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| Material: | acrylonitrile butadiene styrene copolymer |
| DIN EN ISO 1043-1 ¹ Norm: | ABS acrylonitrile butadiene styrene plastic |
| Product's shape: | semi-finished products |

Material characteristics

Low moisture absorption, good noise absorption properties, high stiffness, very high impact loading, low density, good dimensional stability, good weldability.

Application examples

Automobile articles, elements for electronics, vibration damping elements.

General properties

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|-----------------------------------|-------------------------|---|
| Density ρ | 1.04 gr/cm ³ | DIN EN ISO 1183-1 DIN 53479/ASTM D792 sim. |
| Moisture absorption | | DIN EN ISO 62 |
| saturation in air (23 °C, 50% RH) | 0.20 % | DIN 53495 sim. |
| saturation in water (23 °C) | 0.30 % | ASTM D570 |

Mechanical properties

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|--|----------------------|---|
| Tensile stress at yield σ_Y | 38 MPa | DIN EN ISO 527 |
| Tensile strength σ_T | | DIN 53455 sim. |
| Elongation at break ϵ_B | 50 % | ASTM D638 |
| Modulus of elasticity E_t | 2000 MPa | |
| Flexural stress at yield σ_Y | | DIN EN ISO 178 |
| Flexural strength σ_b | 49 MPa | DIN 53452 sim. |
| Modulus of elasticity E_b | 1600 MPa | ASTM D790 |
| Compressive stress at 1/2/5% nominal strain σ_Y | 15/26/- MPa | DIN EN ISO 604 / ASTM D695 |
| Compressive strength σ_c | | DIN 53454/53457 sim. |
| Impact strength | | DIN EN ISO 179/1eU |
| Charpy unnotched a_{CU} | nb | (DIN 53453) |
| Charpy notched a_{CN} | 25 kJ/m ² | DIN EN ISO 179/1eA ASTM D6110 sim. |
| Izod notched a_{IN} | | DIN EN ISO 180/1A ASTM D256 sim. |
| Creep rate stress at 1% strain after 1000 h $\sigma_{1/1000}$ | | DIN EN ISO 899-1 DIN 53444/ASTM D2990 sim. |
| Hardness | | DIN EN ISO 2039-1 |
| ball indentation $H_{358/30}$ | | (DIN 53456) |
| Rockwell | | DIN EN ISO 2039-2 ASTM D785 |
| Shore scale D | 74 | DIN EN ISO 868 (DIN 53505) ASTM D2240 sim. |
| Coefficient of sliding friction μ | | |
| Wear rate S | | DIN ISO 7148-2 sim. |
| (dry running against steel, $P=0.05$ MPa, $V=0.6$ m/s, $t=60$ °C, near running surface) | | Pin on disc apparatus |

**Electrical properties**

| | | |
|--|----------------------------------|---|
| Dielectric constant (relative permittivity) ϵ_r | | |
| 100 Hz | 3.1 | IEC 60250 |
| 1 MHz | | DIN 53483 sim. |
| Dielectric dissipation factor $\tan\delta$ | | VDE 0303-4 |
| 100 Hz | 0.015 | ASTM D150 |
| 1 MHz | | |
| Volume resistivity ρ | $10^{15} \Omega \cdot \text{cm}$ | IEC 60093 / VDE 0303-30 |
| Surface resistivity σ | $10^{14} \Omega$ | DIN 53482 sim. / ASTM D257 |
| Dielectric strength E_d | 20 kV/mm | IEC 60243-1 / VDE 0303-21 DIN 53481 sim. / ASTM D149 |
| Tracking resistance V | CTI 600 | IEC 60112 / VDE 0303-11 DIN 53480 sim. ASTM D3638 / UL 746A |

Thermal properties

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|--|--|---|
| Melting temperature T_m (DSC, 10 °C/min) | | ISO 11357-1,-3 ASTM D3418 sim. |
| Thermal conductivity λ (23 °C) | 0.17 W/(m·K) | ISO 22007-2 / ISO 8302 sim. DIN 52612-2/ASTM C177 sim. |
| Specific heat (thermal capacity) c | 1.2 J/(g·K) | ISO 11357-4 ASTM E1269/ASTM C351 sim. |
| Coefficient of linear thermal expansion α (average value 23-60 °C) | $90 \cdot 10^{-6} \cdot \text{K}^{-1}$ | ISO 11359-2 DIN 53752/ASTM E831 sim. |
| Service temperature | | |
| long term (min / max - 5000 h) | -40 / 80 °C | |
| short term (not under stress - few hours) | 100 °C | |
| Vicat softening point | | ISO 306 |
| VST A50 - 10N | | DIN 53460 sim. |
| VST B50 - 50N | 104 °C | ASTM D1525 |
| Heat deflection temperature | | DIN EN ISO 75-1,-2 |
| HDT A - 1.80 MPa | 99 °C | DIN 53461 sim. |
| HDT B - 0.45 MPa | 105 °C | ASTM D648 |
| Flammability | | |
| according to UL94 (thickness 3 / 6 mm) | HB / HB | |
| oxygen index | | ISO 4589 -1,-2 ASTM D2863 sim. |

The above mentioned electrical properties result from measurements on natural material.

The indicated values result from numerous individual measurements for an approximation of the values and correspond to our today's knowledge. They serve as information about our products and are presented as a guide to choose from our range of materials. This, however, does not include an assurance of specific properties or the suitability for particular application purposes that are legally binding. Since the properties also depend on the dimension of the semi-finished products and the degree of crystallisation (e.g. nucleating by pigments), the actual values of the properties of a particular product may differ from the indicated values.

¹ DIN 7728-1, January 1988 edition, has been superseded by the specifications of EN ISO 1043-1, which is identical to ISO 1043-1

nb : no break