

## TECASINT 2031 black - Stock Shapes (rods, plates, tubes)

### Chemical Designation

PI (Polyimide)

### Colour

anthracite

### Density

1.59 g/cm<sup>3</sup>

### Fillers

40% graphite

### Main features

- high thermal and mechanical capacity
- very good slide and wear properties
- very good thermal stability
- very high creep resistant
- good wear resistance
- low thermal expansion
- resistance against high energy radiation
- sensitive to hydrolysis in higher thermal range

### Target Industries

- automotive industry
- aircraft and aerospace technology
- cryogenic engineering
- conveyor technology
- hot glass technology
- mechanical engineering
- precision engineering

| Mechanical properties                 | condition            | value | unit                             | test method          | comment   |
|---------------------------------------|----------------------|-------|----------------------------------|----------------------|---|
| Tensile strength                      | 50 mm/min            | 52    | MPa                              | DIN EN ISO 527-1     | (1) eU<br>(2) eA  |
| Modulus of elasticity (tensile test)  | 1 mm/min             | 5100  | MPa                              | DIN EN ISO 527-1     |   |
| Elongation at break (tensile test)    | 50 mm/min            | 1.8   | %                                | DIN EN ISO 527-1     |   |
| Flexural strength                     | 10 mm/min            | 87    | MPa                              | DIN EN ISO 178       |   |
| Modulus of elasticity (flexural test) | 2 mm/min             | 4800  | MPa                              | DIN EN ISO 178       |   |
| Elongation at break (flexural test)   | 10 mm/min            | 2.0   | %                                | DIN EN ISO 178       |   |
| Compression strength                  | 10 mm/min            | 125   | MPa                              | EN ISO 604           |   |
| Compression strength                  | 10mm/min, 10% strain | 120   | MPa                              | EN ISO 604           |   |
| Compression modulus                   | 1 mm/min             | 1800  | MPa                              | EN ISO 604           |   |
| Compressive strain at break           | 10 mm/min            | 12.5  | %                                | EN ISO 604           |   |
| Impact strength (Charpy)              | max 7.5 J            | 14.2  | kJ/m <sup>2</sup>                | DIN EN ISO 179-1     | 1)  |
| Notched impact strength (Charpy)      | max 7.5 J            | 3.3   | kJ/m <sup>2</sup>                | DIN EN ISO 179-1     | 2)  |
| Shore hardness                        | Shore D              | 82    |                                  | DIN EN ISO 868       |   |
| Thermal properties                    | condition            | value | unit                             | test method          | comment   |
| Glass transition temperature          |                      | 671   | °F                               | -                    | 1)  |
| Heat distortion temperature           | 1.8 MPa              | 617   | °F                               | DIN 53 461           | (1) DMA, maximum loss factor tan d<br>(2) Thermal expansion XY/Z axis   |
| Thermal expansion (CLTE)              | 122-392°F            | 30 /  | 10 <sup>-6</sup> K <sup>-1</sup> | DIN 53 752           | 2)  |
| Thermal expansion (CLTE)              | 392-572°F            | 38 /  | 10 <sup>-6</sup> K <sup>-1</sup> | DIN 53 752           | 3) Thermal expansion XY/Z axis  |
| Other properties                      | condition            | value | unit                             | test method          | comment   |
| Water absorption                      | 24 h in water, 73°F  | 1.2   | %                                | DIN EN ISO 62        | (1) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory. |
| Water absorption                      | 24 h in water, 176°F | 2.2   | %                                | DIN EN ISO 62        |   |
| Flammability (UL94)                   | corresponding to     | V0    |                                  | DIN IEC 60695-11-10; | 1)  |

→ TECASINT 2000 series show significant water uptake. Parts have to be pre-dried before fast heating to above 200 °C (drying process: 2 h per 3 mm wall thickness at 150 °C).

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