

## Transparent Composite Thermoplastic

*Leveraging Light & Innovation for a Sustainable Future*

### DESCRIPTION

HTLT™ PEI is an amorphous, transparent composite thermoplastic comprising neat polyetherimide (PEI) resin modified with Suncolor’s High Temperature Light Transmissible (HTLT™) Additive. HTLT™ PEI transparent composite thermoplastic offers inherent flame retardancy, operating temperatures  $\geq 150^{\circ}\text{C}$ , high strength and modulus, broad chemical resistance, and high near infrared (NIR) light transparency with  $\geq 85\%$  transmission @ 850 nm.

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

### Total Integrated Performance Properties, Features & Benefits:

- High Transparency, Near Infrared (NIR) Light ( $\geq 85\%$ )
- High Glass Transition Temperature (Tg) ( $\geq 245^{\circ}\text{C}$ )
- Coefficient of Thermal Expansion (CTE) ( $\leq 30$  ppm)
- Low Birefringence, High Index of Refraction (1.662)
- Low Mold-In Stress; Uniform Heating & Cooling
- Increased Thermal Conductivity
- High Heat Processes such as SMT Reflow ( $245^{\circ}\text{C}$ )
- Geometric Stability during & after Processing
- True Replication of Sub-Micron Detail
- Injection Moldable
- Reduced Cycle Times (Up to 40%)
- Homogeneity/ Compatibilization
- Impact Resistance
- High Operating Temperatures ( $150-200^{\circ}\text{C}$ )
- Surface Treatable / AR and High Temperature Coatings
- High Thermal Stability ( $450^{\circ}\text{C}/\text{TGA}$ )
- Thermal, Photolytic & Hydrolytic Oxidative Resistance
- Inherent, Non-Halogenated Fire Retardancy

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Under the Hood, Electro-Hydraulic Control Valves, Lighting Assemblies, Lightweight Valve Technologies, Transmission Components, Braking & Air Conditioning Systems, Seals, Washers, Bearings, Electro-Mechanical Systems, Heavy Truck, Electric Vehicles
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, Infrared Lenses for LIDAR, VCSELs, 5G, Smart Factories, Robotics, Drones, Robots, Manufacturing & Construction Tools & Equipment, Internet of Things, Night Vision & Thermographic Sensors, High Heat Processes ( $245^{\circ}\text{C}$ SMT Reflow)
Industrial	Semiconductors, Electronic Material Handling, Robotic Material Handling, Electro-Optical Construction Instruments, Electrical Components, Thermoplastic/Thermoset Composite Instruments & Tools, Wind Energy, Energy Storage, Solar
Aerospace	Aviation, NIR Radar Systems, Imaging, Lightweight Components

**TECHNICAL DATA SHEET:**

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