

# Polyphenylene Sulfide (PPS)

## KEY FEATURES

- High Purity Characteristics
- High Mechanical Strength
- Outstanding Retention of Mechanical Properties Under Continuous Use up to 338°F (170°C)
- High Strength to Weight Ratio
- Corrosion Resistant
- Excellent Chemical Resistance
- Dimensional Stability Over Wide Variations of Temperatures and Moisture
- Good Electrical Insulator
- Creep Resistance

## DESCRIPTION

Polyphenylene Sulfide (PPS) is a high performance thermoplastic that combines good mechanical properties with excellent thermal and chemical resistance properties. There is no known solvent that dissolves PPS at temperatures below 392°F. Its low ionic impurities make it an excellent choice for applications where high purity is a concern.

## TYPICAL PROPERTY VALUES

| Physical | Properties           | Condition | Units             | Value | ASTM Test |
|----------|----------------------|-----------|-------------------|-------|-----------|
|          | Density              |           | g/cm <sup>3</sup> | 1.35  | D792      |
|          | Chemical Designation |           |                   | PPS   |           |
|          | Filler               |           |                   |       |           |

| Mechanical  | Properties                    | Condition              | Units                          | Value                 | ASTM Test |
|-------------|-------------------------------|------------------------|--------------------------------|-----------------------|-----------|
|             | Tensile Modulus               | 105 @ 73 °F            | PSI                            | 836,700               | D639      |
|             | Tensile Strength              | @ 73 °F                | PSI                            | 13,500                | D638      |
|             | Shear Strength                | @ 73 °F                | PSI                            |                       |           |
|             | Elongation @ Yld              | @ 73 °F                | %                              |                       |           |
|             | Elongation @ Brk              | @ 73 °F                | %                              | 15                    | D638      |
|             | Flexural Modulus              | @ 73 °F                | PSI                            | 575,000               | D790      |
|             | Flexural Strength             | @ 73 °F                | PSI                            | 21,000                | D790      |
|             | Compressive Modulus           | @ 73 °F                | PSI                            | 430,000               | D695      |
|             | Compressive Strength          | @ 73 °F, 10% strain    | PSI                            | 21,500                | D695      |
|             | Izod (Charpy) Impact Strength | @ 73 °F                | ft-lbs/in                      | 0.60                  | D256      |
|             | Rockwell Hardness             | @ 73 °F                | M (R) Scale                    | 125                   | D785      |
|             | Coefficient of Friction       | Static                 |                                |                       |           |
|             | Coefficient of Friction       | Dynamic, 40PSI, 50 FPM |                                | 0.24                  | D3702     |
|             | Wear (K) Factor               |                        | in <sup>3</sup> -min/ft-lbs-hr | 540*10 <sup>-10</sup> |           |
| Limiting PV |                               | psi-fpm                |                                |                       |           |

| Thermal              | Properties                  | Condition                     | Units     | Value                | ASTM Test |
|----------------------|-----------------------------|-------------------------------|-----------|----------------------|-----------|
|                      | Heat Deflection Temperature | @ 66 PSI                      | °F        | 400                  | D648      |
|                      | Service Temperature         | Long Term                     | °F        | 338                  | UL746B    |
|                      | Heat Deflection Temperature | @ 264 PSI                     | °F        | 220                  | D648      |
|                      | Service Temperature         | Intermittent                  | °F        | 500                  | UL746B    |
|                      | Thermal Expansion (CLTE)    |                               | in/in/°F  | 3.3*10 <sup>-5</sup> | D696      |
|                      | Specific Heat               |                               | BTU/lb-°F | 0.239                |           |
| Thermal Conductivity |                             | BTU-in/hr-ft <sup>2</sup> -°F | 2.08      |                      |           |

| Electrical         | Properties          | Condition      | Units       | Value                | ASTM Test |
|--------------------|---------------------|----------------|-------------|----------------------|-----------|
|                    | Surface Resistivity |                | ohms/square | 1.0*10 <sup>15</sup> | D257      |
|                    | Volume Resistivity  |                | ohm-cm      |                      |           |
|                    | Dielectric Constant | 50% RH         |             | 3                    | D150      |
|                    | Dielectric Strength | @ 60 Hz, 73 °F | V/mil       | 450                  | D149      |
| Dissipation Factor | @ 60 Hz, 73 °F      |                | 0.0001      | D150                 |           |

| Other         | Properties          | Condition           | Units     | Value | ASTM Test |
|---------------|---------------------|---------------------|-----------|-------|-----------|
|               | Moisture Absorption | @ 24 hrs, 73 °F     | %         | 0.01  | D570      |
|               | Moisture Absorption | @ Saturation, 73 °F | %         | 0.03  | D570      |
|               | Flammability        | UL 94               |           | V-0   |           |
|               | Food Grade          |                     |           | N     |           |
| Relative Cost |                     |                     | \$\$\$ \$ |       |           |

• The data stated above are typical values intended for reference and comparison purposes only.  
• The data should not be used as a basis for design specifications or quality control.

• The information is provided as a guide to the best of our knowledge and given without obligation or liability.  
• Testing under individual application circumstances is recommended