

## TECANAT® GF20 natural - Stock Shapes (rods, plates, tubes)

### Chemical Designation

PC (Polycarbonate)

### Colour

blue grey opaque

### Density

1.33 g/cm<sup>3</sup>

### Fillers

glass fibres

### Main features

- high toughness
- good thermal stability
- very high stiffness
- good tensile strength

### Target Industries

- aircraft and aerospace technology
- automotive industry
- fixture construction
- electrical engineering
- mechanical engineering

| Mechanical properties                 | condition                     | value                 | unit                           | test method | comment                              |
|---------------------------------------|-------------------------------|-----------------------|--------------------------------|-------------|--------------------------------------|
| Modulus of elasticity (tensile test)  | @ 73 °F                       | 700,000               | psi                            | ASTM D 638  | (1) Data obtained from public source |
| Tensile strength at yield             | @ 73 °F                       | 11,000                | psi                            | ASTM D 638  | (2) Injection molded data            |
| Elongation at break (tensile test)    | @ 73 °F                       | 3                     | %                              | ASTM D 638  | (3) Injection molded data            |
| Flexural strength                     | @ 73 °F                       | 16,700                | psi                            | ASTM D 790  | (4) Injection molded data            |
| Modulus of elasticity (flexural test) | @ 73 °F                       | 600,000               | psi                            | ASTM D 790  |                                      |
| Compression strength                  | @ 73 °F, 1% strain            | 2,000                 | psi                            | ASTM D 695  |                                      |
| Compression strength                  | @ 73 °F, 10% strain           | 15,000                | psi                            | ASTM D 695  |                                      |
| Compression modulus                   | @ 73 °F                       | 319,000               | psi                            | ASTM D 695  |                                      |
| Impact strength (Izod)                | @ 73 °F                       | 2.06                  | ft-lbs/in                      | -           | 1)                                   |
| Rockwell hardness                     | @ 73 °F<br>M Scale            | 87                    |                                | ASTM D 785  | 2)                                   |
| Coefficient of friction               | Dynamic, 40 psi, 50 fpm       | 0.22                  |                                | ASTM D 3702 | 3)                                   |
| Wear (K) factor                       | Against Steel, 40 psi, 50 fpm | 120*10 <sup>-10</sup> | in <sup>3</sup> -min/ft-lbs-hr | ASTM D 3702 | 4)                                   |
| Thermal properties                    | condition                     | value                 | unit                           | test method | comment                              |
| Vicat softening point                 |                               | 329                   | °F                             | ASTM D 1525 | 1)                                   |
| Deflection temperature                | @264 psi                      | 295                   | °F                             | ASTM D 648  | (1) Injection molded data            |
| Deflection temperature                | @ 66 psi                      | 298                   | °F                             | ASTM D 648  | (2) Injection molded data            |
| Service temperature                   | Intermittent                  | 275                   | °F                             | -           | (3) Injection molded data            |
| Service temperature                   | Long Term                     | 266                   | °F                             | -           | (4) per UL746B                       |
| Thermal expansion (CLTE)              | -40 F to 203 F                | 1.5                   | *10 <sup>-5</sup> in/in/°F     | ASTM E 831  | (5) Injection molded data            |
| Electrical properties                 | condition                     | value                 | unit                           | test method | comment                              |
| volume resistance                     |                               | 1.0*10 <sup>17</sup>  | Ω*cm                           | ASTM D 257  | 1)                                   |
| Dielectric strength                   |                               | 490                   | V/mil                          | ASTM D 149  | (1) Injection molded data            |
| Dissipation factor                    | @ 60 Hz, 73 °F                | 0.0009                |                                | ASTM D 150  | (2) Injection molded data            |
| Dielectric constant                   | @ 60 Hz, 73 °F, 50% RH        | 3.17                  | %                              | ASTM D 150  | (3) Injection molded data            |
| Dielectric constant                   | 1 MHz                         | 3.13                  | %                              | ASTM D 150  | (4) Injection molded data            |
|                                       |                               |                       |                                |             | (5) Injection molded data            |
| Other properties                      | condition                     | value                 | unit                           | test method | comment                              |
| Moisture absorption                   | @ saturation, 73 °F           | 0.29                  | %                              | ASTM D 570  | 1)                                   |
| Moisture absorption                   | @ 24 hrs, 73 °F               | 0.07                  | %                              | ASTM D 570  | (1) Injection molded data            |
| Flammability (UL94)                   |                               | V0                    |                                | -           | (2) Injection molded data            |
|                                       |                               |                       |                                |             | (3) @ 3.0mm thickness                |
|                                       |                               |                       |                                |             | Injection molded data                |

→ Resin specification:  
ASTM D 3935-09 PC0120G20A33230  
Shapes specification:  
ASTM D6098-10 S-PC0100G2010000000

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