

MEDICAL

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.



Modern material technology in medical applications saves lives

In 1943, in the midst of the war, Dutch doctor Willem Kolff and his team successfully made a patient recover from uremic coma thanks to the hemodialysis treatment. It was the first time in history. After successive improvements in the technology, dialysis became a standard treatment for kidney failure. The current dialyzer design based on synthetic polymer fibers housed in a clear plastic dates back to the early 1980s and its success prompted its expansion: today millions of patients worldwide suffering from kidney disease are treated with renal dialysis.

Medical devices such as auto-injectors or injection pens are critical in saving lives. These devices are designed for patients to self-administer medications such as insulin to help day-to-day living with diabetes. Another application area is the immediate emergency dosage of epinephrine in the case of acute allergic reactions.

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Why is polycarbonate used in medical devices?

Polycarbonate is an ideal material to house dialyzer fibres, the filtering system cleaning the blood. The material is transparent, allowing visual confirmation of proper functioning of the dialysis treatment by the medical staff. Especially important is to confirm the absence of clot formation and that the fluids circulate properly through the system without any spillage or leakage.

Polycarbonate is extremely robust and can resist rigorous handling better than many other plastics. It is therefore also used in structural elements of auto-injectors: these devices need to function reliably over several years without fail, i.e. by deforming or breaking. Polycarbonate is especially sought for reusable pen injectors, where medication cartridges need to be reloaded many times over several years.

For the circular economy Polycarbonate presents an outstanding advantage, as it retains its properties after re-sterilization. It is therefore a valuable durable material after recovery and can serve as a durable material in non-regulated applications.



CLARITY & TRANSPARENCY



BREAK RESISTANCE



STERILISABLE



REUSABLE