



Transparent Composite Thermoplastic Leveraging Light & Innovation for a Sustainable Future

DESCRIPTION

HTLTTM PPSU is an amorphous, transparent composite thermoplastic comprising neat polyphenylsulfone (PPSU) resin modified with Suncolor's High Temperature Light Transmissible (HTLTTM) Additive. HTLTTM PPSU transparent composite thermoplastic offers inherent flame retardancy, operating temperatures $\geq 150^{\circ}$ C, impact resistance \geq polycarbonate, chemical resistance, visible light transparency ($\geq 70\%$ @ 450 nm) and near infrared (NIR) transparency ($\geq 87\%$ @ 850 nm).

The HTLT™ PPSU transparent composite thermoplastic offers the highest NIR transparency, lowest CTE, and the highest glass transition temperature in its class, with a broad Tg ranging from 260°C-280°C. The HTLT™ PPSU is the ideal choice for mass producing lightweight, geometrically stable, complex components for high temperature applications such as 245°C - 265°C SMT reflow. Miniaturized components with sub-micron detail, near zero stress and low birefringence can be injection molded for mass production. HTLT™ Additives are engineered to provide the HTLT™ PPSU with balanced, totally integrated performance properties. Glass and fiber reinforced polyphenylsulfone composites modified with the HTLT™ PPSU Additive can benefit from lower viscosity, improved rheology, and strong coupling of the PPSU resin and filler. The dynamic result is a highly reinforced, homogeneous thermoplastic with low, stable, compatible CTEs for the PPSU resin and reinforcing filler.

Total Integrated Performance Properties, Features & Benefits:

- High Transparency, Visible & Near Infrared (NIR) Light
- High Glass Transition Temperature (Tg) (≥260°C)
- Coefficient of Thermal Expansion (CTE) (≥25 ppm)
- Low Birefringence, High Index of Refraction (1.672)
- Low Mold-In Stress; Uniform Heating & Cooling
- Increased Thermal Conductivity
- High Heat Processes such as SMT Reflow (245-265°C)
- Geometric Stability during & after Processing
- True Replication of Sub-Micron Detail

- Injection Moldable
- Reduced Cycle Times (Up to 40%)
- Homogeneity/ Compatibilization
- Impact Resistance & Chemical Resistance
- High Operating Temperatures (150-200°C)
- Surface Treatable / AR and High Temperature Coatings
- High Thermal Stability (450°C/TGA)
- Thermal, Photolytic & Hydrolytic Oxidative Resistance
- Inherent, Non-Halogenated Fire Retardancy

INDUSTRY	SUB INDUSTRY
Automotive	Electric Vehicles, Automotive Under the Hood, Valves, Impact
	Resistance Components, Valve Technologies, Transmission Parts,
	Braking & Air Conditioning Systems, Seals, Washers, Bearings, Electro-
	Mechanical Systems, Hydrolytic & Chemical Resistance
Electrical and Electronics	Electrical Devices and Displays, Lighting, Electrical Components and
	Infrastructure, Cable Couplings & Connectors, PCBs, Miniaturization
Photonics	Advanced Driver Assistance Systems (ADAS), Autonomous Driving,
	Visible Light & Infrared Lenses for LIDAR, VCSELs, 5G, Smart Factories,
	Robotics, Drones, Robots, Manufacturing & Construction Tools,
	Internet of Things, Night Vision & Thermographic Sensors, High Heat
	Processes (245°C- 265°C SMT Reflow)
Industrial	Energy Storage, Semiconductors, Electronic Material Handling, Electro-
	Optical Construction Instruments, Electrical Components,
	Thermoplastic/Thermoset Composite Instruments & Tools
Aviation	Infrared Sensors, Imaging, Chemical Resistant Components