Cubic Ink® High Performance 2-1400 VP

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

Liquid Properties	Value[1]	Unit
Viscosity @ 25 °C (DIN EN ISO 3219)	430	mPa·s
Density (DIN EN ISO 15212-1)	1.10	g/mL
Surface Tension (Dynamic Bubble Pressure)	37	mN/m
Critical Energy (E_c) @355 nm	7.5	mJ/cm²
Depth of Penetration (D_p) @355 nm	0.15	mm
Tensile Properties[2] (DIN EN ISO 527-5A)		
Ultimate Tensile Strength	39	MPa
Yield Strength	39	MPa
Tensile Modulus	2100	MPa
Elongation at Break	14	%
Flexural Properties[2] (DIN EN ISO 178)		
Flexural Strength	68	MPa
Flexural Modulus	1800	MPa
Deflection at Fracture	>10	%
Impact Properties		
Izod notched (DIN EN ISO 180)	38	J/m
Charpy notched (DIN EN ISO 179-1)	3.8	kJ/m²
Izod unnotched (DIN EN ISO 180)	370	J/m
Charpy unnotched (DIN EN ISO 179-1)	42	kJ/m²

Hardness (DIN EN ISO 7619)

Shore Hardness (green)	73 - 79	D
Shore Hardness	80	D

Thermal Properties

T_g (TMA)[3]	42	°C
HDT A (DIN EN ISO 75)	47	°C
HDT B (DIN EN ISO 75)	51	°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
Relative Permittivity (Dielectric Constant, 22 °C, 10 000 Hz, IEC60250)	7.1	-
Dissipation Factor (22 °C, 10 000 Hz, IEC60250)	0.022	-
Volume Resistivity (IEC60093)	4.2 x 10^{12}	Ω·cm
Volume Resistivity after 7 d/RT H_2O (IEC60093)	3.2 x 10^{12}	Ω·cm
Comparative Tracking Index (IEC60112)	>600	V

Chemical Resistance

Water Uptake, 7 d, 23 °C	<0.1	%
Water Uptake, 42 d, 23 °C	3.1	%
Performance after Water Uptake, 7 d, 23 °C[4]	<1	%

Thermal Ageing[4]

80 °C for 7 d	<1	%

UV Ageing[5,6]

for 1000 hours	3	%

Print Appearance/ Color

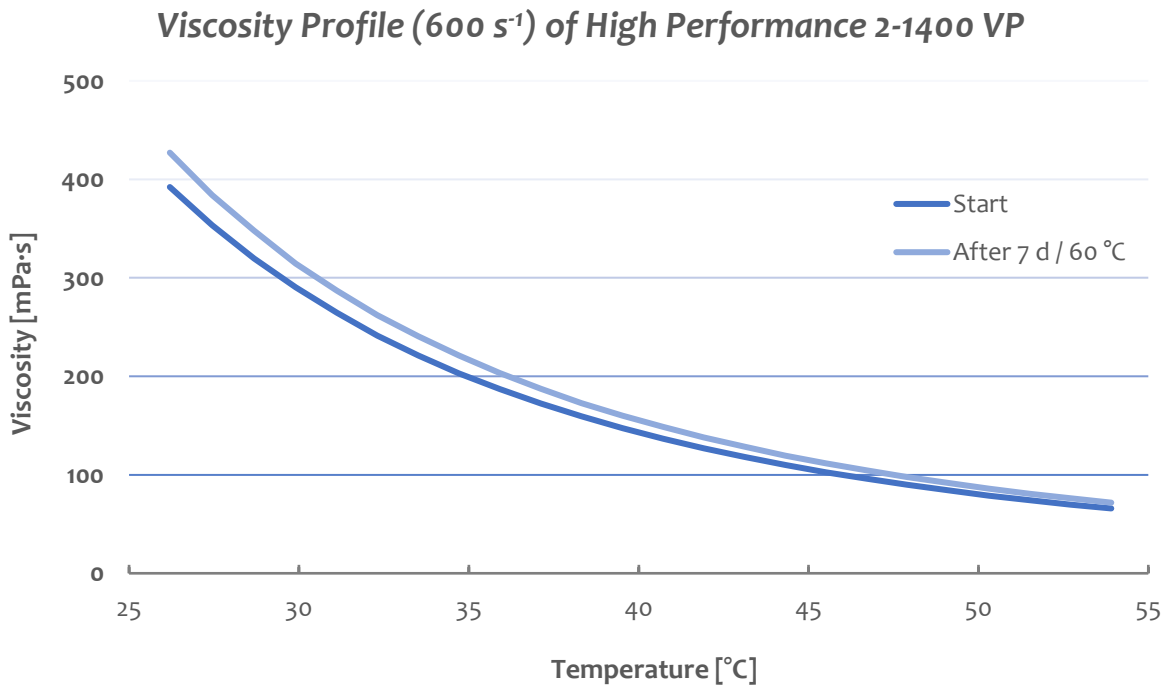
Refractive Index (ISO 489)[7]	1.375	-
Natural color is translucent blue. More colors on request.		

Availability and Storage

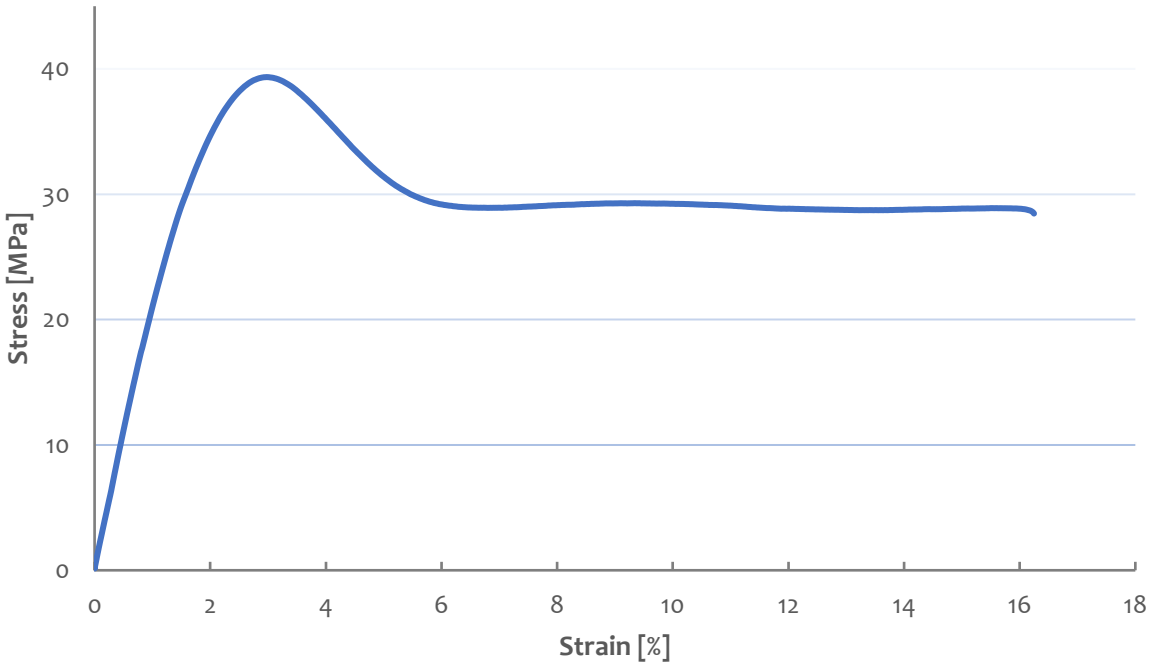
Batch sizes starting from 1 kg.

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]–50 - 200 °C, 5 K/min; [4]Relative loss of tensile modulus, tensile strength, elongation at break compared to reference DIN EN ISO 527-5A, 5 mm/min; [5]Relative loss of HDT B compared to reference, DIN EN ISO 75; [6]QUV weathering tester following ISO 4892-3; [7]Cured, 22 °C.

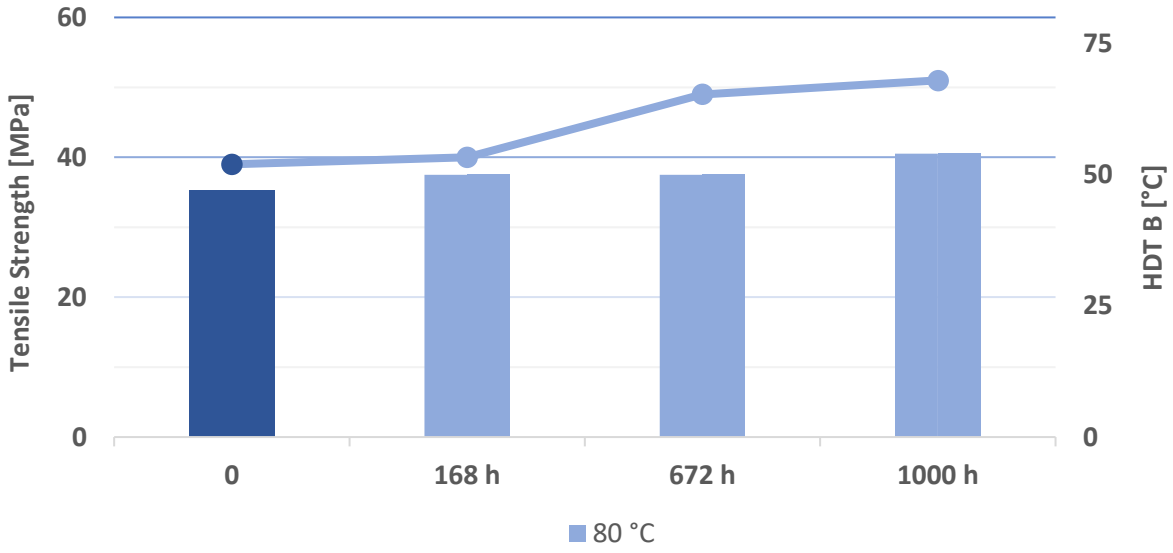


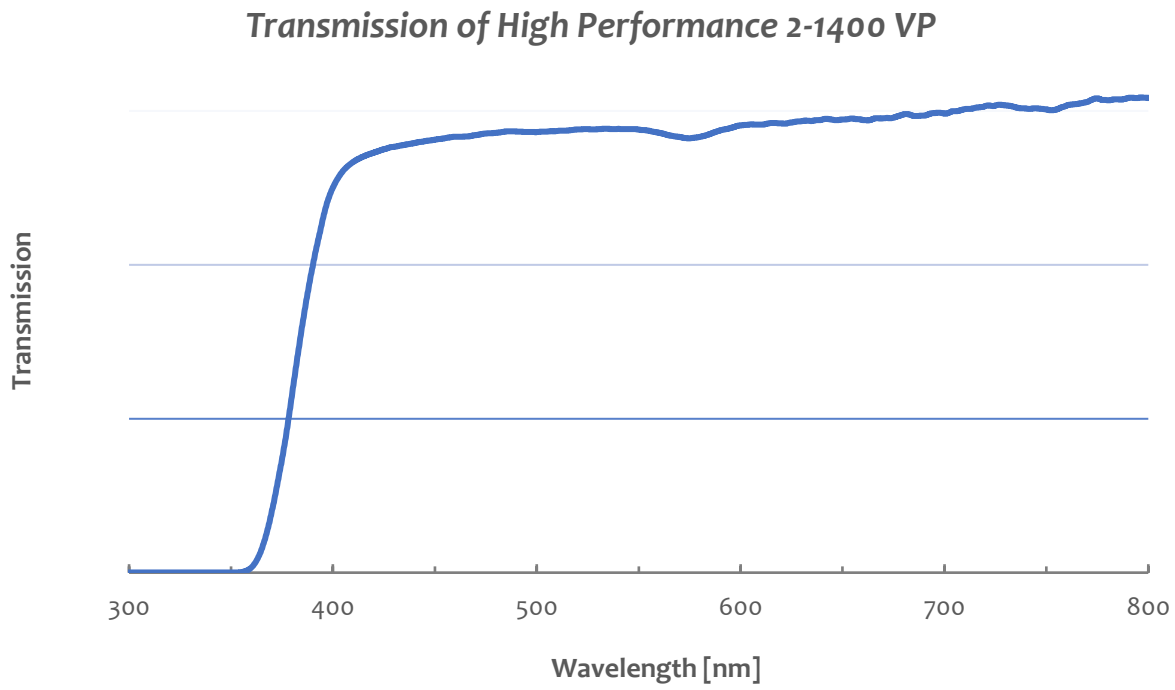
Tensile Testing of High Performance 2-1400 VP



Ageing of High Performance 2-1400 VP

(points - tensile strength & bars - HDT B)





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 (washed with propylene carbonate, UV-post-cure) 1 x 1 x 1 cm^3 cubes.

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