

N3D-CAST373

TECHNICAL DATA SHEET

Investment Casting for Stone Setting

DLP

LCD

N3D-CAST373 is an investment casting resin specifically optimized for easy stone setting while maintaining good casting quality. N3D-CAST373 prints quickly with high resolution and the low viscosity allows for easy cleanup.



KEY PROPERTIES

N3D-CAST373	
Liquid	
Appearance	Red
Viscosity @ 25°C	190 mPa.s
Material	
Tensile Modulus	365 MPa
Tensile Strength	11 MPa
Tensile Elongation	15%
Flexural Modulus	400
Flexural Strength	20
Coefficient of Thermal Expansion (below/above Tg)	30/270

KEY FEATURES

Good cast quality
Flexible
Opaque surface

APPLICATIONS

Jewelry casting
Stone setting

MAIN MARKETS

Jewelry
Consumer goods
Industrial



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MATERIAL PROPERTIES

Property	Units	Method	Green ^[1]	UV post-curing ^[2]
Ultimate Tensile Strength	MPa	ASTM D638	7.6	11
Tensile Young's Modulus	MPa	ASTM D638	110	340
Tensile Strain at Break	%	ASTM D638	7	15
Flexural Strength	MPa	ASTM D790	-	400
Flexural Modulus	MPa	ASTM D790	-	20
CTE pre Tg	(um/m. °C)	IPC-TM-650 2.4.24.3	-	30
CTE post Tg	(um/m.°C)	IPC-TM-650 2.4.24.3	-	270

- Parts were printed in the XZ orientation with a 50 µm layer thickness on a 405nm bottom-up DLP printer with an irradiance of 4 mW/cm². Green samples were conditioned for 40-80 hours following ASTM D618 Procedure A before testing.
- Parts were printed in the XZ orientation with a 50 µm layer thickness on a 405nm bottom-up DLP printer with an irradiance of 4 mW/cm². Parts were post-cured for 5 minutes per side with 5,700 mJ/cm² of UVV energy dosage & 6,800 of UVA mJ/cm² energy dosage. Samples were conditioned for 40-80 hours following ASTM D618 Procedure A before testing.

LIQUID PROPERTIES

Property	Units	Method	Value
Appearance	-	-	Red
Viscosity @ 25°C	cP	ASTM D2983	190

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PRINTING CONDITIONS

Printing conditions may be fine tuned depending on individual printer performance

3D printing parameter	Units		
Layer thickness	µm	35	50
Wavelength	nm	405	405
Intensity	mW/cm ²	1.8	4.5
Standard exposure time	Sec	3	3
Burn in exposure time	Sec	30	30

POST-CURING CONDITIONS

Value	Units	Intelliray 400	LED cure box
Time per side	Sec	300	60
UVA irradiance	mW/cm ²	100-120	50
UVV irradiance	mW/cm ²	100-120	75

CLEANING PROCESS

Submerge 3D printed parts in isopropyl alcohol and agitate or sonicate for no more than 10 minutes. Incorporate two-stage cleaning baths for improved efficacy. Use compressed air to remove any residual liquid material.

STORAGE, HANDLING, & SHELF LIFE

Shake the bottle manually before use. Store N3D-CAST373 in a cool, dry place. Since N3D-CAST373 is a photo-reactive material, avoid exposing open bottles to ambient lighting or sunlight. Reseal the packaging immediately after use. When stored under these conditions, products should be used within 6 months from the date of manufacture. Refer to the Safety Data Sheet (SDS) for more detailed storage and handling recommendations.

HEALTH AND SAFETY

For health and safety guidelines related to N3D-CAST373, please refer to the Safety Data Sheet (SDS).