

HTLT™ PC/XT

Transparent Composite Thermoplastic

Leveraging Light & Innovation for a Sustainable Future

DESCRIPTION

HTLT™ PC/XT is an amorphous, transparent composite thermoplastic comprising neat polycarbonate (PC) resin modified with Suncolor’s High Temperature Light Transmissible (HTLT™) Additives. HTLT™ PC/XT transparent composite thermoplastic offers high visible ($\geq 85\%$ @450 nm) and high near infrared (NIR) light transparency ($\geq 90\%$ @850 nm). The HTLT™ PC/XT has the highest operating temperature (up to 150°C) and impact resistance in its class, high strength and modulus, and versatile processability.

HTLT™ PC/XT transparent composite thermoplastic offers the lowest CTE, and the highest glass transition temperature in its class, with a broad Tg ranging from 220°C – 225°C. The HTLT™ PC/XT is the ideal choice for mass producing lightweight, geometrically stable, complex components for high temperature applications such as 220°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™ PC/XT with balanced, totally integrated performance properties. Glass and fiber reinforced polycarbonate composites modified with the HTLT™ PC/XT Additive can benefit from lower viscosity, improved rheology, and strong coupling of the PC resin and filler. The dynamic result is a highly reinforced, homogeneous thermoplastic with low, stable, compatible CTEs for the PC resin and reinforcing filler.

Total Integrated Performance Properties, Features & Benefits:

- High Transparency, Visible & Near Infrared (NIR) Light
- High Glass Transition Temperature (Tg) ($\geq 220^\circ\text{C}$)
- Coefficient of Thermal Expansion (CTE) (≥ 35 ppm)
- Low Birefringence, High Index of Refraction (1.609)
- Low Mold-In Stress; Uniform Heating & Cooling
- Increased Thermal Conductivity
- High Heat Processes such as SMT Reflow (220°C)
- Geometric Stability during & after Processing
- True Replication of Sub-Micron Detail
- Injection Moldable
- Reduced Cycle Times (Up to 40%)
- Homogeneity/ Compatibilization
- High Impact Resistance
- High Operating Temperatures (up to 150°C)
- Surface Treatable / AR and High Temperature Coatings
- High Thermal Stability (400°C/ TGA)
- Thermal, Photolytic & Hydrolytic Oxidative Resistance
- Inherent, Non-Halogenated Fire Retardancy

INDUSTRY	SUB INDUSTRY
Automotive	Electric Vehicles, Lightweight Impact Resistant Components, Automotive (LED) Headlights, High Heat Auto Inner Lenses
Electrical and Electronics	Electrical Devices and Displays, Lighting, Electrical Components and Infrastructure
Photonics	Advanced Driver Assistance Systems (ADAS), Autonomous Driving, VCSELs, 5G, Smart Factories, Robotics, Internet of Things, Visible Light & Infrared Lenses, 220°C SMT Reflow, Flash Lenses, Sensor Lenses, High Heat Films, High Flow for Complex Parts & Miniaturization
Industrial	Energy Storage, Semiconductors, Electronic Material Handling, Electro-Optical Construction Instruments, Impact Resistant Instruments & Accessories, Thermoplastic/Thermoset Composite Tools, High Production, Low Cost Alternative to Thermoset Components, Near Infrared (NIR) Inspection Drones for Factories and Infrastructure
Aviation	Transparent Lenses, Imaging, Lightweight Impact Resistant Components

TECHNICAL DATA SHEET:

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