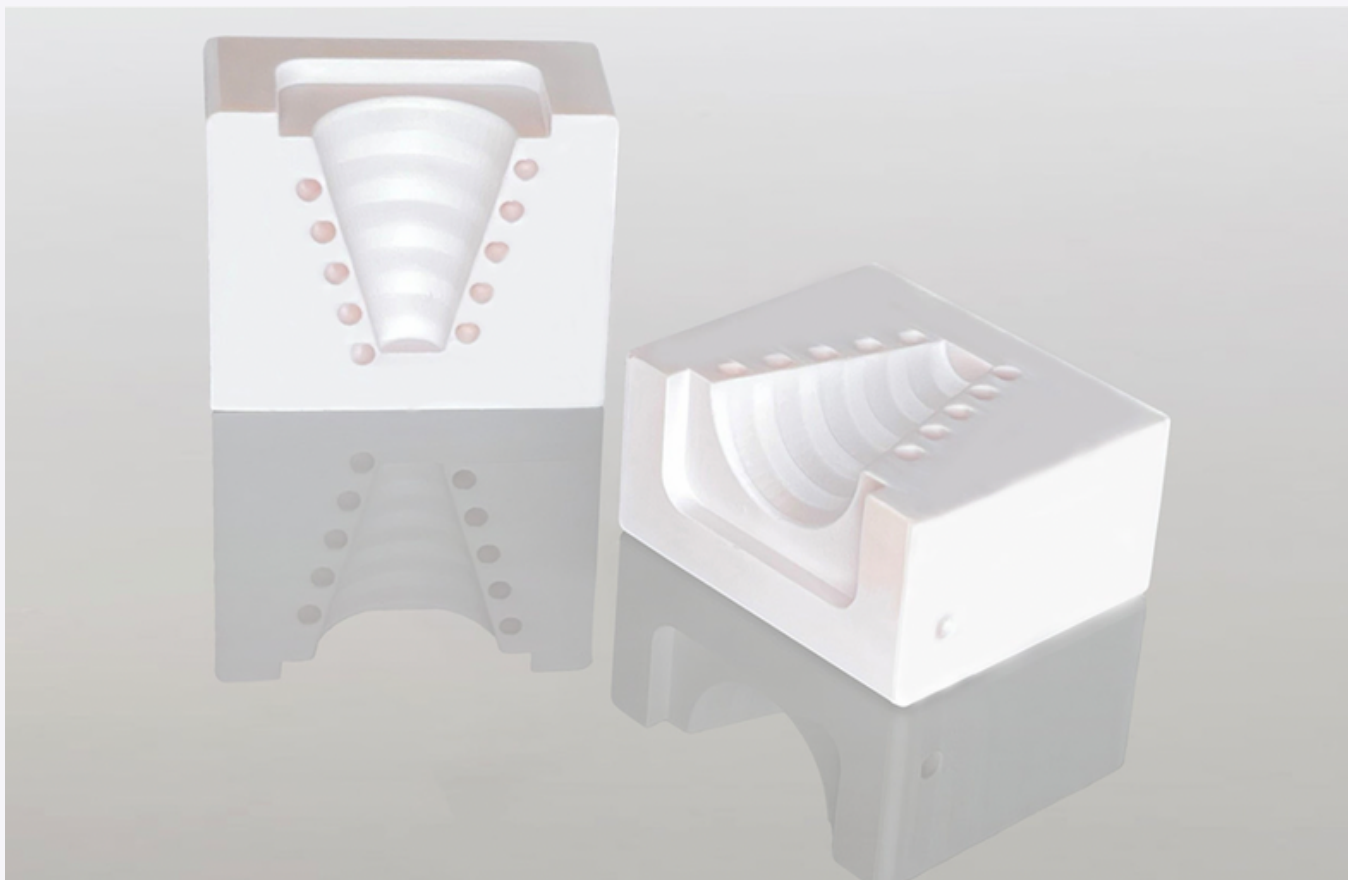


# RR101-CER

Manufactured by BASF

## Extremely stiff ceramic-filled Resin

- High temperature performance
- Superior part stiffness
- Fast printing capabilities



RR101-CER is a ceramic-filled resin providing exceptional rigidity and robustness for a variety of applications due to its exceptional strength and stiffness properties. RR101-CER can also withstand elevated temperatures whilst maintaining its structural integrity and performance showing no signs of deformation as a result of the high heat deflection properties the material possesses. This resin finds common application in industries and sectors where the simultaneous requirements for mechanical robustness and heat resistance are pivotal, including aerospace, automotive, engineering, and various others.

General Properties	Norm	Typical Values
Appearance	-	White <small>Method</small>
Ceramic content	-	≈ 65 wt% silica
Viscosity, 25°C	Cone/Plate Rheometer <sup>1)</sup>	300 mPas
Viscosity, 30°C	Cone/Plate Rheometer <sup>1)</sup>	230 mPas
Density (Printed Part)	ASTM D792	1.73 g/cm <sup>3</sup>
Density (Liquid Resin)	ASTM D4052-18a	1.65 g/cm <sup>3</sup>

Tensile Properties	Norm	Typical Values	
		(UV)	(UV+ Thermal)
E Modulus	ASTM D638	10600 MPa	10500 MPa
Ultimate Tensile Strength	ASTM D638	87 MPa	85 MPa
Elongation at Break	ASTM D638	1.3%	1%
Poisson's Ratio	ISO 527-2	0.31	-

Flexural Properties	Norm	Typical Values (UV)
Flexural Modulus	ASTM D790	8780 MPa
Flexural Strength	ASTM D790	73 MPa

Impact Properties	Norm	Typical Values (UV)
Notched Izod (Machined), 23°C	ASTM D256	24 J/m
Notched Charpy (Machined), 23°C	ISO 179-1	0.98 kJ/m <sup>2</sup>

Thermal Properties	Norm	Typical Values	
		(UV)	(UV+ Thermal)
HDT at 0.45 MPa	ASTM D648	284°C	284°C
HDT at 1.82 MPa	ASTM D648	132°C	162°C
Flammability	UL 94 (1.8 mm)	HB	-
Glass transition temperature (DMA, tan(d))	ASTM D4065	168°C	171°C

Advanced Thermal Properties	Norm	Typical Values (UV)
C.T.E. (-45°C to 0°C)	ASTM E831	23.2 $\mu\text{m}/(\text{m}\cdot\text{K})$
C.T.E. (0°C to 50°C)	ASTM E831	30.2 $\mu\text{m}/(\text{m}\cdot\text{K})$
C.T.E. (50°C to 100°C)	ASTM E831	61.4 $\mu\text{m}/(\text{m}\cdot\text{K})$
C.T.E. (100°C to 150°C)	ASTM E831	56.8 $\mu\text{m}/(\text{m}\cdot\text{K})$
Thermal conductivity, 23°C <sup>4)</sup>	MTPS	0.47 W/(m·K)
Thermal conductivity, 200°C <sup>4)</sup>	MTPS	0.69 W/(m·K)
Specific heat capacity, 23°C <sup>5)</sup>	MTPS	1.01 J/(g·K)
Specific heat capacity, 200°C <sup>5)</sup>	MTPS	1.81 J/(g·K)

Dielectric/Electric Properties	Norm	Typical Values (UV)
Electrical Strength	DIN EN 60243-1	29 kV / mm
Volume resistivity	DIN EN 62631-3-1	2.80E+16 $\Omega\text{cm}$
Surface resistivity	DIN EN 62631-3-2	3.40E+16 $\Omega$

Biocompatibility	Norm	Typical Values (UV)
Cytotoxicity – Neutral Red	ISO 10993-5 (2009)	PASS <sup>6)</sup>
Other	Norm	Typical Values (UV)
Hardness Shore D	ASTM D2240	96
Water Absorption, Short-Term (24 hours)	ASTM D570	0.29%
Water Absorption, Long-Term (>3000 hours)	ASTM D570	2.60%