

## General

### Designation

Polycarbonate (Polyester Copolymer, High-heat)

### Tradenames

Eastalloy

|                           |         |   |       |                   |
|---------------------------|---------|---|-------|-------------------|
| Density                   | 1150    | - | 1200  | kg/m <sup>3</sup> |
| Price                     | * 3.431 | - | 4.117 | EUR/kg            |
| Oxygen index              | * 21    | - | 23    | %                 |
| Water absorption @ 24 hrs | 0.15    | - | 0.2   | %                 |

## Composition

### Composition (summary)

Blend of: PC + polyester copolymer (such as PETg)

|               |                           |  |  |   |
|---------------|---------------------------|--|--|---|
| Polymer class | Thermoplastic : Amorphous |  |  |   |
| Polymer type  | (PC+Polyester)            |  |  |   |
| % filler      | 0                         |  |  | % |
| Filler type   | Unfilled                  |  |  |   |

## Mechanical

|  |           |   |        |                      |
|--|-----------|---|--------|----------------------|
| Compressive modulus                        | * 2.21    | - | 2.34   | GPa                  |
| Compressive strength                       | 75.5      | - | 83.3   | MPa                  |
| Elongation                                 | 50        | - | 122    | %                    |
| Fatigue strength at 10 <sup>7</sup> cycles | * 25.15   | - | 32.7   | MPa                  |
| Flexural modulus                           | 2.02      | - | 2.34   | GPa                  |
| Fracture toughness                         | * 3.407   | - | 4.088  | MPa.m <sup>1/2</sup> |
| Hardness - Vickers                         | * 17.6    | - | 20.3   | HV                   |
| Hardness - Rockwell M                      | 74        | - | 92     |                      |
| Hardness - Rockwell R                      | * 111     | - | 123    |                      |
| Impact strength, notched 23 °C             | 7.9       | - | 53     | kJ/m <sup>2</sup>    |
| Mechanical loss coefficient                | * 0.01709 | - | 0.0181 |                      |
| Poisson's ratio                            | * 0.3923  | - | 0.4082 |                      |
| Shear modulus                              | * 0.7891  | - | 0.8356 | GPa                  |
| Tensile strength                           | 65.5      | - | 77.9   | MPa                  |
| Yield strength (elastic limit)             | 58.6      | - | 67.6   | MPa                  |
| Young's modulus                            | 2.21      | - | 2.34   | GPa                  |

## Thermal

|                                     |        |   |       |            |
|-------------------------------------|--------|---|-------|------------|
| Glass temperature                   | 160    | - | 195   | °C         |
| Heat deflection temperature 0.45MPa | 152    | - | 185   | °C         |
| Heat deflection temperature 1.8MPa  | 141    | - | 168   | °C         |
| Maximum service temperature         | * 124  | - | 140   | °C         |
| Specific heat                       | * 1558 | - | 1620  | J/kg.K     |
| Thermal conductivity                | 0.197  | - | 0.209 | W/m.K      |
| Thermal expansion coefficient       | 126    | - | 165.6 | µstrain/°C |

## Processing

|                        |        |   |       |       |
|------------------------|--------|---|-------|-------|
| Linear mold shrinkage  | * 1e-3 | - | 0.01  | mm/mm |
| Melt temperature       | 262    | - | 377   | °C    |
| Molding pressure range | 34     | - | 137.5 | MPa   |

## Electrical

|  |           |   |         |         |
|--|-----------|---|---------|---------|
| Dielectric strength (dielectric breakdown)   | 20        | - | 20.5    | MV/m    |
| Dielectric constant (relative permittivity)  | * 6.5     | - | 7.2     |         |
| Dissipation factor (dielectric loss tangent) | * 0.06236 | - | 0.07484 |         |
| Electrical resistivity                       | * 1e18    | - | 1e20    | µohm.cm |

## Optical

Transparency

Opaque

## Durability

|                         |                    |
|-------------------------|--------------------|
| Flammability            | Self-extinguishing |
| Fresh water             | Good               |
| Organic solvents        | Average            |
| Oxidation at 500C       | Very Poor          |
| Salt water              | Good               |
| Strong acid             | Poor               |
| Strong alkalis          | Poor               |
| Sunlight (UV radiation) | Good               |
| Wear resistance         | Average            |
| Weak acids              | Good               |
| Weak alkalis            | Average            |

## Eco Properties

|                  |        |   |      |       |
|------------------|--------|---|------|-------|
| CO2 footprint    | * 4.13 | - | 4.56 | kg/kg |
| Embodied energy  | * 104  | - | 115  | MJ/kg |
| Recycle fraction | * 0.45 | - | 0.55 |       |

## Material Processing Energy

|                          |     |   |     |       |
|--------------------------|-----|---|-----|-------|
| Polymer extrusion energy | 4.2 | - | 4.6 | MJ/kg |
| Polymer molding energy   | 12  | - | 13  | MJ/kg |

## End of life

|                             |   |
|-----------------------------|---|
| Recycle                     | ✓ |
| Downcycle                   | ✓ |
| Biodegrade                  | ✗ |
| Combust for energy recovery | ✓ |
| Landfill                    | ✓ |

## Sustainability

|                       |   |
|-----------------------|---|
| A renewable resource? | ✗ |
|-----------------------|---|

## Notes

### Reference sources

Data compiled from multiple sources. See links to the References table.

## Links

[ProcessUniverse](#)  
[Producers](#)  
[Reference](#)  
[Shape](#)  
[Structural Sections](#)