

## Solvay Specialty Polymers Halar® 300DA Ethylene Chlorotrifluoroethylene Copolymer (ECTFE)

Category : Polymer , Thermoplastic , Fluoropolymer , ETFE/ECTFE , ECTFE Fluoropolymer

### Material Notes:

Halar® "DA" grades are available and meet the FDA's Condition of Use B, as described under 21 C.F.R. 176-170(c). Features: Medium Viscosity Additional Properties: Crystallization Heat - ASTM D3418 40.0 J/g; Heat of Fusion - ASTM D3418 42.0 J/g; Thermal Stability - TGA 405 °C Information provided by Solvay Specialty Polymers.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Solvay-Specialty-Polymers-Halar-300DA-Ethylene-Chlorotrifluoroethylene-Copolymer-ECTFE.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Halar-300DA-Ethylene-Chlorotrifluoroethylene-Copolymer-ECTFE.php)

| Physical Properties            | Metric                                               | English                                              | Comments   |
|--------------------------------|------------------------------------------------------|------------------------------------------------------|------------|
| Density                        | 1.68 g/cc                                            | 0.0607 lb/in <sup>3</sup>                            | ASTM D792  |
| Water Absorption at Saturation | <= 0.10 %                                            | <= 0.10 %                                            | ASTM D570  |
| Linear Mold Shrinkage, Flow    | 0.025 cm/cm                                          | 0.025 in/in                                          |            |
| Melt Flow                      | 2.0 g/10 min<br>@Load 2.16 kg,<br>Temperature 275 °C | 2.0 g/10 min<br>@Load 4.76 lb,<br>Temperature 527 °F | ASTM D1238 |

| Mechanical Properties     | Metric                                                   | English                                                       | Comments              |
|---------------------------|----------------------------------------------------------|---------------------------------------------------------------|-----------------------|
| Hardness, Rockwell R      | 90                                                       | 90                                                            | ASTM D785             |
| Hardness, Shore D         | 75                                                       | 75                                                            | ASTM D2240            |
| Tensile Strength at Break | 54.0 MPa                                                 | 7830 psi                                                      | 50 mm/min; ASTM D638  |
| Tensile Strength, Yield   | 30.0 MPa                                                 | 4350 psi                                                      | 50 mm/min; ASTM D638  |
| Elongation at Break       | 250 %                                                    | 250 %                                                         | 50 mm/min; ASTM D638  |
| Elongation at Yield       | 5.0 %                                                    | 5.0 %                                                         | 50 mm/min; ASTM D638  |
| Tensile Modulus           | 1.66 GPa                                                 | 241 ksi                                                       | 50 mm/min; ASTM D638  |
| Flexural Strength         | 47.0 MPa                                                 | 6820 psi                                                      | 2.5 mm/min; ASTM D790 |
| Flexural Modulus          | 1.69 GPa                                                 | 245 ksi                                                       | 2.5 mm/min; ASTM D790 |
| Izod Impact, Notched      | 2.10 J/cm<br>@Thickness 3.20 mm,<br>Temperature -40.0 °C | 3.93 ft-lb/in<br>@Thickness 0.126 in,<br>Temperature -40.0 °F | ASTM D256             |
|                           | NB<br>@Thickness 3.20 mm,                                | NB<br>@Thickness 0.126 in,                                    | ASTM D256             |

| Mechanical Properties            | Metric | English | Comments                       |
|----------------------------------|--------|---------|--------------------------------|
| Coefficient of Friction, Dynamic | 0.20   | 0.20    | vs. Itself; ASTM D1894         |
| Coefficient of Friction, Static  | 0.30   | 0.30    | vs. Itself; ASTM D1894         |
| Taber Abrasion, mg/1000 Cycles   | 5.0    | 5.0     | CS-17 Wheel, 500 g; ASTM D1044 |

| Thermal Properties                          | Metric                                                    | English                                                                                                | Comments               |
|---------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------|
| CTE, linear, Parallel to Flow               | 100 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$     | 55.6 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$                                               |                        |
| Specific Heat Capacity                      | 0.962 J/g- $\text{Å}^\circ\text{C}$                       | 0.230 BTU/lb- $\text{Å}^\circ\text{F}$                                                                 | ASTM C351              |
| Thermal Conductivity                        | 0.150 W/m-K<br>@Temperature 40.0 $\text{Å}^\circ\text{C}$ | 1.04 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$<br>@Temperature 104 $\text{Å}^\circ\text{F}$ | ASTM C177              |
| Melting Point                               | 242 $\text{Å}^\circ\text{C}$                              | 468 $\text{Å}^\circ\text{F}$                                                                           | DSC                    |
| Crystallization Temperature                 | 222 $\text{Å}^\circ\text{C}$                              | 432 $\text{Å}^\circ\text{F}$                                                                           | Peak; ASTM D3418       |
| Deflection Temperature at 0.46 MPa (66 psi) | 90.0 $\text{Å}^\circ\text{C}$                             | 194 $\text{Å}^\circ\text{F}$                                                                           | Unannealed; ASTM D648  |
| Deflection Temperature at 1.8 MPa (264 psi) | 65.0 $\text{Å}^\circ\text{C}$                             | 149 $\text{Å}^\circ\text{F}$                                                                           | Unannealed; ASTM D648  |
| Brittleness Temperature                     | $\leq -76.0 \text{ Å}^\circ\text{C}$                      | $\leq -105 \text{ Å}^\circ\text{F}$                                                                    | Procedure A; ASTM D746 |
| Glass Transition Temp, Tg                   | 85.0 $\text{Å}^\circ\text{C}$                             | 185 $\text{Å}^\circ\text{F}$                                                                           | ASTM E1356             |
| Flammability, UL94                          | V-0                                                       | V-0                                                                                                    |                        |
| Oxygen Index                                | 52 %                                                      | 52 %                                                                                                   | ASTM D2863             |

| Electrical Properties | Metric                           | English                          | Comments  |
|-----------------------|----------------------------------|----------------------------------|-----------|
| Volume Resistivity    | 5.50e+16 ohm-cm                  | 5.50e+16 ohm-cm                  | ASTM D257 |
| Dielectric Constant   | 2.57<br>@Frequency 1.00e+6 Hz    | 2.57<br>@Frequency 1.00e+6 Hz    | ASTM D150 |
| Dielectric Strength   | 14.0 kV/mm<br>@Thickness 3.18 mm | 356 kV/in<br>@Thickness 0.125 in | ASTM D149 |

| Compliance Properties | Metric | English | Comments |
|-----------------------|--------|---------|----------|
| FDA                   | Yes    | Yes     |          |

| Descriptive Properties | Value                                    | Comments |
|------------------------|------------------------------------------|----------|
| Agency Ratings         | FDA 21 CFR 176.170(c) Condition of Use B |          |
| Availability           | Africa & Middle East                     |          |
|                        | Asia Pacific                             |          |
|                        | Europe                                   |          |
|                        | Latin America                            |          |
|                        | North America                            |          |
| Form                   | Pellets; Powder                          |          |
| Processing Technique   | Extrusion                                |          |

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