Cubic Ink® Rigid 2000 VP

Easy-to-print material with excellent rigidity and temperature resistance

Liquid Properties	Method	Value[1]	Unit
Viscosity (25 °C)	DIN EN ISO 3219	340	mPa·s
Density	DIN EN ISO 15212-1	1.17	g/mL
Critical Energy (E_c)	405 nm / 385 nm	2.3 / 3.0	mJ/cm^2
Depth of Penetration (D_p)	405 nm / 385 nm	0.27 / 0.20	mm
Tensile Properties			
Ultimate Tensile Strength	DIN EN ISO 527-5A[2]	92	MPa
Tensile Modulus	DIN EN ISO 527-5A[2]	3600	MPa
Elongation at Break	DIN EN ISO 527-5A[2]	4.8	%
Flexural Properties			
Flexural Strength	DIN EN ISO 178[2]	140	MPa
Flexural Modulus	DIN EN ISO 178[2]	3300	MPa
Deflection at Fracture	DIN EN ISO 178[2]	6.2	%
Impact Properties			
Izod notched	DIN EN ISO 180	14	J/m
Charpy notched	DIN EN ISO 179-1	1.0	kJ/m^2
Hardness			
Shore Hardness	DIN EN ISO 7619	85	D
Thermomechanical Properties			
T_g	TMA[3]	135	°C
HDT A	DIN EN ISO 75	101	°C
HDT B	DIN EN ISO 75	122	°C
CTE (−90 °C, 20 °C)	DIN EN ISO 11359-2	60	x 10^{-6} K^{-1}
CTE (100 °C, 200 °C)	DIN EN ISO 11359-2	157	x 10^{-6} K^{-1}
Specific Heat Capacity, 20 °C	DIN EN ISO 11357-4	1.15	J/(g·K)
Flammability, horizontal	UL 94, at 3.2 mm	HB (FH-3)	-

Electrical Properties

Dielectric strength	IEC60243-1	27	kV/mm
Relative Permittivity (Dielectric Constant, 23 °C, 10 000 Hz)	IEC60250	5.6	-
Relative Permittivity (23 °C, 8 - 20 GHz)[4]	Internal	2.8	
Dissipation Factor (23 °C, 10 000 Hz)	IEC60250	0.013	-
Volume Resistivity	IEC60093	1.7×10^{15}	Ω·cm
Comparative Tracking Index	IEC60112	>600	V

Other Properties

Water Uptake, 24 h, 23 °C	Internal	0.3	%
Performance after Water Uptake, 24 h, 23 °C[5]	Internal	<5	%
Thermal Ageing 150 °C for 1000 h[5]	Internal	<1	%
UV Ageing for 1000 h[6]	ISO 4892-3[7]	<1	%

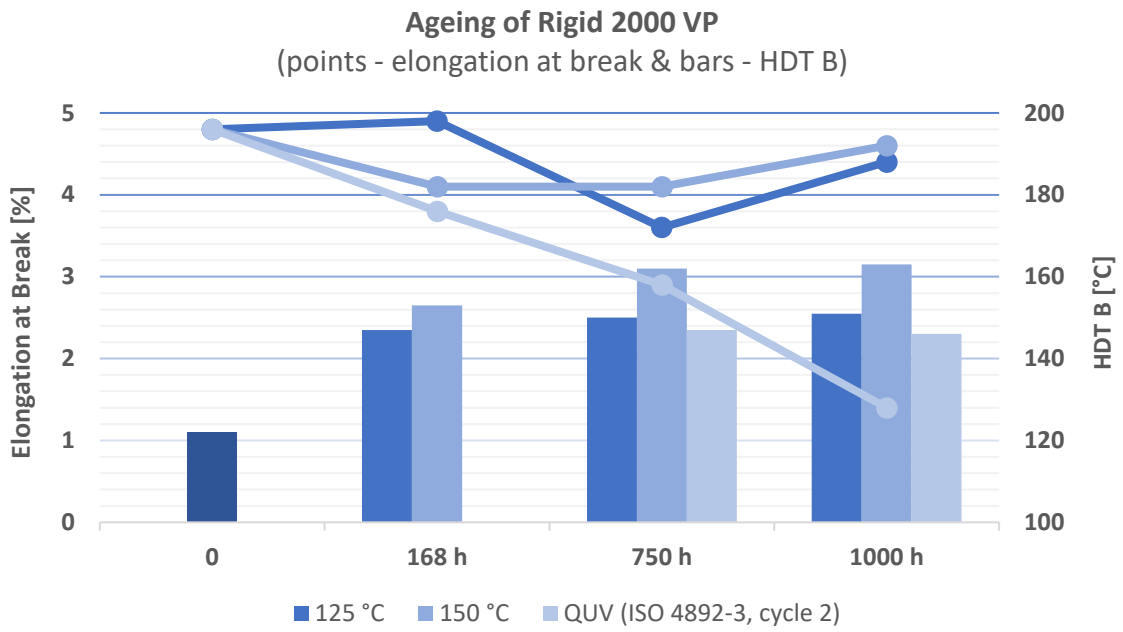
Color, Storage, Compatibility

Natural color is translucent light yellow. Additional colors available on request.

For best performance, use within 12 months of manufacturing date. Store at room temperature and protect from light. Stir prior to use.

Cubic Ink Rigid 2000 VP is compatible with Cubic Ink Cleaner 400.

[1]Properties may vary with post-processing – 2 x 15 min UV post-cure via *Formlabs Formcure* (1st Gen, LED 405 nm) at 80 °C. All material properties can vary with color, printer, print settings, object orientation, part geometry, post-processing and age of sample. Properties in TDS are measured on uncolored resin. [2]5 mm/min; [3]25 - 300 °C, 5 K/min; [4]Successfully tested at customers; [5]Relative loss of tensile testing and HDT B compared to reference, DIN EN ISO 527-5A, 5 mm/min and DIN EN ISO 75; [6]Relative loss of e-modulus and HDT B compared to reference, DIN EN ISO 527-5A, 5 mm/min and DIN EN ISO 75; [7]QUV weathering tester.



Chemical Resistance	Mass Gain [%][1]
Water	0.3
Acetic Acid (5%)	0.3
Hydrochloric Acid (1%)	0.2
Nitric Acid (5%)	0.3
Sodium Hypochlorite (10%)	0.7
Hydrogen Peroxide (3%)	0.2
Sodium Hydroxide (1%)	0.2
Isopropyl Alcohol	<0.1
Ethanol	<0.1
Methanol	0.7
Butyl Glycol Acetate	<0.1
Super Gasoline	0.1
Acetone	0.2
Methyl Ethyl Ketone	<0.1

[1]Percental weight gained after 24 h submersion of printed and post-cured (2 x 15 min UV post-cure via *Formlabs Formcure* (1st Gen, LED 405 nm) at 80 °C) 1 x 1 x 1 cm^3 cubes.

Cubic Ink®

ALTANA New Technologies GmbH

located at

ACTEGA GmbH
Mielestraße 13
31275 Lehrte
GERMANY

Tel +49 (0)5132 5009-600
Cubic.ink@altana.com
www.altana.com

Learn more about Cubic Ink® materials
www.altana.com/cubic-ink
www.altana.de/cubic-ink

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