Cubic Ink® High Performance 2-1400 VP

Versatile SLA-resin with good impact strength, chemical resistance and high clarity

Liquid Properties	Value[1] unpigmented	Value[1] black	Unit
Viscosity @ 25 °C (DIN EN ISO 3219)	420	420	mPa·s
Density (DIN EN ISO 15212-1)	1.09	1.09	g/mL
Surface Tension (Dynamic Bubble Pressure)	45	-	mN/m
Critical Energy (E_c) @355 nm	11.9	12.6	mJ/cm²
Depth of Penetration (D_p) @355 nm	0.19	0.15	mm
Tensile Properties[2] (DIN EN ISO 527-5A)			
Ultimate Tensile Strength	39	33	MPa
Yield Strength	39	33	MPa
Tensile Modulus	2100	1700	MPa
Elongation at Break	14	16	%
Flexural Properties[3] (DIN EN ISO 178)			
Flexural Strength	68	61	MPa
Flexural Modulus	1800	1500	MPa
Deflection at Fracture	>10	>10	%
Impact Properties			
Izod notched (DIN EN ISO 180)	38	44	J/m
Charpy notched (DIN EN ISO 179-1)	3.8	3.7	kJ/m²
Izod unnotched (DIN EN ISO 180)	370	580	J/m
Charpy unnotched (DIN EN ISO 179-1)	42	71	kJ/m²

Hardness (DIN EN ISO 7619)

Shore Hardness (green)	58 - 62	60 - 68	D
Shore Hardness	63	74	D

Thermal Properties

T_g (TMA)[4]	42	-	°C
HDT A (DIN EN ISO 75)	44	43	°C
HDT B (DIN EN ISO 75)	47	47	°C
CTE (–50 °C, 30 °C) (DIN EN ISO 11359-2)	68	-	x 10^{-6} K^{-1}
CTE (65 °C, 200 °C) (DIN EN ISO 11359-2)	176	-	x 10^{-6} K^{-1}
Specific Heat Capacity, 20 °C (DIN EN ISO 11357-4)	1.8	-	J/(g·K)

Electrical Properties

Dielectric strength (IEC60243-1)	18	-	kV/mm
Dielectric strength after 24 h/RT H_2O (IEC60243-1)	17	-	kV/mm
Comparative Tracking Index (IEC60112)	>600	-	V

Chemical Resistance

Water Uptake, 24 h, 23 °C[5]	<0.1	<0.1	%
Performance after Water Uptake, 24 h, 23 °C[6]	<1	<1	%

Thermal Ageing[7]

80 °C for 168 hours	<1	-	%

Print Appearance/ Color

Natural color is translucent blue. Also available in black. More colors on request.

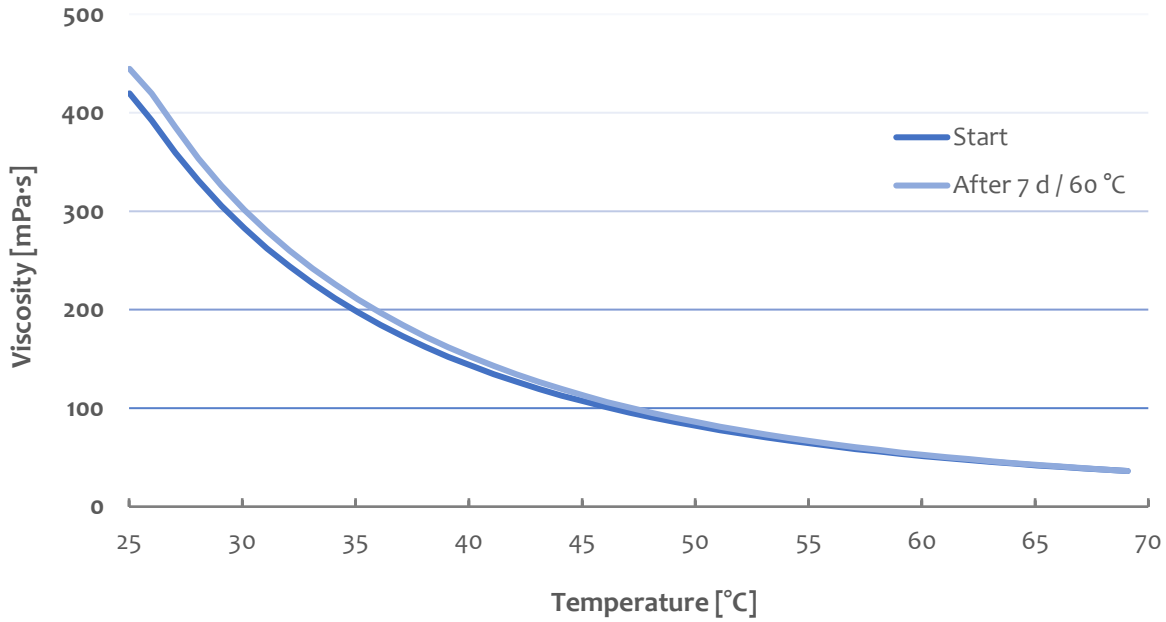
Availability and Storage

Batch sizes starting from 1 kg.

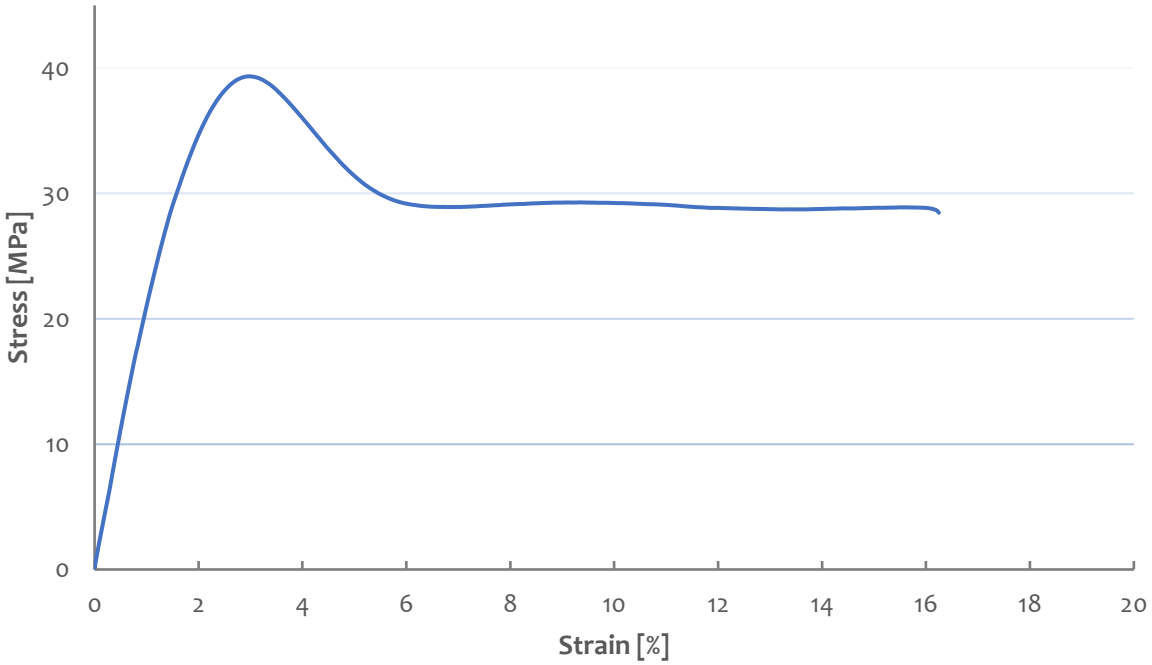
Store at room temperature or at 8 °C and protect from light.

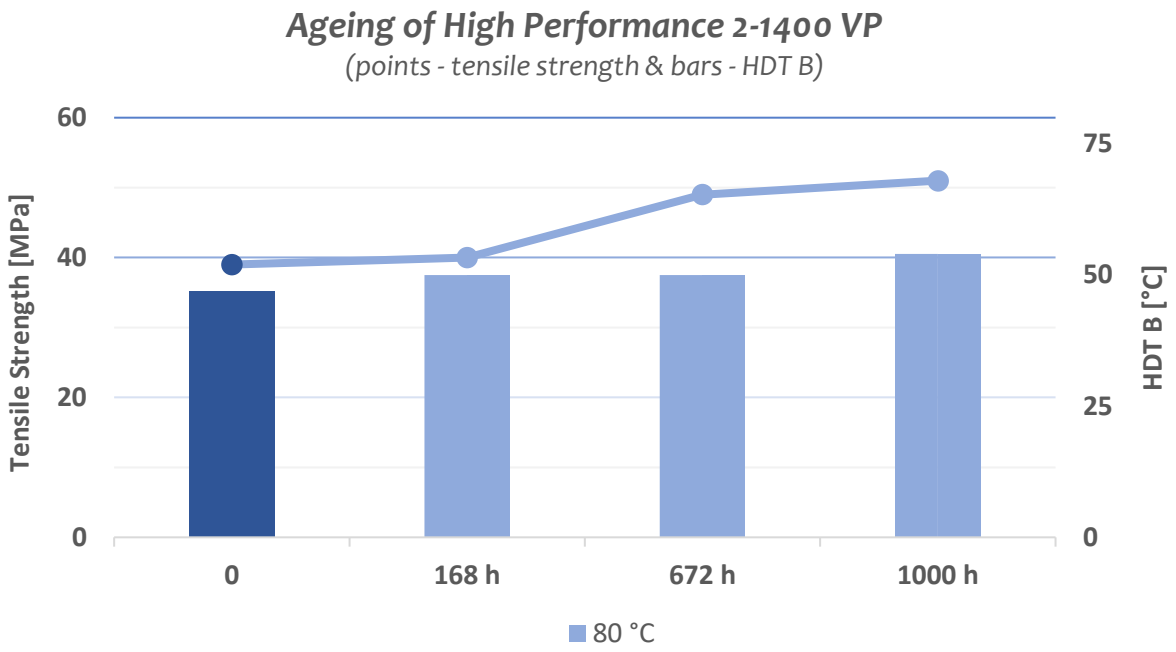
[1]Properties with post-processing – washed with propylene carbonate, UV-post-cure. All material properties can vary with printer, print settings, object orientation, part geometry, post-processing and age of sample. [2]5 mm/min; [3]5 mm/min; [4]–50 - 200 °C, 5 K/min; [5]Weight loss of 5A-specimen DIN EN ISO 527; [6]Relative loss of HDT B compared to reference; [7]Relative loss of e-modulus, tensile strength, elongation at break and HDT B compared to reference, DIN EN ISO 527-5A, 5 mm/min.

Viscosity Profile (600 s^{-1}) of High Performance 2-1400 VP



Tensile Testing of High Performance 2-1400 VP





Chemical Resistance	Mass Gain [%][1]
Water	<0.1
Acetic Acid (5%)	<0.1
Hydrochloric Acid (1%)	<0.1
Nitric Acid (5%)	<0.1
Sodium Hypochlorite (10%)	0.2
Hydrogen Peroxide (3%)	<0.1
Sodium Hydroxide (1%)	0.2
Isopropyl Alcohol	0.7
Ethanol	2.1
Methanol	3.4
Butyl Glycol Acetate	0.7
Super Gasoline	1.8
Acetone	4.3
Methyl Ethyl Ketone	4.3

[1]Percental weight gained after 24 h submersion of printed and post-cured (unpigmented, washed with propylene carbonate, UV-post-cure) 1 x 1 x 1 cm cubes.

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