

# BASF Ultrason S 3010 PSU

Polymer, Thermoplastic, Polysulfone (PSU)

BASF

## 产品说明

Ultrason S 3010 is an unreinforced, higher viscosity injection molding and extrusion PSU grade, tougher and with improved chemical resistance. It conforms to FDA requirements of 21 CFR 177.1655.

| 物理性能          | 额定值 (公制)  | 额定值 (英制)  | 测试方法                  |
|---------------|---|---|-----------------------|
| 密度            | 1.24 g/cc   | 0.0448 lb/in <sup>3</sup>                         | ISO 1183              |
| 吸水率           | 0.80 %  | 0.80 %  | ISO 62                |
| 平衡吸湿          | 0.30 %  | 0.30 %  | 23°C/50% R.H.; ISO 62 |
| 粘度测试          | 72 cm <sup>3</sup> /g                             | 72 cm <sup>3</sup> /g                             | Viscosity number      |
| 线性成型收缩率, Flow | 0.0070 cm/cm                                      | 0.0070 in/in                                      | ISO 294               |
| 线性成型收缩率, 横向   | 0.0074 cm/cm                                      | 0.0074 in/in                                      | ISO 294               |
| 熔体流动速率        | 40 g/10 min<br>@ Load 10.0 kg, Temperature 360 °C | 40 g/10 min<br>@ Load 22.0 lb, Temperature 680 °F | ISO 1133              |
| 机械性能          | 额定值 (公制)  | 额定值 (英制)  | 测试方法                  |
| 球压硬度          | 135 MPa   | 19600 psi   | ISO 2039-1            |
| 抗张强度(断裂)      | 75.0 MPa  | 10900 psi   | 5mm/min; ISO 527-2    |
| 抗张强度          | 20.0 MPa<br>@ Strain 1.00 %, Temperature 160 °C   | 2900 psi<br>@ Strain 1.00 %, Temperature 320 °F   | ISO 527               |
|               | 27.0 MPa<br>@ Strain 1.00 %, Temperature 23.0 °C  | 3920 psi<br>@ Strain 1.00 %, Temperature 73.4 °F  | ISO 527               |
|               | 35.0 MPa<br>@ Strain 2.00 %, Temperature 160 °C   | 5080 psi<br>@ Strain 2.00 %, Temperature 320 °F   | ISO 527               |
|               | 47.0 MPa<br>@ Strain 2.00 %, Temperature 23.0 °C  | 6820 psi<br>@ Strain 2.00 %, Temperature 73.4 °F  | ISO 527               |
| 抗张强度(屈服)      | 70.0 MPa<br>@ Strain 4.00 %, Temperature 23.0 °C  | 10200 psi<br>@ Strain 4.00 %, Temperature 73.4 °F | ISO 527               |
|               | 75.0 MPa  | 10900 psi   | 50mm/min; ISO 527-2   |
|               | 40.0 MPa<br>@ Temperature 140 °C                  | 5800 psi<br>@ Temperature 284 °F                  |                       |
|               | 58.0 MPa<br>@ Temperature 100 °C                  | 8410 psi<br>@ Temperature 212 °F                  |                       |
| 伸长率 (断裂)      | 68.0 MPa<br>@ Temperature 60.0 °C                 | 9860 psi<br>@ Temperature 140 °F                  |                       |
|               | 75.0 MPa<br>@ Temperature 20.0 °C                 | 10900 psi<br>@ Temperature 68.0 °F                |                       |
|               | 5.7 %   | 5.7 %   | 5mm/min; ISO 527-2    |
|               | 5.7 %   | 5.7 %   | 50mm/min; ISO 527-2   |
| 屈服伸长率         | 0.50 %<br>@ Time 3600 sec, Pressure 10.0 MPa      | 0.50 %<br>@ Time 1.00 hour, Pressure 1450 psi     | ISO 899               |
|               | 0.55 %<br>@ Pressure 10.0 MPa, Time 360000 sec    | 0.55 %<br>@ Pressure 1450 psi, Time 100 hour      | ISO 899               |
|               | 0.56 %<br>@ Pressure 10.0 MPa, Time 3.60e+7 sec   | 0.56 %<br>@ Pressure 1450 psi, Time 10000 hour    | ISO 899               |
|               | 0.80 %<br>@ Time 3600 sec, Pressure 20.0 MPa      | 0.80 %<br>@ Time 1.00 hour, Pressure 2900 psi     | ISO 899               |
|               | 0.90 %<br>@ Pressure 20.0 MPa, Time 360000 sec    | 0.90 %<br>@ Pressure 2900 psi, Time 100 hour      | ISO 899               |
|               | 1.3 %<br>@ Time 3600 sec, Pressure 30.0 MPa       | 1.3 %<br>@ Time 1.00 hour, Pressure 4350 psi      | ISO 899               |
|               | 1.4 %<br>@ Pressure 30.0 MPa, Time 360000 sec     | 1.4 %<br>@ Pressure 4350 psi, Time 100 hour       | ISO 899               |
|               | 1.5 %<br>@ Pressure 30.0 MPa, Time 3.60e+7 sec    | 1.5 %<br>@ Pressure 4350 psi, Time 10000 hour     | ISO 899               |
|               | 1.9 %<br>@ Time 3600 sec, Pressure 40.0 MPa       | 1.9 %<br>@ Time 1.00 hour, Pressure 5800 psi      | ISO 899               |
|               | 2.0 %<br>@ Pressure 20.0 MPa, Time 3.60e+7 sec    | 2.0 %<br>@ Pressure 2900 psi, Time 10000 hour     | ISO 899               |
|               | 2.0 %<br>@ Pressure 40.0 MPa, Time 360000 sec     | 2.0 %<br>@ Pressure 5800 psi, Time 100 hour       | ISO 899               |
|               | 2.0 %<br>@ Time 3600 sec, Pressure 42.0 MPa       | 2.0 %<br>@ Time 1.00 hour, Pressure 6090 psi      | ISO 899               |

|                  |   |  |                  |
|------------------|---|--|------------------|
|                  | 2.2 %<br>@ Pressure 42.0 MPa, Time 360000 sec     | 2.2 %<br>@ Pressure 6090 psi, Time 100 hour          | ISO 899          |
|                  | 2.4 %<br>@ Pressure 40.0 MPa, Time 3.60e+7 sec    | 2.4 %<br>@ Pressure 5800 psi, Time 10000 hour        | ISO 899          |
|                  | 2.5 %<br>@ Pressure 42.0 MPa, Time 3.60e+7 sec    | 2.5 %<br>@ Pressure 6090 psi, Time 10000 hour        | ISO 899          |
| Creep Strength   | 17.0 MPa<br>@ Time 3.60e+7 sec                    | 2470 psi<br>@ Time 10000 hour                        | in water at 95°C |
|                  | 20.0 MPa<br>@ Time 3.60e+6 sec                    | 2900 psi<br>@ Time 1000 hour                         | in water at 95°C |
|                  | 25.0 MPa<br>@ Time 360000 sec                     | 3630 psi<br>@ Time 100 hour                          | in water at 95°C |
|                  | 32.0 MPa<br>@ Time 36000 sec                      | 4640 psi<br>@ Time 10.0 hour                         | in water at 95°C |
| 弹性模量             | 2.00 GPa<br>@ Temperature 140 °C                  | 290 ksi<br>@ Temperature 284 °F                      | ISO 527          |
|                  | 2.30 GPa<br>@ Temperature 100 °C                  | 334 ksi<br>@ Temperature 212 °F                      | ISO 527          |
|                  | 2.49 GPa<br>@ Temperature 60.0 °C                 | 361 ksi<br>@ Temperature 140 °F                      | ISO 527          |
|                  | 2.51 GPa<br>@ Temperature 20.0 °C                 | 364 ksi<br>@ Temperature 68.0 °F                     | ISO 527          |
| 拉伸模量             | 2.60 GPa  | 377 ksi  | ISO 527-2        |
| Fatigue Strength | 25.0 MPa<br>@ # of Cycles 1.00e+7                 | 3630 psi<br>@ # of Cycles 1.00e+7                    |                  |
|                  | 30.0 MPa<br>@ # of Cycles 1.00e+6                 | 4350 psi<br>@ # of Cycles 1.00e+6                    |                  |
|                  | 40.0 MPa<br>@ # of Cycles 100000                  | 5800 psi<br>@ # of Cycles 100000                     |                  |
|                  | 50.0 MPa<br>@ # of Cycles 10000                   | 7250 psi<br>@ # of Cycles 10000                      |                  |
| 剪切模量             | 0.0250 GPa<br>@ Temperature 200 °C                | 3.63 ksi<br>@ Temperature 392 °F                     | ISO 6721         |
|                  | 0.800 GPa<br>@ Temperature 175 °C                 | 116 ksi<br>@ Temperature 347 °F                      | ISO 6721         |
|                  | 0.900 GPa<br>@ Temperature 100 °C                 | 131 ksi<br>@ Temperature 212 °F                      | ISO 6721         |
|                  | 0.950 GPa<br>@ Temperature 50.0 °C                | 138 ksi<br>@ Temperature 122 °F                      | ISO 6721         |
| 悬臂梁缺口冲击强度        | 5.50 kJ/m <sup>2</sup>                            | 2.62 ft-lb/in <sup>2</sup>                           | ISO 180/A        |
|                  | 5.00 kJ/m <sup>2</sup><br>@ Temperature 120 °C    | 2.38 ft-lb/in <sup>2</sup><br>@ Temperature 248 °F   | ISO 179/1eA      |
|                  | 6.00 kJ/m <sup>2</sup><br>@ Temperature -30.0 °C  | 2.86 ft-lb/in <sup>2</sup><br>@ Temperature -22.0 °F | ISO 180/A        |
|                  | 10.0 kJ/m <sup>2</sup><br>@ Temperature 50.0 °C   | 4.76 ft-lb/in <sup>2</sup><br>@ Temperature 122 °F   | ISO 179/1eA      |
|                  | 13.0 kJ/m <sup>2</sup><br>@ Temperature -25.0 °C  | 6.19 ft-lb/in <sup>2</sup><br>@ Temperature -13.0 °F | ISO 179/1eA      |
| 简支梁无缺口冲击强度       | NB  | NB   | ISO 179/1eU      |
|                  | NB<br>@ Temperature -30.0 °C                      | NB<br>@ Temperature -22.0 °F                         | ISO 179/1eU      |
| 简支梁缺口冲击强度        | 0.550 J/cm <sup>2</sup>                           | 2.62 ft-lb/in <sup>2</sup>                           | ISO 179/1eA      |
|                  | 0.600 J/cm <sup>2</sup><br>@ Temperature -30.0 °C | 2.86 ft-lb/in <sup>2</sup><br>@ Temperature -22.0 °F | ISO 179/1eA      |
| 拉伸蠕变模量(1000 hr)  | 2500 MPa  | 363000 psi   | ISO 899-1        |
| <b>电气性能</b>      | <b>额定值 (公制)</b>                                   | <b>额定值 (英制)</b>                                      | <b>测试方法</b>      |
| 体积电阻率            | >= 1.00e+13 ohm-cm                                | >= 1.00e+13 ohm-cm                                   | IEC 60093        |
| 表面电阻             | >= 1.00e+14 ohm                                   | >= 1.00e+14 ohm                                      | IEC 60093        |
| 介电常数             | 3.1<br>@ Frequency 100 Hz                         | 3.1<br>@ Frequency 100 Hz                            | IEC 60250        |
|                  | 3.1<br>@ Frequency 1.00e+6 Hz                     | 3.1<br>@ Frequency 1.00e+6 Hz                        | IEC 60250        |
| 介电强度             | 37.0 kV/mm  | 940 kV/in  | IEC 60243-1      |
| 耗散因数             | 0.00080<br>@ Frequency 100 Hz                     | 0.00080<br>@ Frequency 100 Hz                        | IEC 60250        |
|                  | 0.0064<br>@ Frequency 1.00e+6 Hz                  | 0.0064<br>@ Frequency 1.00e+6 Hz                     | IEC 60250        |

|                |  |   |                              |
|----------------|--|---|------------------------------|
| 相比耐漏电起痕指数(CTI) | 125 V  | 125 V   | Test Liquid A & B; IEC 60112 |
| <b>热性能</b>     | <b>额定值 (公制)</b>  | <b>额定值 (英制)</b>   | <b>测试方法</b>                  |
| 线形热膨胀系数 - 流动   | 53.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$<br>@ Temperature 23.0 - 80.0 $^\circ\text{C}$ | 29.4 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$<br>@ Temperature 73.4 - 176 $^\circ\text{F}$ | ISO 11359-1/-2               |
|                | 60.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$<br>@ Temperature 140 - 180 $^\circ\text{C}$   | 33.3 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$<br>@ Temperature 284 - 356 $^\circ\text{F}$  | ISO 11359-1/-2               |