

Liquid resins for UV-curable 3D printing

PRO14729–PRO14730–PRO14731 / LOW LOSS MATERIALS FOR RADIO FREQUENCY (RF) APPLICATIONS



DIELECTRIC RESINS PERFORMANCE

DIELECTRIC CONSTANT (Dk)

- Standard Dk > 4.0
- Mid Dk: 3.5~4.0
- Low Dk: 3.0~3.5
- Ultra low: < 3.0

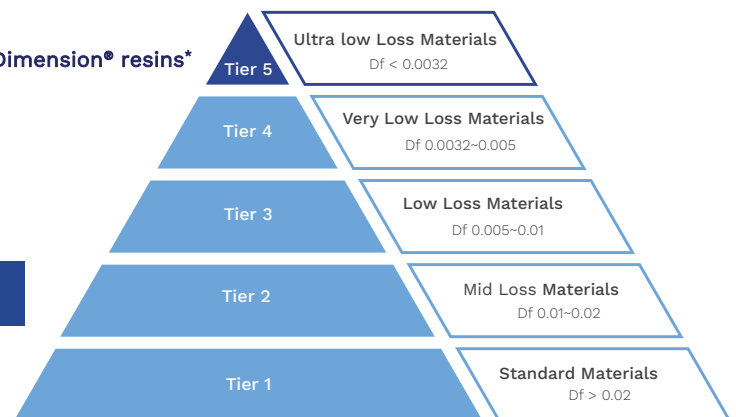
N3xtDimension® resins
2.5–2.9

DISSIPATION FACTOR (Df)

- Ultra low loss Df < 0.0032
- Very low loss Df: 0.0032~0.005
- Low loss Df: 0.005~0.01
- Mid loss Df: 0.01~0.02
- Standard Df > 0.02

N3xtDimension® resins
<0.0032

N3xtDimension® resins*



* Based on IPC standard testing method TM-650 2.5.5.13

Arkema offers ultra low loss 3D printable materials with varied viscosities tailored to your equipment or process requirements

APPLICATIONS

- Electronics
- Antenna elements
- Automotive
- Radomes
- Lenses
- Copper-clad laminates
- B-staging
- Server storage
- IOT

N3XTDIMENSION® DIELECTRIC RESINS

Product	PRO14729	PRO14730	PRO14731	Condition	Test method
Dielectric constant	2.91	2.92	2.98	1 kHz/23°C	ASTM D150
Dielectric constant	2.61	2.60	2.59	10 GHz/23°C	IPC-TM-650 2.5.5.13 Split-cylinder resonant cavity
Dissipation factor	0.0028	0.0029	0.0030	10 GHz	–
Viscosity (mPa.s)	Solid	Solid	1960	25°C	Spindle 27, 75 RPM
Viscosity (mPa.s)	2296	1396	–	60°C	Spindle 27, 75 RPM
Breakdown strength (V/μm)	839	570	800	23°C	ASTM D149
Volume resistivity (Ω*cm)	8.057E+15	6.12567E+15	6.8269E+16	23°C	ASTM D257
Surface resistivity (Ω/□)	3.81037E+16	6.49184E+15	2.72018E+16	23°C	ASTM D257
CTE 20°C (above Tg/below Tg) (μm/m°C)	86.72/197.1	79.12/200.2	76.73/135.3	-55 – 288°C	IPC-TM-650 2.4.24.3
Tα (°C), DMA	89	80	77	A	IPC-TM-650 2.4.24.3
T _{d onset} (°C), TGA	149	156	216	A	ASTM D3850
Moisture absorption (%)	0.11	0.36	0.38	–	ASTM D570
Density (g/mL)	1.074	1.087	1.086	23°C	ASTM D792
Recommended printer type	Bottom-up DLP Heated @ 50°C	Bottom-up DLP Heated @ 50°C	Bottom-up DLP	–	–
Recommended printing conditions	385 nm 5 mW/cm ² irradiance 50 μm layer thickness	385 nm 5 mW/cm ² irradiance 50 μm layer thickness	405 nm 12 mW/cm ² irradiance 20 μm layer thickness	–	–
Recommended postcuring conditions	UV @ 15 J/cm ² + 2 hrs @ 60°C	UV @ 15 J/cm ² + 2 hrs @ 60°C	UV @ 15 J/cm ² + 2 hrs @ 60°C	–	–

N3XTDIMENSION® LIQUID RESINS help additive manufacturers achieve exceptional freedom of performance design.

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