# AFFINITY™ PL 1850G

## The Dow Chemical Company - Polyolefin Plastomer

Monday, November 4, 2019

## General Information

**Product Description**

AFFINITY* PL 1850G Polyolefin Plastomer (POP) is produced via INSITE* Technology. It is designed to provide blown and cast film products with low temperature sealability, excellent optics and good abuse resistance. It has value as a sealant layer in multilayer film structures for dry and liquid packaging.

- High performance sealant layer in flexible packaging
- Excellent optics, low temperature seal initiation and abuse resistance

Complies with:

- U.S. FDA FCN 424
- Canadian HPFB No Objectin
- EU, No 10/2011

Consult the regulations for complete details.

| General | | | |
|---|---|---|---|
| Material Status | • Commercial: Active | | |
| Availability | • Asia Pacific<br>• Europe | • Latin America<br>• North America | |
| Additive | • Antiblock: No | • Processing Aid: No | • Slip: No |
| Agency Ratings | • EU No 10/2011 | • FDA FCN 424 | • HPFB (Canada) No Objection |
| Forms | • Pellets | | |
| Processing Method | • Cast Film | | |

## ASTM & ISO Properties [1]

| Physical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Density / Specific Gravity | 0.904 | | ASTM D792 |
| Melt Mass-Flow Rate (190°C/2.16 kg) | 3.0 | g/10 min | ASTM D1238 |
| **Films** | **Nominal Value** | **Unit** | **Test Method** |
| Film Thickness - Tested | 1 | mil | |
| Film Puncture Energy (0.80 mil) | 37.9 | in·lb | Internal Method |
| Film Puncture Force (0.80 mil) | 10.7 | lbf | Internal Method |
| Film Puncture Resistance (0.80 mil) | 380 | ft·lb/in³ | Internal Method |
| Secant Modulus - 2% Secant, MD (0.80 mil) | 15700 | psi | ASTM D882 |
| Secant Modulus - 2% Secant, TD (0.80 mil) | 16600 | psi | ASTM D882 |
| Tensile Strength - MD (Yield, 0.80 mil) | 1440 | psi | ASTM D882 |
| Tensile Strength - TD (Yield, 0.80 mil) | 790 | psi | ASTM D882 |
| Tensile Strength - MD (Break, 0.80 mil) | 6470 | psi | ASTM D882 |
| Tensile Strength - TD (Break, 0.80 mil) | 4320 | psi | ASTM D882 |
| Tensile Elongation - MD (Break, 0.80 mil) | 350 | % | ASTM D882 |
| Tensile Elongation - TD (Break, 0.80 mil) | 570 | % | ASTM D882 |
| Dart Drop Impact (0.80 mil) | > 830 | g | ASTM D1709B |
| Elmendorf Tear Strength - MD [2] (0.80 mil) | 120 | g | ASTM D1922 |
| Elmendorf Tear Strength - TD [2] (0.80 mil) | 410 | g | ASTM D1922 |
| Seal Initiation Temperature [3] (0.80 mil) | 201 | °F | Internal Method |

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| Thermal | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Vicat Softening Temperature | 185 | °F | ASTM D1525 |
| Melting Temperature (DSC) | 208 | °F | Internal Method |

| Optical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Gloss (20°, 0.800 mil) | 144 | | ASTM D2457 |
| Haze (0.800 mil) | 0.700 | % | ASTM D1003 |

## Processing Information

| Extrusion | Nominal Value | Unit |
|---|---|---|
| Melt Temperature | 525 | °F |

**Extrusion Notes**

Fabrication Conditions For Cast Film:

- Screw Size: 3.5 in. (89 mm); 32:1 L/D
  - Screw Speed: 10 rpm
- Screw Size: 2.5 in. (63.5 mm); 24:1 L/D
  - Screw Speed: 27 rpm
- Screw Size: 2.0 in. (51 mm); 24:1 L/D
  - Screw Speed: 46 rpm
- Screw Type: Sterlex, Single Flight with Maddock Mixer & Single Flight
- Die Gap: 20 mil (0.5 mm)
- Chill Roll Temperature: 70°F (21°C)
- Melt Temperature: 525°F (274°C)
- Output: 243 lb/hr
- Line Speed: 600 fpm (183 m/min)

### Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Modified rectangular test specimen.

[3] Temperature at which 1 lb/in. (4.4 N/25.4 mm) heat seal strength is achieved.