulatory Information** | For Regulatory compliance information outside the Unite States, please contact your local DuPont representative. |
| **Safety & Handling** | 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. |

*This data sheet is effective as of 01/05/2010 2:06 PM and supersedes all previous versions.*