

Cubic Ink® High Performance 4-300 VP

Material with a good balance between temperature form-stability and toughness for final part production

Liquid Properties	Value ¹	Unit
Viscosity @ 25 °C (DIN EN ISO 3219)	50	mPa·s
Density (DIN EN ISO 15212-1)	1.08	g/mL
Critical Energy (E _c) @405 / 385 nm	7.9 / 8.2	mJ/cm ²
Depth of Penetration (D _p) @405 / 385 nm	0.78 / 0.24	mm
Tensile Properties² (DIN EN ISO 527-5A)		
Ultimate Tensile Strength	72	MPa
Tensile Modulus	2700	MPa
Elongation at Break	4.6	%
Flexural Properties³ (DIN EN ISO 178)		
Flexural Strength	107	MPa
Flexural Modulus	2500	MPa
Deflection at Fracture	>6.5	%
Impact Properties		
Izod unnotched (DIN EN ISO 180)	240	J/m
Charpy unnotched (DIN EN ISO 179-1)	25	kJ/m ²
Hardness (DIN EN ISO 7619)		
Shore Hardness (green)	75 - 78	D
Shore Hardness	80	D
Thermal Properties		
T _g (TMA) ⁴	96	°C

HDT A (DIN EN ISO 75)	78	°C
HDT B (DIN EN ISO 75)	104	°C
CTE (-50 °C, 50 °C) (DIN EN ISO 11359-2)	71	$\times 10^{-6} \text{ K}^{-1}$
CTE (120 °C, 200 °C) (DIN EN ISO 11359-2)	126	$\times 10^{-6} \text{ K}^{-1}$
Specific Heat Capacity, 20 °C (DIN EN ISO 11357-4)	1.71	J/(g·K)

Electrical Properties

Dielectric strength (IEC60243-1)	22	kV/mm
Dielectric strength after 24 h/RT H ₂ O (IEC60243-1)	22	kV/mm
Relative Permittivity (Dielectric Constant, 24 °C, 1 MHz, IEC60250)	6.5	-
Dissipation Factor (24 °C, 1 MHz, IEC60250)	0.027	-
Volume Resistivity (IEC60093)	5.6×10^{14}	$\Omega \cdot \text{cm}$
Volume Resistivity after 7 d/RT H ₂ O (IEC60093)	2.1×10^{14}	$\Omega \cdot \text{cm}$
Comparative Tracking Index (IEC60112)	>600	V

Flame (UL94)

Flammability, horizontal (at 3.2 mm)	HB	-
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Chemical Resistance

Water Uptake, 24 h, 23 °C	0.5	%
Performance after Water Uptake, 168 h, 23 °C ⁵	6	%

Thermal Ageing⁵

120 °C for 3000 hours	5	%
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Print Appearance/ Color

Natural color is translucent light yellow. Also available in cyan, magenta, yellow, black, and grey. More colors on request.

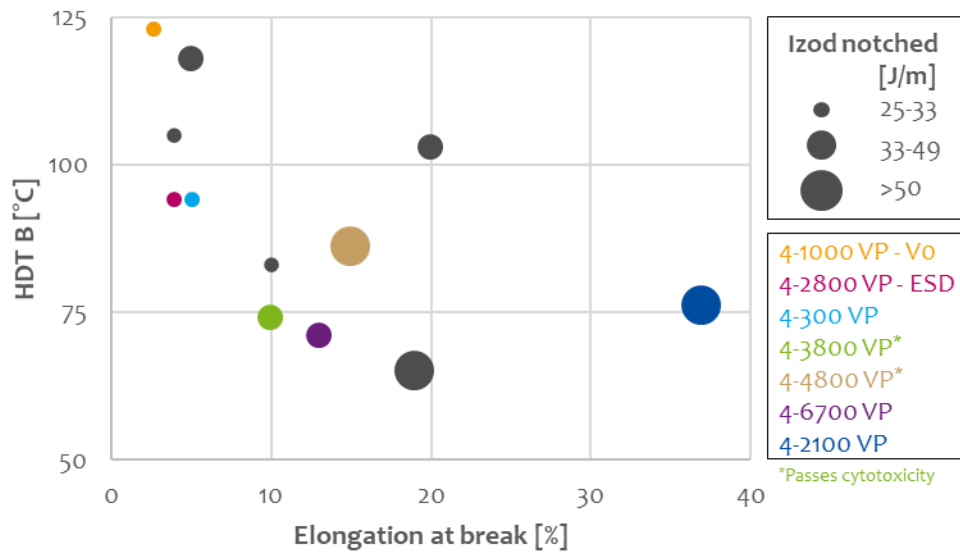
Availability and Storage

Batch sizes starting from 1 kg.

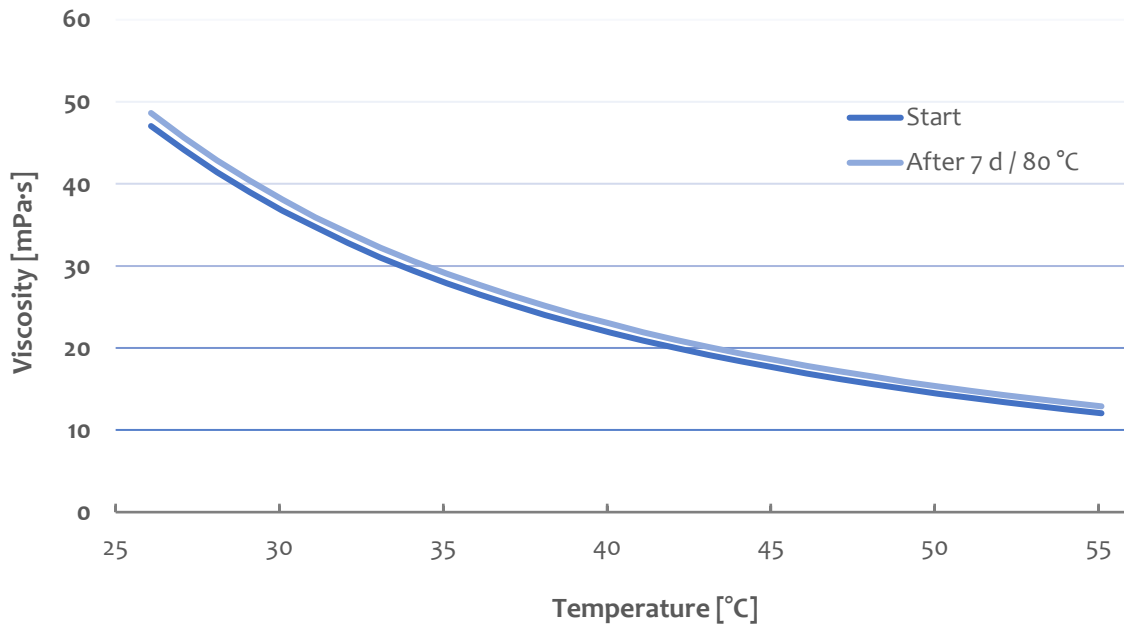
Store between 21 and 28 °C and protect from light. Stir prior to use.

¹Properties with post-processing – washed with water, UV and thermal post-cure. All material properties can vary with printer, print settings, object orientation, part geometry, post-processing and age of sample. ²5 mm/min; ³10 mm/min; ⁴-50 - 200 °C, 5 K/min; ⁵Relative loss of tensile strength compared to reference, DIN EN ISO 527-5A, 5 mm/min.

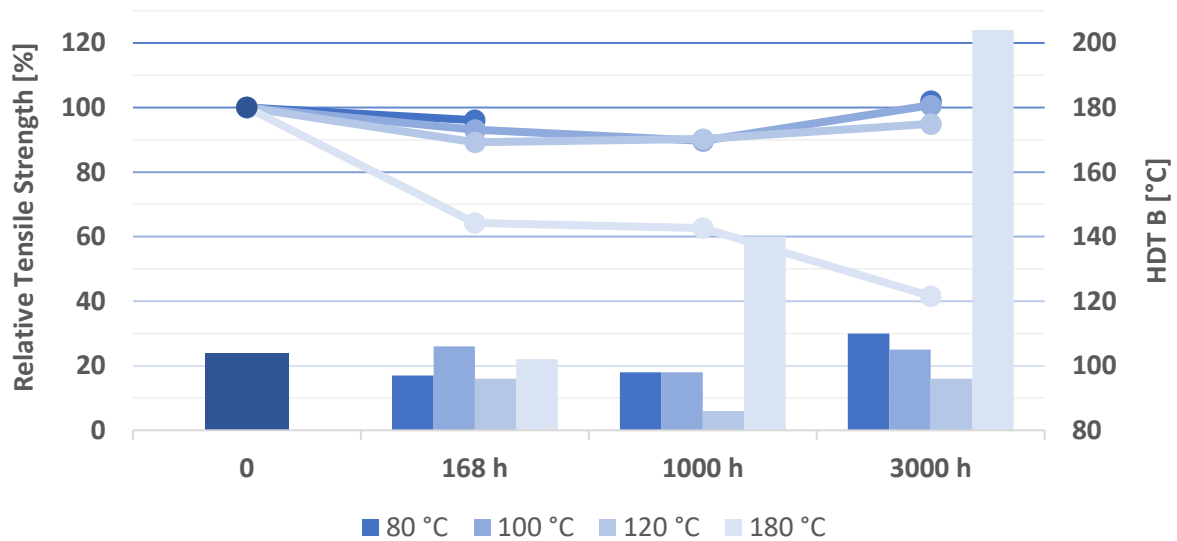
Characteristics and Versatility of High Performance 4-series



Viscosity Profile (600 s⁻¹) of High Performance 4-300 VP



Ageing of High Performance 4-300 VP (points - rel. tensile strength & bars - HDT B)



Chemical Resistance

Mass Gain [%]¹

Water	0.5
Acetic Acid (5%)	0.5
Hydrochloric Acid (1%)	0.5
Nitric Acid (5%)	0.5
Sodium Hypochlorite (10%)	0.4
Hydrogen Peroxide (3%)	0.5
Sodium Hydroxide (1%)	0.4
Isopropyl Alcohol	0.1
Methanol	4.5
Butyl Glycol Acetate	0.1
Super Gasoline	0.2
Acetone	6.0
Methyl Ethyl Ketone	1.4

¹Percental weight gained after 24 h submersion of printed and post-cured (washed with water, UV and thermal post-cure) 1 x 1 x 1 cm cubes.

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