

Case study

Material design for eco-friendly LED lighting, High Diffusion + Flame Retardant PC

Efficiency Material Solution for LED Lens Cover
INFINO® Diffusion PC FD Series



The Challenges

Next-generation LED lighting is eco-friendly and energy-efficient. Its energy efficiency is far better than general lighting sources. LED lighting is also suitable for large-size applications. With LED, it is easier to set up a classy mood. Thanks to these advantages, the share of LED lighting is rapidly expanding. Against this backdrop, demand is on the rise for new materials that can better support LED light sources. Notably, the LED lens cover application requires optimal diffusion ratio and luminous quality (transmittance, haze), as well as proper flame retardant, depending on its functional feature, such as Tube and Bulb. Recently, U.S. and European customers are increasingly seeking materials that have high diffusion/ efficiency and excellent flame retardant property.

The Solutions

LOTTE Advanced Materials has developed high-efficiency diffusion PC with excellent optical characteristics, utilizing its own compounding technology that combines high-quality silicone beads and polycarbonates. *INFINO*® Diffusion PC has a variety of lineups based on diffusion and transmittance rates, meeting diverse optical requirements in accordance with LED luminous sources and lighting structures. Non-halogen flame retardant products of 1.2mm V-0 and 1.0mm V-0, which is now under development, meet the global environmental regulations and supports various applications.

INFINO® FD series has excellent diffusion and transmittance rates, optimized for LED luminous sources. It maximizes the brightness and energy efficiency of LED lighting. Its excellent injection processibility helps customers to enhance productivity and slash costs. The material retains the impact strength and durability inherent in PC, while securing a high level of flame retardant. Even if exposed to UV for a long time, it shows little yellowing; its light resistance feature is excellent; and its thermal cracking temperature is high. Considering the unique combination of material properties, it is an excellent choice for both indoor and outdoor lighting.

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Key Features

- High Impact Strength
- Outstanding Optical Properties : Transmittance & Diffusion Rates
- Eco-friendly Flame Retardant : Non-Halogen & Non-Phosphorous
- Ease of Processing
- Good UV Resistance

Customer Benefits

- Improved Productivity, Energy Efficiency & Cost-Reduction
- Design Freedom & Light-weight
- Outstanding Long-term Quality Reliability : UV & Thermal Stability

LOTTE Advanced Materials has secured competitiveness as a leading provider of high-quality materials in the fast-growing LED lighting market. The company is offering total solutions and is setting the latest trends in developing eco-friendly, lightweight and energy-efficient materials in a bid to capture the leadership in the next-generation products.

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