

N3D-CAST011

Investment casting material

SLA DLP LCD

N3D-CAST011 is a casting material exhibiting excellent positive & negative feature resolution with clean burnout and outstanding casting performance. N3D-CAST011 is useful for casting applications requiring large sidewall thicknesses & features.

KEY PROPERTIES

N3D-CAST011	
Liquid	
Appearance	Green
Viscosity @ 25°C	120 cP
Material	
Tensile Strength	14 MPa
Tensile Modulus	1100 MPa
Tensile Elongation at Break	4%
Flexural Strength	13 Mpa
Flexural Modulus	750 MPa



KEY FEATURES

- Melts during burnout cycle
- Superb casted surface finish
- Low coefficient of thermal expansion



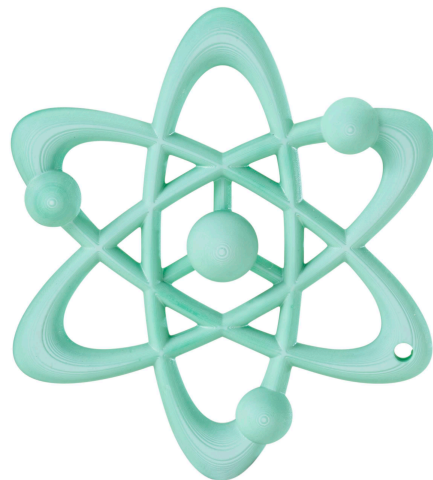
APPLICATIONS

- Metal casting
- Dental casting



MAIN MARKETS

- Jewelry
- Consumer goods
- Dental
- Industrial



MATERIAL PROPERTIES

Property	Units	Method	Final properties
Tensile Strength	MPa	ASTM D638	14
Tensile Modulus	MPa	ASTM D638	1100
Tensile Elongation at Break	%	ASTM D638	4
Flexural Strength	MPa	ASTM D790	13
Flexural Modulus	MPa	ASTM D790	750
CTE 20°C (Above T _g /Below T _g)	µm/m°C	IPC-TM-650 2.4.24.3	250/65

Parts were printed in the XZ orientation with a 50 µm layer thickness on a 405 nm bottom-up DLP printer with an irradiance of 4 mW/cm². Parts were post-cured for five minutes per side with 22.5 J/cm² of UVV energy dosage and 15 J/cm² of UVA energy dosage. Samples were conditioned for 40-80 hours following ASTM D618 Procedure A before testing.



LIQUID PROPERTIES

Property	Units	Method	Value
Appearance	—	—	Green
Viscosity, 25°C	cP	Brookfield SP #31	120

PRINTING CONDITIONS

3D printing parameters that can be used as starting points on LCD and DLP 3D printers are shown in the table below. Although not explicitly stated, other 3D printing parameters may be realized through process development.

3D printing parameter	Units	Printing & Reactivity
Layer Thickness	µm	50
Wavelength	nm	405
Intensity	mW/cm ²	4
Standard Exposure Time	Sec	35
Burn in Exposure Time	Sec	7

For additional guidance on print parameter setup for specific 3D printers, consult with Arkema technical service teams.

POST-CURING CONDITIONS

Post-curing conditions that can be used as starting points are shown in the table below. Although not explicitly stated, other post-processing conditions may be realized through process development.

	LED Cure Box
Time (sec)	300
UVA Irradiance (mW/cm ²)	50
UVV Irradiance (mW/cm ²)	75

CLEANING PROCESS

Submerge 3D printed parts in traditional 3D printing solvents and agitate and/or sonicate for approximately 10 minutes. Incorporate two-stage cleaning baths for optimal cleaning. Use compressed air to remove any residual liquid material. Repeat steps as necessary until parts are free of residual material, and then proceed to post curing. Although not explicitly stated, other cleaning procedures may be realized that adequately clean 3D printed parts.

STORAGE & HANDLING

Manually shake bottle before use. Store bottles in a cool, dry place. Do not freeze. The material is light sensitive. Keep open bottles away from ambient lighting or sunlight, and shield material from ambient light. Once opened, packaging should be resealed immediately after use. See Safety Data Sheet for additional storage & handling considerations.

Arkema Inc.
502 Thomas Jones Way
Exton, PA 19341
America

Arkema France
420, rue d'Estienne d'Orves
92705 Colombes Cedex
France