

Cubic Ink® Tough 2100 VP

Fast and easy-to-print functional material with a good balance of toughness, impact resistance and HDT

Liquid Properties	Method	Value ¹	Unit
Viscosity (25 °C)	DIN EN ISO 3219	170	mPa·s
Density	DIN EN ISO 15212-1	1.11	g/mL
Critical Energy (E _c)	405 nm / 385 nm	3.5 / 4.5	mJ/cm ²
Depth of Penetration (D _p)	405 nm / 385 nm	0.30 / 0.22	mm
Tensile Properties			
Ultimate Tensile Strength	DIN EN ISO 527-5A ²	73	MPa
Yield Strength	DIN EN ISO 527-5A ²	73	MPa
Tensile Modulus	DIN EN ISO 527-5A ²	2800	MPa
Elongation at Break	DIN EN ISO 527-5A ²	12	%
Flexural Properties			
Flexural Strength	DIN EN ISO 178 ²	118	MPa
Flexural Modulus	DIN EN ISO 178 ²	2700	MPa
Deflection at Fracture	DIN EN ISO 178 ²	>10	%
Impact Properties			
Izod notched	DIN EN ISO 180	36	J/m
Charpy notched	DIN EN ISO 179-1	4.1	kJ/m ²
Izod unnotched	DIN EN ISO 180	380	J/m
Charpy unnotched	DIN EN ISO 179-1	78	kJ/m ²
Hardness			
Shore Hardness	DIN EN ISO 7619	84	D
Thermomechanical Properties			
T _g	TMA ³	95	°C
HDT A	DIN EN ISO 75	62	°C
HDT B	DIN EN ISO 75	76	°C
CTE (-90 °C, 50 °C)	DIN EN ISO 11359-2	72	x 10 ⁻⁶ K ⁻¹
CTE (100 °C, 200 °C)	DIN EN ISO 11359-2	169	x 10 ⁻⁶ K ⁻¹
Specific Heat Capacity, 20 °C	DIN EN ISO 11357-4	1.35	J/(g·K)
Flammability, horizontal	UL 94, at 3.2 mm	HB (FH-3)	-

Electrical Properties

Dielectric strength	IEC60243-1	29	kV/mm
Relative Permittivity (Dielectric Constant, 23 °C, 10 000 Hz)	IEC60250	7.0	-
Dissipation Factor (23 °C, 10 000 Hz)	IEC60250	0.0049	-
Volume Resistivity	IEC60093	9.6×10^{14}	$\Omega \cdot \text{cm}$
Volume Resistivity after 7 d/23 °C H ₂ O	IEC60093	1.7×10^{12}	$\Omega \cdot \text{cm}$
Comparative Tracking Index	IEC60112	>600	V

Other Properties

Water Uptake, 24 h, 23 °C	ASTM D570	3.5	%
Thermal Ageing 80 °C for 1000 h ⁴	Internal	<1	%
Thermal Ageing 125 °C for 1000 h ⁴	Internal	<1	%
UV Ageing for 1000 h ⁴	ISO 4892-3 ⁵	40	%

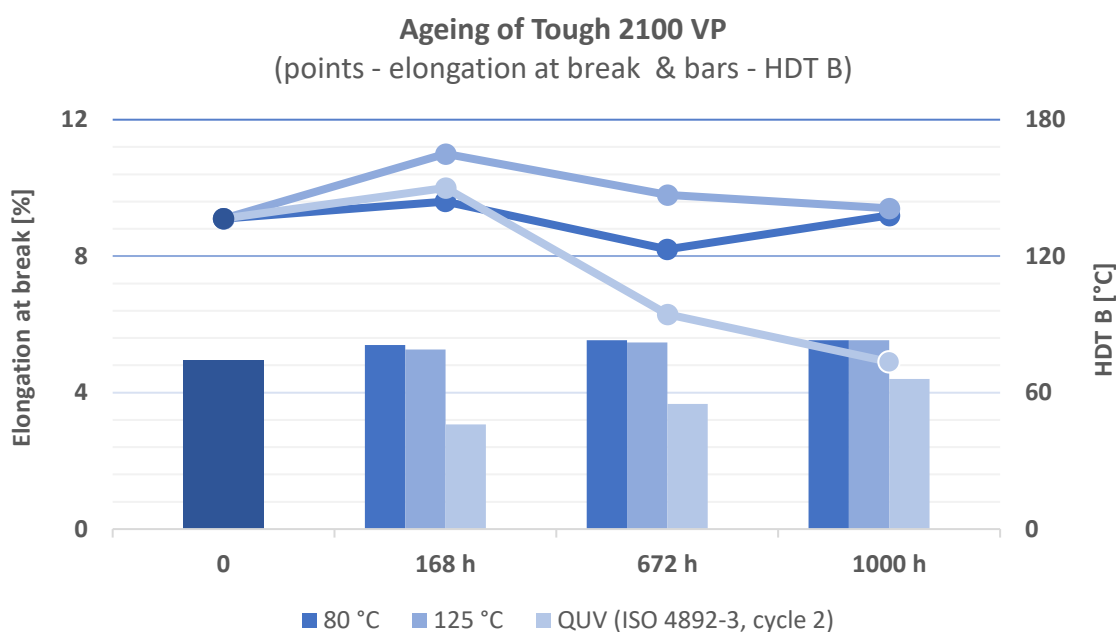
Availability and Storage

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

Batch size starting from 1 kg.

Shelf life 12 months, when stored at room temperature and protected from light. Stir prior to use.

¹Properties may vary with post-processing – 2 x 30 min UV post-cure via Formlabs Formcure L at 80 °C (LED, 375 and 405 nm). All material properties can vary with printer, print settings, object orientation, part geometry, post-processing and age of sample. ²5 mm/min; ³–20 – 200 °C, 5 K/min, TMA sinus; ⁴Relative loss of tensile testing and HDT B compared to reference, DIN EN ISO 527-5A, 5 mm/min and DIN EN ISO 75; ⁵QUV weathering tester.



Chemical Resistance	Mass Gain [%] ¹
Water	1.6
Acetic Acid (5%)	1.9
Hydrochloric Acid (1%)	1.4
Nitric Acid (5%)	3.2
Sodium Hypochlorite (10%)	0.4
Hydrogen Peroxide (3%)	1.6
Sodium Hydroxide (1%)	0.5
Isopropyl Alcohol	0.2
Methanol	5.6
Butyl Glycol Acetate	<0.1
Super Gasoline	1.3
Acetone	8.6
Methyl Ethyl Ketone	3.0

¹Percental weight gained after 24 h submersion of printed and post-cured (2 x 30 min UV post-cure via Formlabs Formcure L at 80 °C, LED, 375 and 405 nm) 1 x 1 x 1 cm³ cubes.

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