

Product Description

Vendel B has high hardness and stiffness, with very good mechanical properties. It has excellent creep resistance and dimensional stability, which makes it ideal for machining of precision parts. The co-efficient of friction is low, and the dielectric properties are excellent. It has very good stick/ slip properties. The acetal copolymer is the ideal combination of strength, stiffness and wear resistance. It absorbs very little moisture, is easily machinable and is genuinely porosityfree, making it the preferred grade for food contact and medical applications. The product exhibits an elevated resistance to hydrolysis. Dimensional stability makes acetal extremely good for use with press fitted metallic bearings.

Applications

- Precision Gears
- Electrical Engineering Insulators
- Parts which operate in water up to 90°C
- High Speed Wheels and Rollers where High Dimensional Stability is needed to avoid flat spots
- Bearings with Close Tolerances
- Snap Fit Assemblies
- Low Water Absorption Parts

Key Features and Benefits

- High Mechanical Strength
- Excellent Machinability
- Very Low Stick-Slip
- Low Moisture Absorption
- Dimensional Stability
- Good Creep Resistance
- Physiologically Intert
- Continuous Use at a temperature of 115°C

Vendel B (Black Acetal)

Technical Data Sheet

Physical Properties

	Value	Unit	Verification
Density	1.41	g/cm ³	ISO 1183
Moisture pick-up till saturation (in normal climate 23 °C / 50% r.h.)	0.20	%	ISO 62
Water absorption till saturation (in water at 23 °C)	0.80	%	ISO 62

Mechanical Properties

	Value	Unit	Verification
Tensile stress at yield [$v = 50$ mm/min]	63	MPa	ISO 527-2
Tensile stress at break [$v = 5$ mm/min]	63	MPa	ISO 527-2
Nominal percentage elongation at break	31	%	ISO 527-2
Tensile modulus of elasticity	2600	MPa	ISO 527-2
Flexural modulus of elasticity	2500	MPa	ISO 178
Ball indentation hardness (value at 30 sec.)	140	MPa	ISO 2039-1
Rockwell hardness (measured with test pieces 10 mm thk)	M 84		ISO 2039-2
Charpy impact strength (+23 °C)	220	kJ/m ²	ISO 179/1eU
Charpy impact strength - notched (+23 °C)	8	kJ/m ²	ISO 179/1eA

Electric Properties

	Value	Unit	Verification
Specific insulation resistance [\geq]	10^{13}	Ohm	IEC 60093
Specific surface resistance [\geq]	10^{13}	Ohm	IEC 60093
Dielectric constant (at 1 MHz)	3.8	10^8 Hz	IEC 60250
Dielectric constant (at 100 Hz)	3.8	10^2 Hz	IEC 60250
Dissipation factor (at 1 MHz)	0.008	10^5 Hz	IEC 60250
Dissipation factor (at 100 Hz)	0.003	10^2 Hz	IEC 60250
Dielectric strength K20/K20 (in transformer oil)	20	kV/mm	IEC 60243-1
Comparative tracking index (CTI)	600		IEC 60112

Thermal Properties

	Value	Unit	Verification
Temperature for usage in air (max. short term)	140	°C	
Temperature for usage in air (max. lasting)	105	°C	
Minimum service temperature in air	-40	°C	
Heat distortion temperature (HDT A process)	96	°C	ISO 75-2
Coefficient of linear expansion (at length, 23 – 60 °C)	1.1	$10^{-4}/K$	ISO 11359
Thermal conductivity (+23 °C)	0.31	W/(K · m)	DIN 52612
Flammability according UL Standard (thickness 3 and 6 mm)	HB	Class	UL 94
Vicat softening temperature (VST/B/50)	150	°C	ISO 306
Melting point (DSC, 10 K/min)	165	°C	ISO 3146