

NANODIMENSION

# ATARU BLACK

## A GROUNDBREAKING UV-CURABLE MATERIAL FOR DLP PRINTING

Part of the ATARU series, ATARU BLACK combines exceptional high-temperature resistance, durability, superior surface quality, and low dielectric loss, all **while delivering enhanced precision**, making it the perfect choice for demanding applications.



### 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.

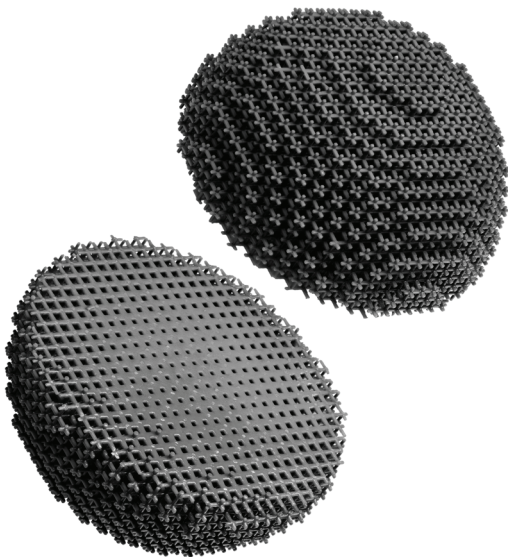


### Enhanced Precision

Maintains excellent accuracy, even for fine features, down to the printer's pixel size. Easily scalable, even after post-processing.

## KEY BENEFITS

- High thermal performance and durability
- High impact strength
- Ultra low loss
- Excellent surface quality
- Maintains excellent accuracy, even for fine features, down to the printer's pixel size.
- Fast processing
- Serial production



## IDEAL APPLICATIONS

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

# ATARU PROPERTIES:

## Resin Properties

Viscosity	~885 mPas (@ 23°C and 100 1/s)
Color	Black

## Mechanical Properties

	Condition	Standard	Unit	Value
Tensile Modulus	1 mm/min	ISO 527-1/-2	MPa	5790
Stress at break	5 mm/min	ISO 527-1/-2	MPa	69
Strain at break	5 mm/min	ISO 527-1/-2	%	1.8
Flexural Modulus	1 %/min	ISO 178	MPa	5190
Flexural Strength	1 %/min	ISO 178	MPa	121
Flexural Strain at break	1 %/min	ISO 178	%	2.9
Izod impact strength unnotched	+22°C / 1 J	ASTM D4812 : 2006	J/m	170

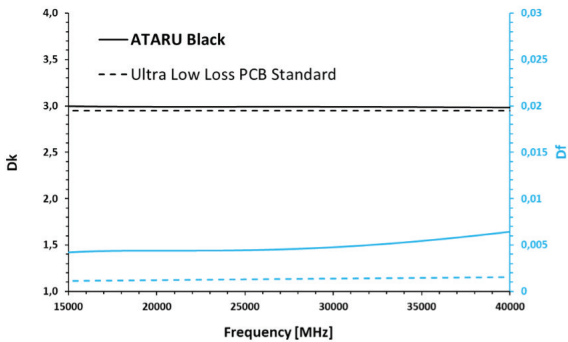
## Thermo-Mechanical Properties

CTE (0°C to 110°C)	3 K/min	IPC-TM-650 2.4.24.5	µm/(m·K)	45.6
CTE (110°C to 200°C)	3 K/min	IPC-TM-650 2.4.24.5	µm/(m·K)	75.2
CTE (200°C to 300°C)	3 K/min	IPC-TM-650 2.4.24.5	µm/(m·K)	106.1
Td2	10 K/min	IPC-TM-650	°C	367
Td5	10 K/min	IPC-TM-650	°C	391
Tg	10 K/min	IPC-TM-650	°C	>300°C
HDT/B (0.45 MPa)	Flat	ISO 75-2:2013-08	°C	>300°C
HDT/A (1.8 MPa)	Flat	ISO 75-2:2013-08	°C	>300°C
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



## 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<sup>2</sup>: 12.5 secs
- 5.5-16 mW/cm<sup>2</sup>: 2.3 secs
- Base layer: 10-15 secs

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

The Recommended cleaning agent is the mixture \*MMB:\*\*water 70:30 (w:w). The

\*MMB: 3-Methoxy-3-methyl-1-butanol (MMB) / CAS: 56539-66-3

\*\*Deionized preferred

maximum soaking time in the cleaning agent is 15 minutes then the parts can be rinsed with water.

### 2. DRYING

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

### 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 2h at 200°C and cool down slowly. For bulky parts, slow heating must be applied to allow the material to be heated evenly before it starts to cure. The ramp is dependent on the thickness the parts.

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