NANODIMENSION

ATARU

A GROUNDBREAKING UV-CURABLE MATERIAL FOR DLP PRINTING

ATARU is engineered for exceptional high-temperature resistance and durability. ATARU also delivers excellent surface quality along with incredibly low dielectric loss.

Market-leading thermal performance and durability

Suitable for injection molding & demanding environmental conditions.

Signal Integrity Assurance

Unique low dielectric loss property ensures suitability for high-frequency electrical applications.

Seamless integration

Low viscosity ensures compatibility with a wide range of DLP printers, enabling reliable printing and consistently high-quality results.

KEY BENEFITS

- High thermal performance and durability
- High impact strength
- Ultra low loss
- Excellent surface quality
- Fast processing
- Serial production

IDEAL APPLICATIONS

- Molds (injection molding)
- Tools & fixtures
- Radio frequency (antenna)

ATARU PROPERTIES:

Resin Properties

Viscosity	~830 mPas (at 23° and 100 1/s)
Color	Cream Colored

Mechanical Properties

	Condition	Standard	Unit	Value
Tensile Modulus	1 mm/min	ISO 527-1/-2	MPa	5640
Stress at break	5 mm/min	ISO 527-1/-2	MPa	73
Strain at break	5 mm/min	ISO 527-1/-2	%	1.9
Flexural Modulus	1 %/min	ISO 178	MPa	5360
Flexural Strength	1 %/min	ISO 178	MPa	127
Flexural Strain at break	1 %/min	ISO 178	%	2.7
Izod impact strength unnotched	+22°C / 1 J	ASTM D4812 : 2006	J/m	236

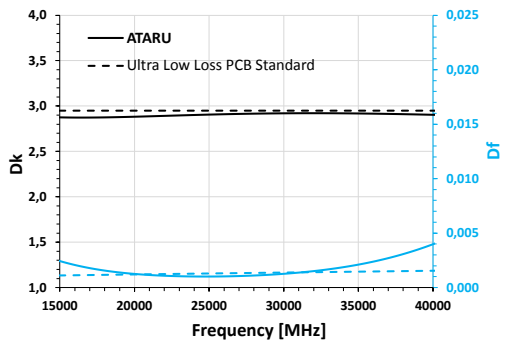
Thermo-Mechanical Properties

CTE (0°C to 110°C)	3 K/min	IPC-TM-650 2.4.24.5	µm/(m·K)	45.0
CTE (110°C to 200°C)	3 K/min	IPC-TM-650 2.4.24.5	µm/(m·K)	72.6
CTE (200°C to 300°C)	3 K/min	IPC-TM-650 2.4.24.5	µm/(m·K)	116.3
Td2	10 K/min	IPC-TM-650	°C	351
Td5	10 K/min	IPC-TM-650	°C	378
Tg	10 K/min	IPC-TM-650	°C	>300°
HDT/B (0.45 MPa)	Flat	ISO 75-2:2013-08	°C	>300°
HDT/A (1.8 MPa)	Flat	ISO 75-2:2013-08	°C	>300°
HDT/C (8.0 MPa)	Flat	ISO 75-2:2013-08	°C	133

Thermal Properties

Thermal Conductivity	25°C		W/mK	0.28
Thermal Conductivity	50°C		W/mK	0.29
Thermal Conductivity	100°C		W/mK	0.31
Spec. Heat Capacity	23°C		J/gK	0.97
Spec. Heat Capacity	200°C		J/gK	1.5

Dielectric Properties



Environmental Properties

Water Absorption	24h	ASTM D 570	%	0.09

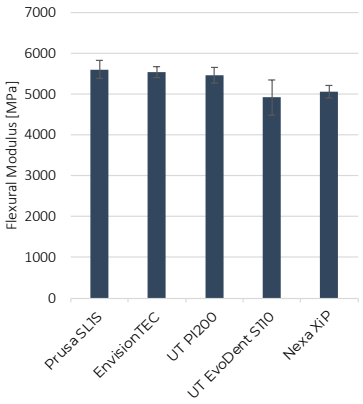
Electrical Properties

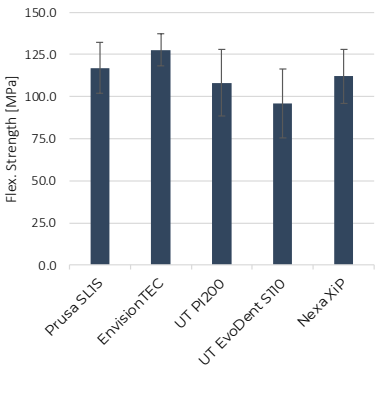
	Condition	Standard	Unit	Value
Dielectric Breakdown Voltage		IPC-TM-650 2.5.6	kV	42
Arc resistance		IPC-TM-650 2.5.1	s	186
Specific volume resistivity		DIN EN 62631-3-1:2016-10/IEC 62631	Ωcm	1.3×10^{14}
Specific Surface Resistance		DIN EN 62631-3-2:2016-10/ IEC 62631	Ω	4.9×10^{14}
CTI	50 drops at 600 V and 100 drops at 575 V	IEC 60112:2022-11	(V)	600

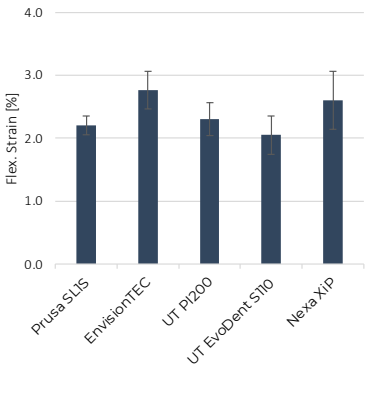
Outgassing

	Standard	Unit	Value
TML	ASTM E595-15	%	0.23
CVCM		%	<0.01
WVR		%	0.08

SEAMLESS COMPATIBILITY







SYSTEM COMPATIBILITY REQUIREMENTS

- Wavelength 365-405nm
- Print at room temperature (no heat required)

PRINT PROCESS

Suitable for systems with a wavelength in the range of 365-405nm.
Recommended exposition time at 405nm under room temperature:

- 2.7 mW/cm^2: 5.7 secs
- 3 mW/cm^2: 5.2 secs
- 5.5-16 mW/cm^2: 2.0-2.3 secs
- Base layer: 10 sec

Elevated temperature ease the release of large cross-sections. In case of flashing, add a delay before the exposition start.

POST PRINT PROCESS

1. CLEANING

- Precautions: Avoid sonication and avoid the usage of IPA. Ensure to monitor the soaking (and heating – optional) time carefully to prevent damage on the surface.
- It is recommended to use the **ATARU™ Resin Cleaner** for **7-10 min**, under agitation. Heat up to 45°C max 5 min is optional for special cases. (Alternatively, in some cases, a mixture *MMB:**water 70:30 (w:w) can be used maximum for 15 minutes soaking time. *MMB: 3-Methoxy-3-methyl-1-butanol CAS: 56539-66-3/**Deionized preferred).
- Then rinse the parts with water

2. DRYING

Dry under pressurized air or in an oven at a temperature of 90°C.

Precaution: Make sure the parts do not touch each other during steps 3 & 4 to avoid sticking.

3. UV Post-curing

Any type of UV treatment is suitable (no risk of overcuring). Examples:

- 6x10s @50% (Hoenle UV Cube 100 IC)
- 2x30 min (CureBox Wicked Engineering)

4. Thermal Post-treatment

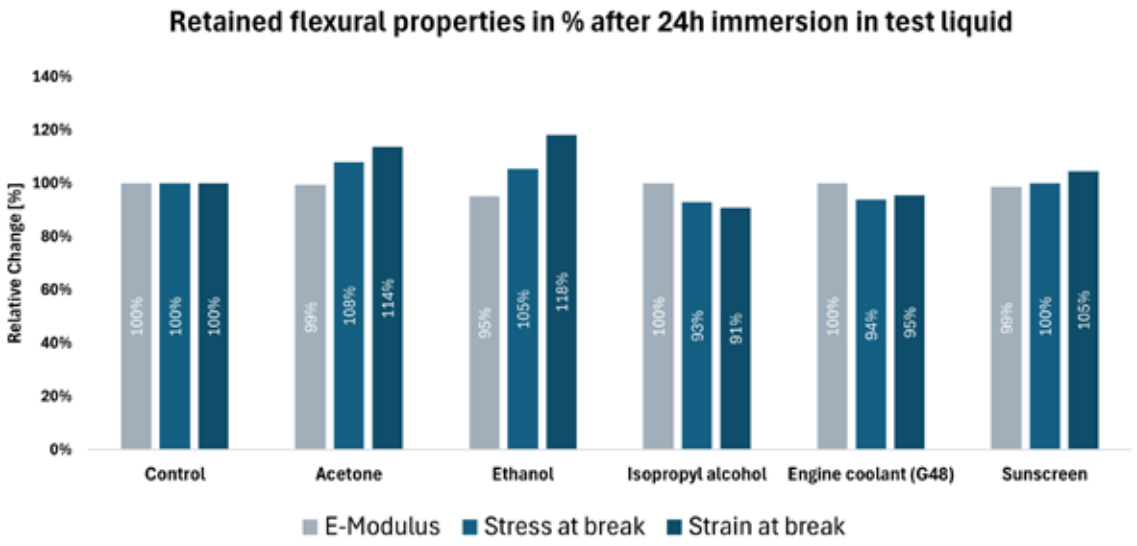
- Heat from room temperature to 200°C: For bulky parts, apply heat at a controlled rate of 2°C/min to promote even material heating before curing begins. For thin parts heat-up ramps can be 1-3°C/min.
- Dwell time at 200°C – 2 hours.
- Cool down to 45°C at a rate of 3°C/min. Parts can be removed from the oven at 45°C.

CHEMICAL COMPATIBILITY

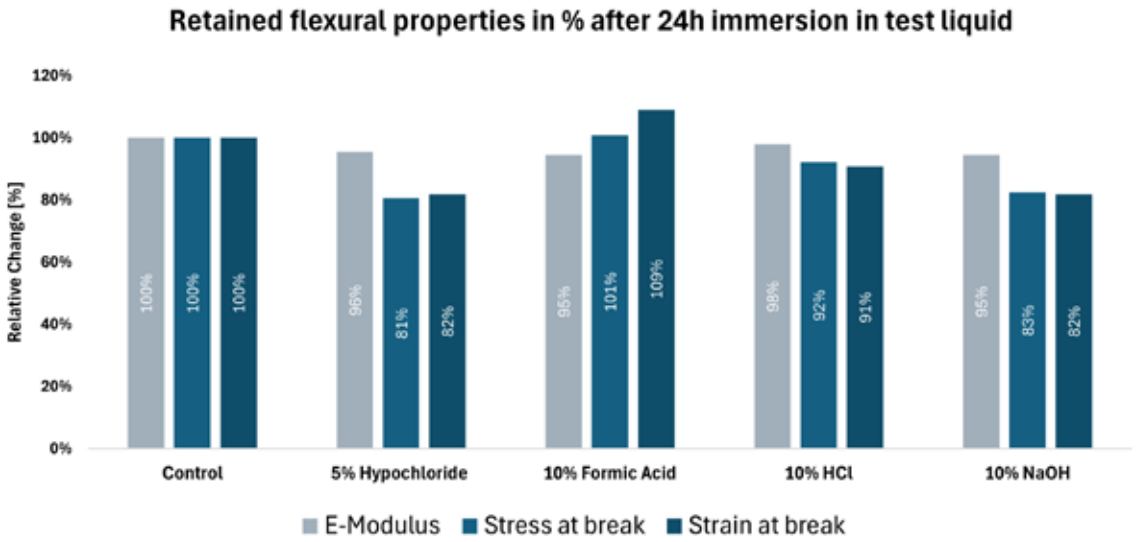
ATARU RESIN

Ataru was tested for solvent compatibility in accordance with ISO 175. Flexural specimens were immersed in various liquid media for either 24 hours or 7 days (see charts below) and tested following ISO 178.

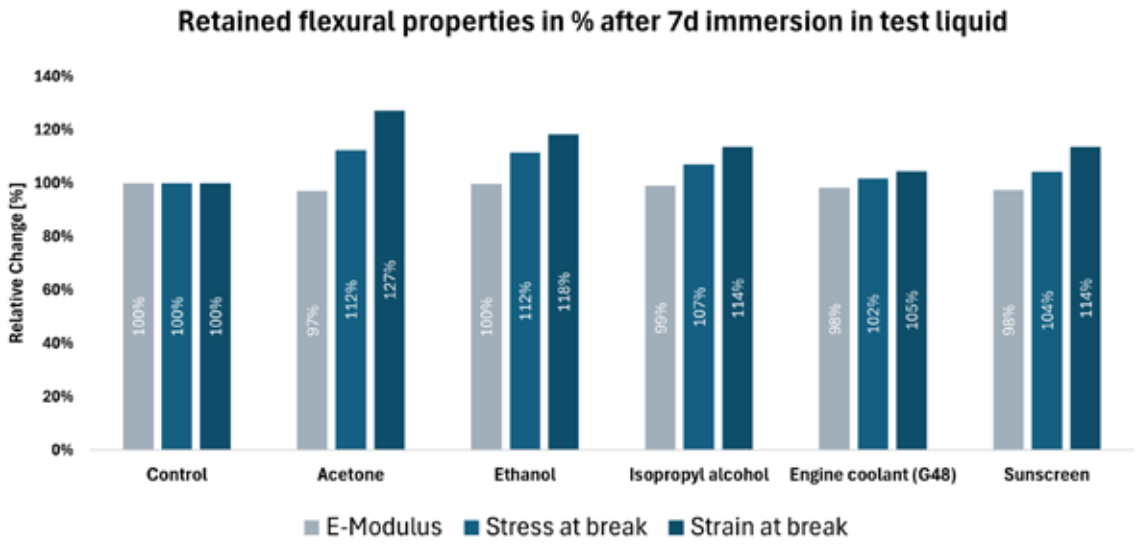
ORGANIC SOLVENTS (24H)



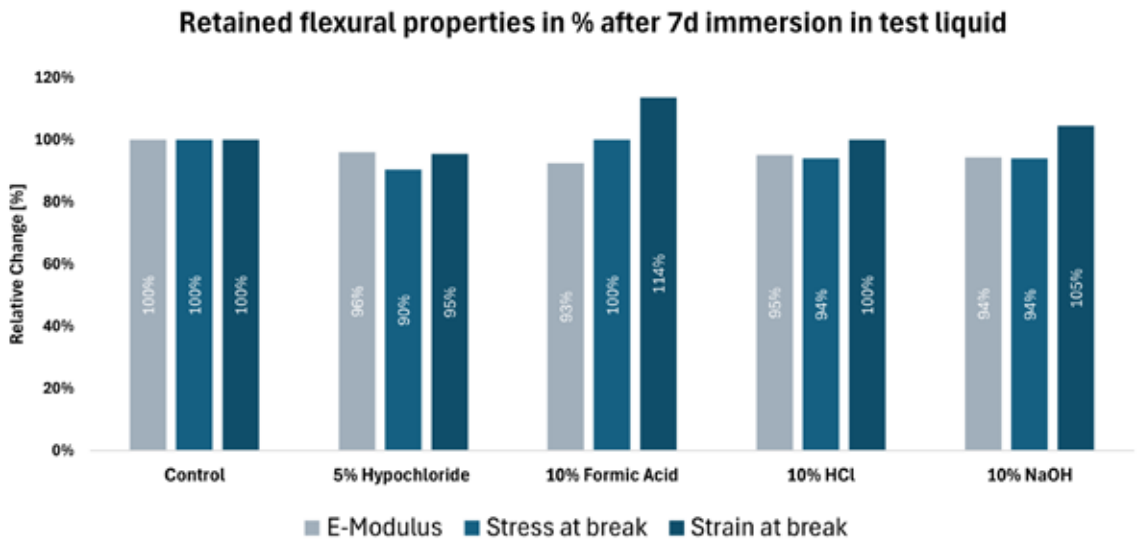
ACIDIC AND ALKALINE SOLVENTS (24H)

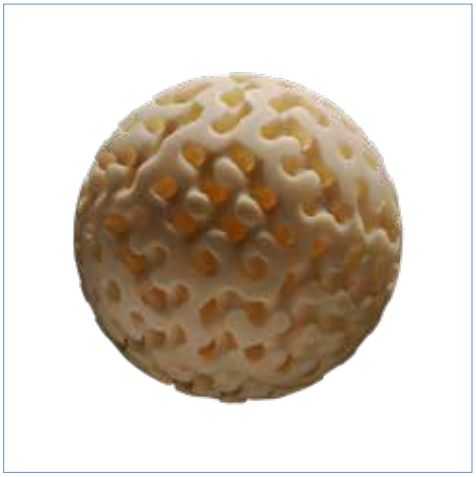


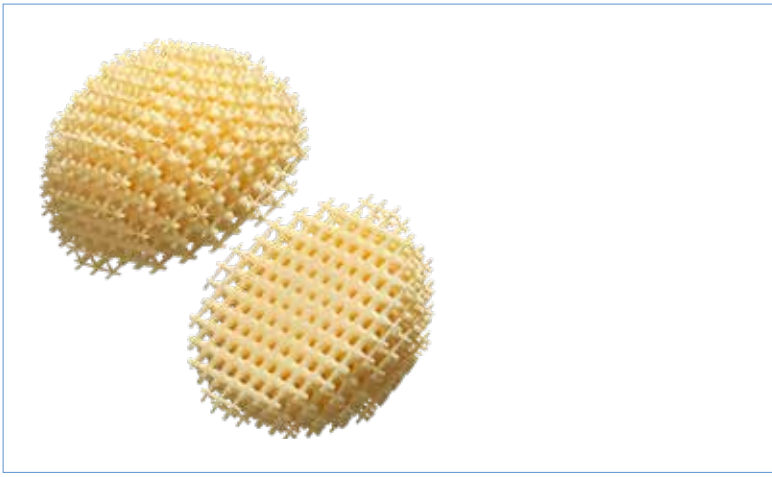
ORGANIC SOLVENTS (7D)



ACIDIC AND ALKALINE SOLVENTS (7D)







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The data provided in this document represents typical tested values at a controlled environment. Printed parts properties may vary with part geometry, print orientation, print settings, environmental conditions, and additional variables. **5th March. 2025**