RESINIFY – TECHNICAL DATA SHEET

Product Name: NanoCeram **RT Code:** RT-CP4500 **Category:** Engineering Resin – Composite / Ceramic-Filled

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1. Product Description

NanoCeram is a high-performance, ceramic-reinforced engineering resin designed for extreme stiffness, dimensional stability, and low thermal expansion. Enhanced with **nano-scale ceramic fillers**, it offers significantly improved modulus, hardness, and rigidity while maintaining printability across LCD, mSLA, and DLP systems. Parts printed with NanoCeram exhibit a **ceramic-like feel**, high scratch resistance, and excellent resistance to deformation under load. This material is suitable for high-precision tooling, durable prototypes, and functional engineering components requiring stability and stiffness.

2. Key Features & Benefits

- High stiffness & rigidity with ceramic-like performance
- Excellent dimensional accuracy and low shrinkage
- Low thermal expansion for precision applications
- High hardness and excellent surface finish
- Improved thermal resistance vs. standard resins
- Strong mechanical stability under continuous load

3. Mechanical & Thermal Properties

Property	Value
Tensile Strength	60–75 MPa
Tensile Modulus	**3,000–4,500 MPa** (high stiffness)
Elongation at Break	2–4%

Property	Value
Flexural Strength	100–130 MPa
Flexural Modulus	3,500–5,000 MPa
Impact Strength	10–18 J/m
HDT @ 0.45 MPa	70–90°C
Shore Hardness	88–90D
Water Absorption	<0.30%
Shrinkage	0.20–0.40%
Density	1.30–1.45 g/cm³
Viscosity	900–1500 cP

Note: Values vary based on filler load and curing profile.

4. Recommended 3D Printing Parameters

Parameter	Setting
Printer Type	LCD / mSLA / DLP
Wavelength	385–405 nm
Layer Thickness	50–100 µm
Normal Exposure	3.2–4.2 sec

Parameter	Setting
Bottom Layers	6–10
Bottom Exposure	50–75 sec
Lift Speed	Medium
Rest Time	Recommended for ceramic-filled systems

5. Post-Processing

1. **Wash**: Wash for 3–5 minutes in IPA or a dedicated resin cleaner.
2. **Dry**: Dry parts completely.
3. **Cure**: UV post-cure for **25–40 minutes**.
    - An optional mild heat cure at **60°C for 30 minutes** can be applied.
4. Avoid aggressive mechanical cleaning to preserve the surface finish.

6. Applications

- High-precision jigs, fixtures, and dimensional calibration tools
- Stiff structural components and load-bearing prototypes
- Mold masters, alignment tools, and electronics housings requiring rigidity
- Components requiring low creep and minimal deformation

7. Storage & Handling

- Store in a tightly sealed container between **10–30°C**, away from light.
- Stir well before use, as ceramic fillers may settle.
- **Shelf Life:** 12 months from the date of manufacture when stored properly.

8. Compliance

- RoHS

- REACH
- Tested in accordance with ASTM D638, D790.

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