

Description

Polycarbonate, an amorphous thermoplastic, is considered to be a well proven technical plastic. PC is used primarily in the injection molding sector, bar application with a high level of stress. The main properties of this material are good mechanical stability, exceptionally high impact resistance, high form stability in heat as well as transparency with high light transparency. As a semi-finished product, PC is becoming increasingly importance in the field of shatter-proof glazing. These extremely impact-proof, form stable, transparent panels open up new possibilities in the sector of shatter-proof, safety and protective glazing.

Characteristics of PC

- ✓ High mechanical stability
- ✓ Good thermal stability
- ✓ Excellent impact toughness
- ✓ Good weathering stability
- ✓ High light transparency (panels are transparent)
- ✓ High dimensional stability
- ✓ Low moisture absorbtion
- ✓ Good dielectric properties
- ✓ Self-extinguishing
- ✓ Good resistance to high energy radiation

Please note:

- Susceptible to crack formation due to mechanically or chemically generated stress concentrations
- Damage due to the effect of hydolysis, e.g. from hot water or steam
- Unsuitable for technical sliding functions

Mechanical Properties

The mechanical properties of PC are distinguished be good tensile strength without excessively high rigidity as well as exceptionally good impact resistance. The stress-strain behavior of PC is characterized by a wide creep range between the yield point and fracture. The sear module is temperature dependent and shows rapid reductions in rigidity above +120°C. Due to their high impact resistance, PC panels are some of the most shatter-proof glazing materials. The notch impact resistance data (Charpy) at 23 °C are 15 to 20 times higher, and at -60°C are still 4 to 5 times higher than those of Polymethyl methacrylate (PMMA). Long-term trials also prove their impact resistance after many years of outdoor weathering. Plates of PC are virtually unbreakable and, for glazing purposes, provide optimum protection against vandalism.

Thermal Properties

PC has good heat and cold stability. Above the glass transition point of +140°C however, PC starts to soften rapidly.