

## BASF Ultrason E 2010 PES

Category : Polymer , Thermoplastic , Polyethersulfone (PES)

### Material Notes:

Ultrason E 2010 is an unreinforced, medium viscosity standard injection molding PES grade. It flows readily and offers outstanding heat resistance and dimensional stability. It conforms to FDA requirements of 21 CFR 177.2440.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_BASF-Ultrason-E-2010-PES.php](http://www.lookpolymers.com/polymer_BASF-Ultrason-E-2010-PES.php)

| Physical Properties                | Metric                                              | English                                             | Comments              |
|------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------|
| Density                            | 1.37 g/cc                                           | 0.0495 lb/in <sup>3</sup>                           | ISO 1183              |
| Water Absorption                   | 2.2 %                                               | 2.2 %                                               | ISO 62                |
| Moisture Absorption at Equilibrium | 0.80 %                                              | 0.80 %                                              | 23°C/50% R.H.; ISO 62 |
| Viscosity Test                     | 56 cm <sup>3</sup> /g                               | 56 cm <sup>3</sup> /g                               | Viscosity number      |
| Linear Mold Shrinkage, Flow        | 0.0082 cm/cm                                        | 0.0082 in/in                                        | ISO 294               |
| Linear Mold Shrinkage, Transverse  | 0.0086 cm/cm                                        | 0.0086 in/in                                        | ISO 294               |
| Melt Flow                          | 70 g/10 min<br>@Load 10.0 kg,<br>Temperature 360 °C | 70 g/10 min<br>@Load 22.0 lb,<br>Temperature 680 °F | ISO 1133              |

| Mechanical Properties     | Metric                           | English                        | Comments            |
|---------------------------|----------------------------------|--------------------------------|---------------------|
| Ball Indentation Hardness | 154 MPa                          | 22300 psi                      | ISO 2039-1          |
| Tensile Strength at Break | 90.0 MPa                         | 13100 psi                      | 5mm/min; ISO 527-2  |
| Tensile Strength, Yield   | 90.0 MPa                         | 13100 psi                      | 50mm/min; ISO 527-2 |
| Elongation at Break       | 6.7 %                            | 6.7 %                          | 5mm/min; ISO 527-2  |
| Elongation at Yield       | 6.7 %                            | 6.7 %                          | 50mm/min; ISO 527-2 |
| Modulus of Elasticity     | 2.50 GPa<br>@Temperature 60.0 °C | 363 ksi<br>@Temperature 140 °F | ISO 527             |
| Tensile Modulus           | 2.70 GPa                         | 392 ksi                        | ISO 527-2           |
| Flexural Strength         | 131 MPa                          | 19000 psi                      | ISO Data            |
| Flexural Modulus          | 2.60 GPa                         | 377 ksi                        | ASTM Test           |
|                           | 2.86 GPa                         | 415 ksi                        | ISO Data            |
|                           | 5.00 MPa                         | 725 psi                        |                     |

| Mechanical Properties      | Metric                                       | English                                      | Comments    |
|----------------------------|----------------------------------------------|----------------------------------------------|-------------|
|                            | @# of Cycles 1.00e+7 ,<br>Temperature 180 °C | @# of Cycles 1.00e+7 ,<br>Temperature 356 °F |             |
|                            | 7.00 MPa                                     | 1020 psi                                     |             |
|                            | @# of Cycles 1.00e+6 ,<br>Temperature 180 °C | @# of Cycles 1.00e+6 ,<br>Temperature 356 °F |             |
|                            | 9.00 MPa                                     | 1310 psi                                     |             |
|                            | @# of Cycles 100000 ,<br>Temperature 180 °C  | @# of Cycles 100000 ,<br>Temperature 356 °F  |             |
|                            | 12.0 MPa                                     | 1740 psi                                     |             |
|                            | @# of Cycles 10000 ,<br>Temperature 180 °C   | @# of Cycles 10000 ,<br>Temperature 356 °F   |             |
|                            | 22.0 MPa                                     | 3190 psi                                     |             |
|                            | @# of Cycles 1.00e+7                         | @# of Cycles 1.00e+7                         |             |
|                            | 25.0 MPa                                     | 3630 psi                                     |             |
|                            | @# of Cycles 100000                          | @# of Cycles 100000                          |             |
|                            | 35.0 MPa                                     | 5080 psi                                     |             |
|                            | @# of Cycles 100000                          | @# of Cycles 100000                          |             |
|                            | 55.0 MPa                                     | 7980 psi                                     |             |
|                            | @# of Cycles 10000                           | @# of Cycles 10000                           |             |
| Shear Modulus              | 0.200 GPa                                    | 29.0 ksi                                     | ISO 6721    |
|                            | @Temperature 225 °C                          | @Temperature 437 °F                          |             |
|                            | 0.900 GPa                                    | 131 ksi                                      | ISO 6721    |
|                            | @Temperature 200 °C                          | @Temperature 392 °F                          |             |
|                            | 0.950 GPa                                    | 138 ksi                                      | ISO 6721    |
|                            | @Temperature 100 °C                          | @Temperature 212 °F                          |             |
|                            | 1.00 GPa                                     | 145 ksi                                      | ISO 6721    |
|                            | @Temperature 50.0 °C                         | @Temperature 122 °F                          |             |
| Izod Impact, Notched (ISO) | 6.50 kJ/m <sup>2</sup>                       | 3.09 ft-lb/in <sup>2</sup>                   | ISO 180/A   |
|                            | 7.00 kJ/m <sup>2</sup>                       | 3.33 ft-lb/in <sup>2</sup>                   | ISO 180/A   |
|                            | @Temperature -30.0 °C                        | @Temperature -22.0 °F                        |             |
| Charpy Impact Unnotched    | NB                                           | NB                                           | ISO 179/1eU |
|                            | NB                                           | NB                                           | ISO 179/1eU |
|                            | @Temperature -30.0 °C                        | @Temperature -22.0 °F                        |             |

| Mechanical Properties             | Metric                  | English                    | Comments                        |
|-----------------------------------|-------------------------|----------------------------|---------------------------------|
| Charpy Impact, Notched            | 0.650 J/cm <sup>2</sup> | 3.09 ft-lb/in <sup>2</sup> | ISO 179/1eA                     |
|                                   | 0.700 J/cm <sup>2</sup> | 3.33 ft-lb/in <sup>2</sup> | ISO 179/1eA                     |
|                                   | @Temperature -30.0 °C   | @Temperature -22.0 °F      |                                 |
| Tensile Creep Modulus, 1000 hours | 2700 MPa                | 392000 psi                 | elongation <0.5%, 23°C; ISO 899 |

| Thermal Properties                          | Metric                | English                            | Comments                                            |
|---------------------------------------------|-----------------------|------------------------------------|-----------------------------------------------------|
| CTE, linear                                 | 50.0 µm/m-°C          | 27.8 µin/in-°F                     | DIN 53752                                           |
|                                             | @Temperature -26.0 °C | @Temperature -14.8 °F              |                                                     |
|                                             | 54.0 µm/m-°C          | 30.0 µin/in-°F                     | DIN 53752                                           |
|                                             | @Temperature 75.0 °C  | @Temperature 167 °F                |                                                     |
|                                             | 60.0 µm/m-°C          | 33.3 µin/in-°F                     | DIN 53752                                           |
|                                             | @Temperature 175 °C   | @Temperature 347 °F                |                                                     |
| CTE, linear, Parallel to Flow               | 52.0 µm/m-°C          | 28.9 µin/in-°F                     | ISO 11359-1/-2                                      |
|                                             | 59.0 µm/m-°C          | 32.8 µin/in-°F                     | ISO 11359-1/-2                                      |
| Specific Heat Capacity                      | 1.00 J/g-°C           | 0.239 BTU/lb-°F                    |                                                     |
| Thermal Conductivity                        | 0.190 W/m-K           | 1.32 BTU-in/hr-ft <sup>2</sup> -°F | DIN 52612-1                                         |
| Maximum Service Temperature, Air            | 220 °C                | 428 °F                             |                                                     |
| Deflection Temperature at 0.46 MPa (66 psi) | 218 °C                | 424 °F                             | ISO 75-2                                            |
| Deflection Temperature at 1.8 MPa (264 psi) | 205 °C                | 401 °F                             | ISO 75-2                                            |
| Glass Transition Temp, Tg                   | 225 °C                | 437 °F                             | ISO 11357-1/-3                                      |
| UL RTI, Electrical                          | 190 °C                | 374 °F                             | 50% decrease of tensile strength after 20000h; 746B |
| Flammability, UL94                          | V-0                   | V-0                                |                                                     |
|                                             | @Thickness 3.20 mm    | @Thickness 0.126 in                |                                                     |
|                                             | V-0                   | V-0                                |                                                     |
|                                             | @Thickness 1.60 mm    | @Thickness 0.0630 in               |                                                     |
|                                             | 5VA                   | 5VA                                |                                                     |
|                                             | @Thickness >=3.00 mm  | @Thickness >=0.118 in              |                                                     |
| Oxygen Index                                | 38 %                  | 38 %                               | ISO 4589-1/-2                                       |

| Thermal Properties | 825 °C<br>Metric | 1520 °F<br>English | Ignition Temperature; IEC 60695-2-10<br>Comments |
|--------------------|------------------|--------------------|--------------------------------------------------|
|                    | 960 °C           | 1760 °F            | Flammability Index; IEC 60695-2-12               |

| Optical Properties    | Metric             | English            | Comments    |
|-----------------------|--------------------|--------------------|-------------|
| Refractive Index      | 1.65               | 1.65               |             |
| Transmission, Visible | 88 %               | 88 %               | ASTM D 1003 |
|                       | @Thickness 50.8 mm | @Thickness 2.00 in |             |
|                       | 30 %               | 30 %               |             |
|                       | @Wavelength 350 nm | @Wavelength 350 nm |             |
|                       | 72 %               | 72 %               |             |
|                       | @Wavelength 400 nm | @Wavelength 400 nm |             |
|                       | 81 %               | 81 %               |             |
|                       | @Wavelength 500 nm | @Wavelength 500 nm |             |
|                       | 85 %               | 85 %               |             |
|                       | @Wavelength 600 nm | @Wavelength 600 nm |             |
| UV Transmittance      | 2.0 %              | 2.0 %              |             |
|                       | @Wavelength 300 nm | @Wavelength 300 nm |             |
|                       | 15 %               | 15 %               |             |
|                       | @Wavelength 200 nm | @Wavelength 200 nm |             |

| Electrical Properties | Metric                | English               | Comments    |
|-----------------------|-----------------------|-----------------------|-------------|
| Volume Resistivity    | >= 1.00e+13 ohm-cm    | >= 1.00e+13 ohm-cm    | IEC 60093   |
| Surface Resistance    | >= 1.00e+14 ohm       | >= 1.00e+14 ohm       | IEC 60093   |
| Dielectric Constant   | 3.8                   | 3.8                   | IEC 60250   |
|                       | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz |             |
|                       | 3.9                   | 3.9                   | IEC 60250   |
|                       | @Frequency 100 Hz     | @Frequency 100 Hz     |             |
| Dielectric Strength   | 37.0 kV/mm            | 940 kV/in             | IEC 60243-1 |
| Dissipation Factor    | 0.0017                | 0.0017                | IEC 60250   |
|                       | @Frequency 100 Hz     | @Frequency 100 Hz     |             |
|                       | 0.014                 | 0.014                 |             |

| Electrical Properties      | Metric<br>@Frequency 1.00e+6<br>Hz | English<br>@Frequency 1.00e+6<br>Hz | Comments                     |
|----------------------------|------------------------------------|-------------------------------------|------------------------------|
| Comparative Tracking Index | 125 V                              | 125 V                               | Test Liquid A & B; IEC 60112 |

| Processing Properties | Metric       | English      | Comments          |
|-----------------------|--------------|--------------|-------------------|
| Melt Temperature      | 340 - 390 °C | 644 - 734 °F | Injection molding |
| Mold Temperature      | 140 - 180 °C | 284 - 356 °F | Injection molding |

| Descriptive Properties | Value                    | Comments |
|------------------------|--------------------------|----------|
| Color                  | Natural and colored      |          |
| Commercial Status      | North America and Europe |          |

**Contact Songhan Plastic Technology Co.,Ltd.**

Website : [www.lookpolymers.com](http://www.lookpolymers.com)  
Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)  
Tel : +86 021-51131842  
Mobile : +86 13061808058  
Skype : lookpolymers  
Address : United North Road 215,Fengxian District, Shanghai City,China