N3XTDIMENSION®

N3D-CAST245

TECHNICAL DATA SHEET

Investment Casting Resin

DLP LCD

N3D-CAST245 is an investment casting material with outstanding feature replication and cast quality. The low viscosity allows for easy processing and the low thermal expansion is excellent for large pieces.

KEY PROPERTIES

N3D-CAST245	
Liquid	
Appearance	Purple
Viscosity @ 25°C	80 mPa.s
Material	
Tensile Modulus	900 MPa
Tensile Strength	12.5 MPa
Tensile Elongation	4%
Flexural Modulus	1050
Flexural Strength	35
Coefficient of Thermal Expansion (below/above Tg)	20/210

KEY FEATURES

Excellent cast quality
Low thermal expansion
Melts during burnout cycle

APPLICATIONS

Metal casting
Jewelry casting

MAIN MARKETS

Jewelry
Dental
Industrial
Consumer goods

ARKEMA

N3D-CAST245

TECHNICAL DATA SHEET

Investment Casting

MATERIAL PROPERTIES

Property	Units	Method	Green[1]	UV post-curing [2]
Ultimate Tensile Strength	MPa	ASTM D638	11	12.5
Tensile Young's Modulus	MPa	ASTM D638	630	900
Tensile Strain at Break	%	ASTM D638	13	4
Flexural Strength	MPa	ASTM D790	-	1050
Flexural Modulus	MPa	ASTM D790	-	35
Hardness	Shore D	ASTM D2240		
CTE pre Tg	(um/m. ºC)	IPC-TM-650 2.4.24.3	-	20
CTE post Tg	(um/m.ºC)	IPC-TM-650 2.4.24.3	-	210

1. 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/cm^2. Green samples were conditioned for 40-80 hours following ASTM D618 Procedure A before testing.
2. 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/cm^2. Parts were post-cured for 5 minutes per side with 5,700 mJ/cm^2 of UVV energy dosage & 6,800 of UVA mJ/cm^2 energy dosage. Samples were conditioned for 40-80 hours following ASTM D618 Procedure A before testing.

LIQUID PROPERTIES

Property	Units	Method	Value
Appearance	-	-	Purple
Viscosity @ 25°C	cP	ASTM D2983	80

N3D-CAST245

TECHNICAL DATA SHEET

Investment Casting

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	5	3.5
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-CAST245 in a cool, dry place. Since N3D-CAST245 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-CAST245, please refer to the Safety Data Sheet (SDS).

ARKEMA