LEDs

Polycarbonate in daily life

Plastics play a big role in everyday life. However, not all plastics are the same, nor are they used for the same products. The choice depends on the specific characteristics of each plastic and also on the price.

Far from being a cheap and commodity-like plastic, polycarbonate is a high-performance engineering plastic used in particular applications for its durability, robustness, transparency, lightweight and heat resistance.

As a result, it can be found where needed in specific indoor and outdoor applications: from the small LEDs in mobile phones to substantial transparent roofs to critical medical applications such as dialysers.

LEDs have changed the way of lighting streets, homes and workplaces in the 21st century

LEDs triggered a fundamental transformation in lighting technologies in the world. The positive impact has been so remarkable that their development was awarded the Nobel Prize in Physics in 2014.

LEDs are highly energy efficient, as they convert electricity directly into light, which means that no energy is wasted in heat generation. In addition, they last way longer than incandescent bulbs and fluorescent lights, which also contributes greatly to resource efficiency. Besides being great assets to fight climate change and achieving a circular economy, their potential to contribute to the fight against energy poverty is immense: due to low power requirements, they can be powered by cheap local solar power, offering a solution to the communities around the world who lack access to electricity grids.

LEDs are so energy efficient that transitioning to them is part of the decarbonisation plans of many industries, including ours.

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LEDs

Why is polycarbonate used in LEDs?

The outstanding transparency of polycarbonate allows the spreading of the light and contributes to LEDs' characteristic brightness. This brightness is maintained throughout the service life of LEDs: polycarbonate can easily be made UV- resistant, it allows LEDs to remain clear and avoid loss of light transmittance.

Furthermore, because of the robustness and resistance to breaking, the use of polycarbonate extends the life of LEDs greatly in any eventuality. Therefore, it is highly appreciated in demanding situations, such as drilling and mining.

In addition, polycarbonate presents a higher heat resistance than other plastics, which makes it the ideal candidate for direct light source applications (lenses) as it can withstand heat peaks.

It is also inherently flame retardant, which eases compliance with fire safety regulations when they are in place. For these reasons, LEDs made with polycarbonate are especially needed in industrial applications and high precision secondary optics.

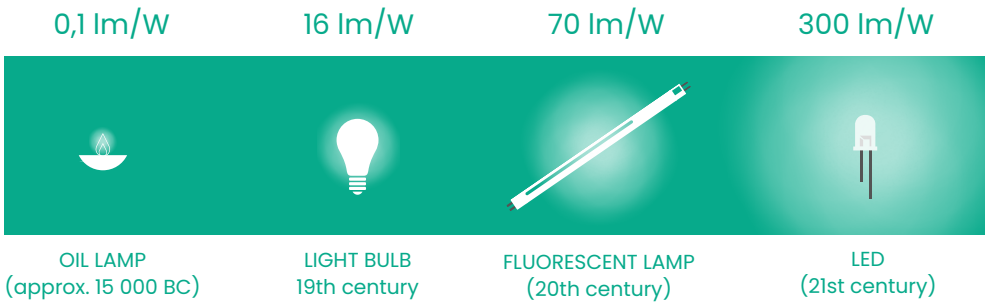
BRIGHT LIGHT DIFFUSION

HIGH HEAT RESISTANCE

FLAME RETARDANT

BREAK RESISTANCE

Light emission efficiency over time



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