

# ABS

**Chem. Designation:** Acrylnitril-Butadien-Styrol

**DIN-Abbreviation:** ABS

Properties	Value	Unit	ISO/IEC
Density	1,04 / -		
Water absorption, relative 1)	0,07 / 0,2	%	62
- at saturation in air of 23°C, 50% RF	0,3 / -	%	
- at saturation in water of 23°C	0,7 / -	%	

Thermal Properties	Value	Unit	ISO/IEC
Glass transition temperature	85 / 104	°C	-
Thermal conductivity (23° C)	0,17 / -	W/(k·m)	-
Coefficient of thermal expansion: - average value between 23 and 60°C	$8 \cdot 10^{-5}$ / -	m/(m·K)	-
Temperature of deflection under load - Method a: 1,8 MPa	82 / 104	°C	75
Max. service temperature in air: -short periods 2	100 / -	°C	-
Max. service temperature in air: -continuously: for min. 5000/20.000 h	75 / -	°C	-
Flammability acc. to UL standard 94 (thickness 3mm/6mm)	HB / HB		-

Mechanical Properties (at 23°C)	Value	Unit	ISO/IEC
Tensile strength at yield/Tensile strength at break	dry 32 / -	MPa	527-1/-2
Tensile strength	dry 32 / -	MPa	527-1/-2
Elongation at break	dry 49 / -	%	527-1/-2
Modulus of elasticity in tension	dry 1700 / -	MPa	527-1/-2
Compression Test - 1% nominal strain	dry 15 / -	MPa	604
Tensile creep 3)	dry 17 / -	MPa	899
impact-strength - Charpy unnotched	dry o.B. / -	kJ/m <sup>2</sup>	179/1eU
impact-strength Charpy notched	dry 34 / -	kJ/m <sup>2</sup>	179/1eA
Ball indentation hardness H 358 / 30 or H 961 / 30	dry 74 / -	N/mm <sup>2</sup>	2039-1
Coefficient of Friction 4)	dry 0,5 / -	μ	

Electrical Properties	Value	Unit	ISO/IEC
Dielectric strength	dry >22 / -	kV/mm	60243
Volume resistivity	dry $10^{15}$ / -	Ohm·cm	60093
Dielectric constant at 1 MHz	dry 3,3 / -		60250
Dielectric dissipation factor tan δ at 1 MHz	dry 0,015 / -		60250
Comparative tracking index (CTI)	dry KA 3b / -	CTI	60112

dry = values referring to dry materials

moist = values referring to material in equilibrium with the standard atmosphere 23°C/50% RH

o.B. = no break

1) after 24/96h immersion in water of 23°C

2) only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material

3) stress to produce 1% strain in 1000 h (s 1/1000)

4) p = 0,05 N/mm<sup>2</sup>, v = 0,6 m/s surface roughness C35 steel mating surface Ra 0,7 - 0,9

This table is a valuable help in the choice of material. The data listed here fall within the normal range of product properties. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design. It has to be noted that fibre reinforced material shows an anisotropic behaviour (properties differ when measured parallel and perpendicular to be extrusion direction).