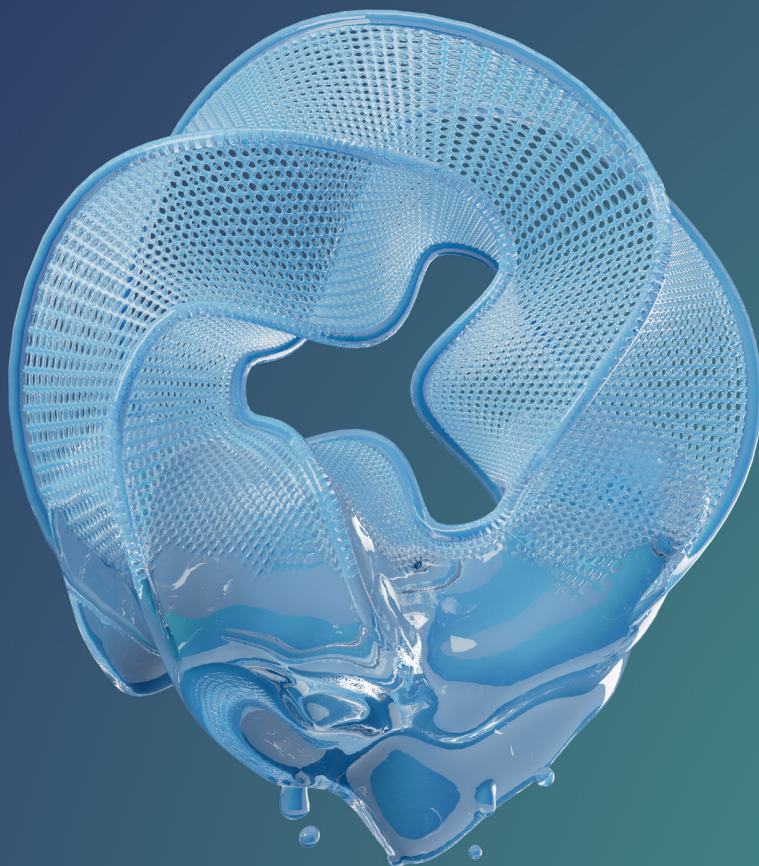


ARKEMA

N3XTDIMENSION[®]

3D PRINTING

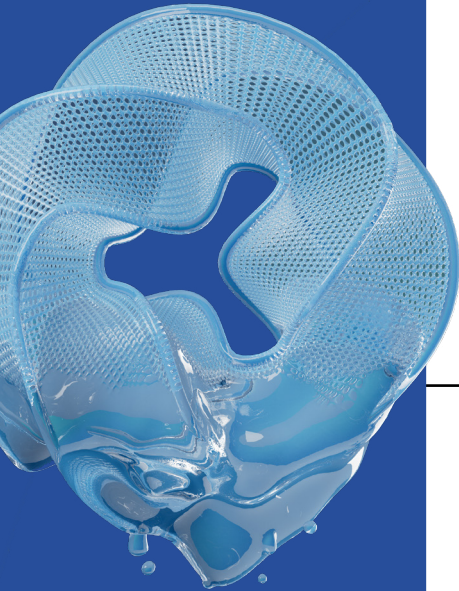
UV-curable custom formulations



Liquid resins for energy curing

Arkema, through its Sartomer® and N3xtDimension® product lines, is a pioneer in designing advanced liquid resins for energy-curable additive manufacturing. Decades of supporting the 3D printing industry allows Arkema to be uniquely positioned to build innovative liquid resins specifically designed to address the challenges of the industry. We can synthesize custom structures, deliver advanced thermosetting resins, and engage in collaborative development to bring solutions tailored to mass manufacturing.

The dedicated team of scientists at the Center of Excellence for Energy-Curable Resins are invaluable players in the success of our partners in markets such as medical, dental, electronics, transportation, and consumer goods.



N3XTDIMENSION®

N3xtDimension® advanced liquid resins are market leading solutions for energy-curable additive manufacturing:

- Custom formulation expertise and new materials to enable **customer-specific product development.**

SARTOMER®

Building blocks and additives, including state-of-the-art tailor-made resins, specialty oligomers, monomers, cationic resins and photoinitiators, enabling a unique toolbox to fine-tune end formulations.

PRODUCT HIGHLIGHTS

- Exceptional material performance
- Tailor-made formulations
- Application-specific materials
- High resolution
- Superior surface finish
- Excellent processing

An integrated offering

N3XTDIMENSION®

Custom formulations
for UV-curable additive manufacturing

SLA

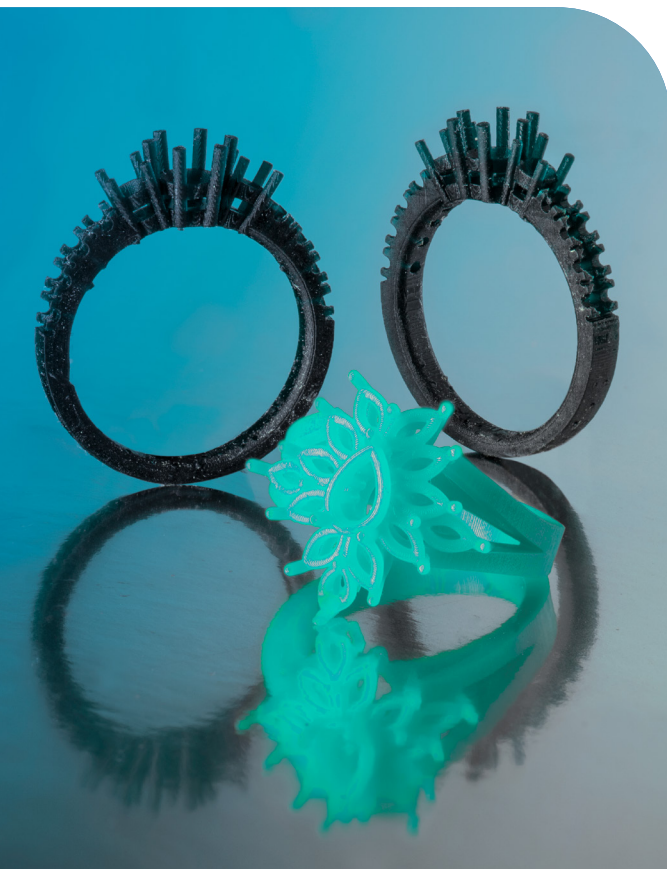
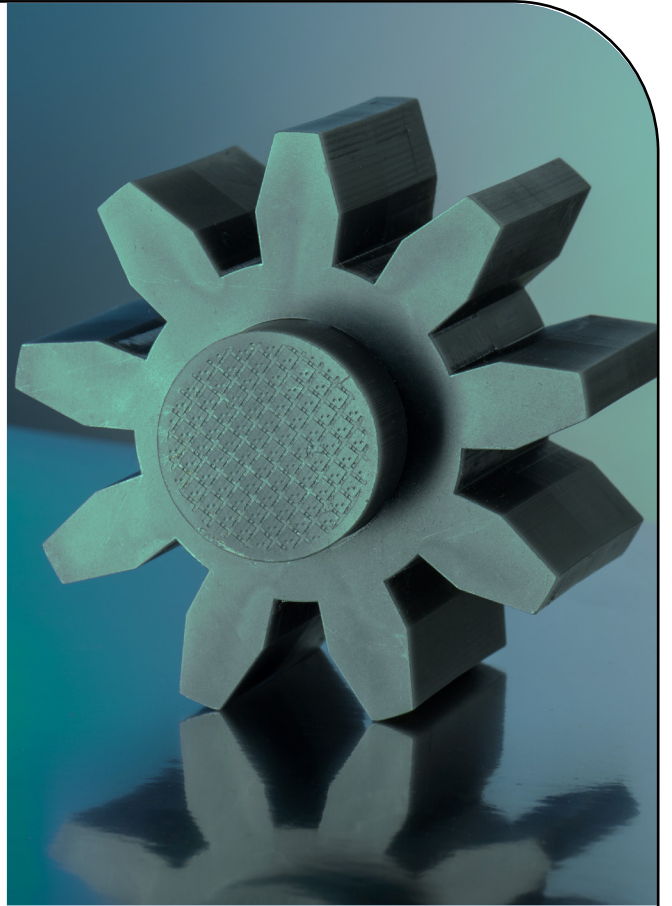
DLP

BJ

MJP

LCD

355 nm | 385 nm | 395 nm | 405 nm



Through its N3xtDimension® product line, Arkema offers formulations and material development to push additive manufacturing to the next level.

- Custom formulation development
- State-of-the-art printing equipment
- Advanced material performance
- Scale-up and manufacturing support
- Logistics and packaging services
- Sustainability partner with bio-based materials



**PARTNER WITH US
FOR YOUR ADDITIVE
MANUFACTURING
MATERIALS**

Our dedicated development team is available to help you achieve **tailor-made materials** to address your specific application challenges.

OUR N3XTDIMENSION® FORMULATIONS FOR UV-3D PRINTING



N3D-PR184-BIO FOR MODELING

Bio-based material with 53% bio-content, providing reliable, accurate, high-resolution printing for modeling and prototyping applications.



| N3D-PR184-BIO | |
|-----------------------|-----------|
| Liquid | |
| Appearance | Gray |
| Viscosity @ 25°C | 750 mPa.s |
| Material | |
| Tensile Strength | 32 MPa |
| Tensile Modulus | 1970 MPa |
| Tensile Elongation | 7% |
| Flexural Strength | 70 MPa |
| Flexural Modulus | 2030 MPa |
| HDT @ 0.455 MPa | 81°C |
| HDT @ 1.8 MPa | 45°C |
| T _α by DMA | 118°C |

N3XTDIMENSION® BIO-BASED

With 53% bio-content



KEY FEATURES

- 53% bio-content
- High stiffness
- High accuracy & resolution
- Easy processability
- Good feature visualization

APPLICATIONS

- Functional prototyping
- Modeling

MAIN MARKETS

- Dental
- Industrial



N3D-DMT303 FOR DENTAL MODELING

High-performance, rigid material that allows for accurate and fast printing of dental models and thermoforming molds for the manufacturing of clear dental aligners.



| N3D-DMT303* | |
|-----------------------|---------------|
| Liquid | |
| Appearance | Off-white/tan |
| Viscosity @ 25°C | 450-630 mPa.s |
| Material | |
| Tensile Strength | 52 MPa |
| Tensile Modulus | 2600 MPa |
| Tensile Elongation | 6% |
| Flexural Strength | 86 MPa |
| Flexural Modulus | 2530 MPa |
| HDT @ 0.455 MPa | 66°C |
| HDT @ 1.8 MPa | 57°C |
| T _α by DMA | 109°C |



KEY FEATURES

- High accuracy
- High throughput
- Suitable heat deflection temperature for thermoforming applications
- Good feature visualization

APPLICATIONS

- Dental & orthodontic models
- Thermoforming molds

MAIN MARKET

- Dental

* This product may not be available in all regions. Please contact your local sales manager for availability.

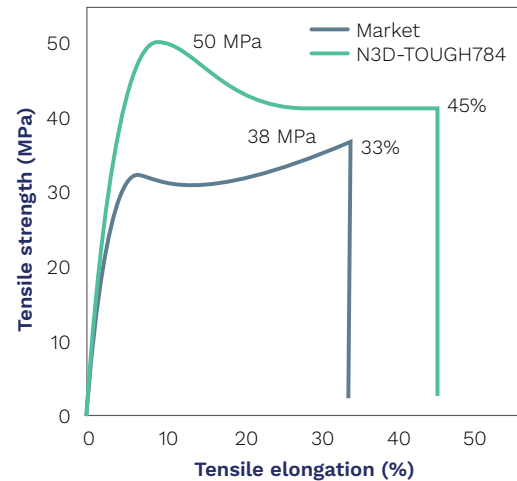


N3D-TOUGH784 FOR TOUGHNESS

High-strength material suitable for snap-fit assemblies and other end-use applications requiring weatherability, impact resistance, and high elongation.



| N3D-TOUGH784 | |
|-----------------------|------------|
| Liquid | |
| Appearance | Black |
| Viscosity @ 25°C | 1000 mPa.s |
| Material | |
| Tensile Strength | 50 MPa |
| Tensile Modulus | 2020 MPa |
| Tensile Elongation | 45% |
| Flexural Strength | 64 MPa |
| Flexural Modulus | 1450 MPa |
| HDT @ 0.455 MPa | 56°C |
| HDT @ 1.8 MPa | 45°C |
| T _α by DMA | 104°C |



Performance of N3D-TOUGH784 demonstrates higher strength, elongation, and toughness versus competitor in controlled study.

KEY FEATURES

- Moderately high rigidity
- Excellent tensile strength and flexibility
- Superior weatherability
- Plastic deformation

APPLICATIONS

- Jigs & fixtures
- Tooling
- Snap-fit assemblies
- Durable end-use parts
- Shoe insoles

MAIN MARKETS

- Automotive
- Consumer goods
- Industrial
- Transportation



N3D-RIGID785 FOR HIGH-STRENGTH

Material with ultra high-strength & rigidity while maintaining good elongation, making it suitable for high-performance functional prototypes and demanding engineering applications.



| N3D-RIGID785 | |
|-----------------------|-----------|
| Liquid | |
| Appearance | Grey |
| Viscosity @ 25°C | 400 mPa.s |
| Material | |
| Tensile Strength | 101 MPa |
| Tensile Modulus | 3920 MPa |
| Tensile Elongation | 7% |
| Flexural Strength | 177 MPa |
| Flexural Modulus | 3870 MPa |
| HDT @ 0.455 MPa | 118°C |
| HDT @ 1.8 MPa | 105°C |
| T _α by DMA | 147°C |



KEY FEATURES

- Ultra-high strength
- High heat deflection temperature
- Excellent toughness

APPLICATIONS

- Functional prototyping
- Electrical connectors
- Engineering

MAIN MARKETS

- Automotive
- Consumer goods
- Industrial
- Transportation
- Electronics

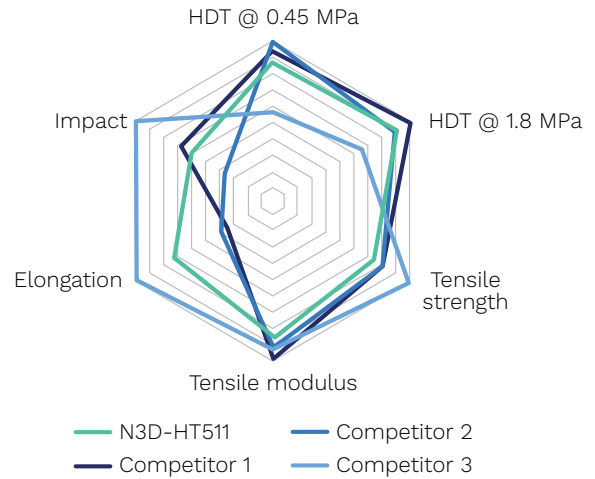


N3D-HT511 FOR HIGH TEMPERATURE



Stiff material that is solvent resistant and autoclavable. It exhibits injection molding like surface quality, having an excellent balance of high temperature resistance and toughness.

| N3D-HT511 | |
|-----------------------|-----------|
| Liquid | |
| Appearance | Black |
| Viscosity @ 25°C | 650 mPa.s |
| Material | |
| Tensile Strength | 54 MPa |
| Tensile Modulus | 2400 MPa |
| Tensile Elongation | 7% |
| Flexural Strength | 81 MPa |
| Flexural Modulus | 2040 MPa |
| HDT @ 0.455 MPa | 130°C |
| HDT @ 1.8 MPa | 91°C |
| T _α by DMA | 148°C |



N3D-HT511 provides an excellent mix of high HDT and toughness for high-temperature applications.

KEY FEATURES

- Tough & rigid
- High heat deflection temperature
- Chemical & water resistance

APPLICATIONS

- High temperature component testing
- Electrical connectors
- Tooling
- Molding

MAIN MARKETS

- Automotive
- Industrial
- Transportation
- Electronics

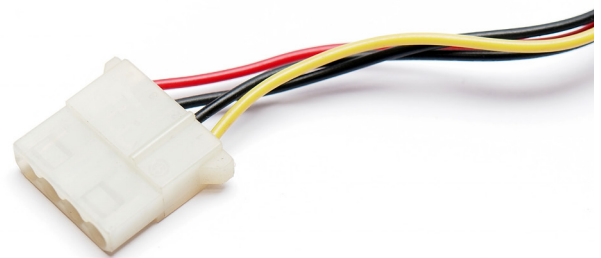


N3D-FR427 FOR FLAME RETARDANCY



Flame retardant material that achieves a UL-94 rating of V-0 at 1.6 mm while maintaining good print accuracy with fine feature parts. N3D-FR427 is characterized by excellent green strength allowing for robust printing and easy cleanup and processing.

| N3D-FR427* | |
|--------------------------|-------------|
| Liquid | |
| Appearance | White |
| Viscosity @ 25°C | 2000 mPa.s |
| Material | |
| UL94 flammability rating | V0 @ 1.6 mm |
| Tensile Modulus | 3800 MPa |
| Tensile Strength | 45 mPa |
| Flexural Strength | |
| Flexural Modulus | |
| HDT @ 0.455 MPa | 170°C |
| HDT @ 1.8 MPa | Pending |



KEY FEATURES

- High strength & HDT
- Liquid at room temperature
- Robust printing and processing

APPLICATIONS

- Flame retardant materials
- Electrical connectors

MAIN MARKETS

- Electronics
- Transportation

*This product may not be available in all regions. Please contact your local sales manager for availability.



N3D-DIELEC731 FOR ULTRA-LOW LOSS

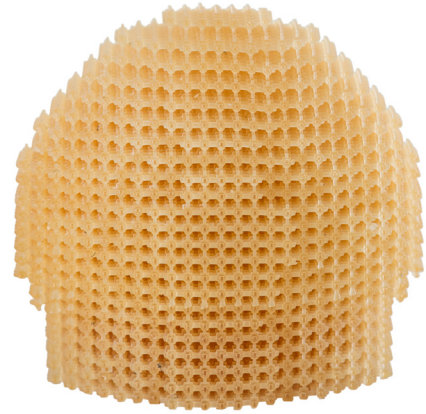
An unfilled, dielectric material with ultra-low loss, suitable for radio frequency (RF) devices.

SLA

DLP

LCD

| N3D-DIELEC731 | |
|--|-------------|
| Liquid | |
| Appearance | Yellow |
| Viscosity @ 25°C | 1960 |
| Material | |
| Dielectric Constant, 1 kHz | 2.98 |
| Dielectric Constant, 10 kHz | 2.59 |
| Dissipation Factor, 10 GHz | 0.0030 |
| Breakdown Strength, V/μm | 800 |
| Volume Resistivity, Ω*cm | 6.8269E+16 |
| Surface Resistivity, Ω/sq | 2.72018E+16 |
| CTE 20°C (Above T _g /Below T _g) | 76.73/135.3 |
| T _a Onset (°C), TGA | 216°C |



KEY FEATURES

- Ultra-low dielectric loss
- Low moisture uptake
- High breakdown strength
- Stable dielectric constant across broad frequency range

APPLICATIONS

- High frequency RF devices
- Antenna & connector elements
- Luneburg lenses
- Waveguides
- Dielectric reflectarrays

MAIN MARKETS

- Electronics
- Automotive
- Industrial
- Transportation



N3D-CAST245 FOR CASTING

Investment casting material with outstanding feature replication and cast quality. N3D-CAST245's low viscosity allows for easy processing and its low thermal expansion is excellent for large pieces.

DLP

LCD

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

*This product may not be available in all regions. Please contact your local sales manager for availability.



N3D-CAST373 FOR JEWELRY CASTING



Investment casting material optimized for easy stone setting while maintaining good casting quality. Prints quickly with high resolution and its low viscosity allows for easy cleanup.

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



KEY FEATURES

- Good cast quality
- Flexible
- Opaque surface

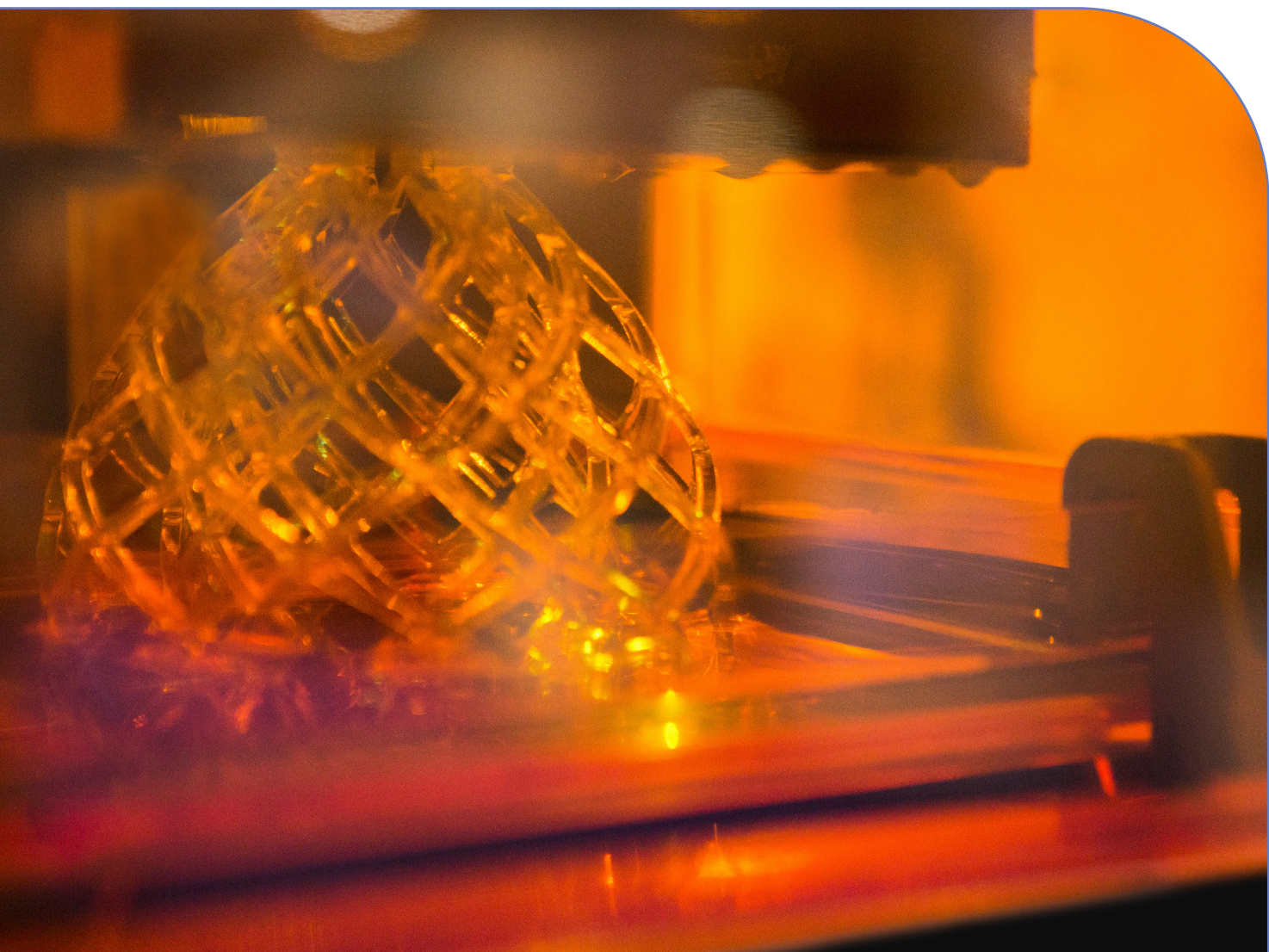
APPLICATIONS

- Jewelry casting
- Stone setting








MAIN MARKETS


- Jewelry
- Consumer goods
- Industrial

*This product may not be available in all regions. Please contact your local sales manager for availability.



PRODUCT RANGE OVERVIEW

| | | Product | Properties | | | | | | | | |
|---|--|---------|-----------------------------|---------------------------|--------------------------|---------------------------|---------------------------|----------------------------|------------------------|-----------------------|--------------------|
| | | | Viscosity @ 25°C (mPa.s) | Tensile elongation (%) | Tensile modulus (MPa) | Tensile strength (MPa) | Flexural modulus (MPa) | Flexural strength (MPa) | HDT @ 0.45 MPa (°C) | HDT @ 1.8 MPa (°C) | Tad by DMA (°C) |
|  MODELING |  N3D-PR184-BIO 53% Bio content | 750 | 7 | 1970 | 32 | 2070 | 70 | 81 | 45 | 118 | |
| | N3D-DMT303 | 390 | 6 | 2600 | 52 | 2530 | 86 | 66 | 57 | 109 | |
|  TOUGHNESS | N3D-TOUGH784 | 1000 | 45 | 2020 | 50 | 1250 | 58 | 56 | 45 | 104 | |
|  HIGH STRENGTH | N3D-RIGID785 | 400 | 7 | 3920 | 101 | 3870 | 177 | 118 | 105 | 147 | |
|  HIGH TEMPERATURE | N3D-HT511 | 650 | 7 | 2400 | 54 | 2040 | 81 | 130 | 91 | 148 | |
|  FLAME RETARDANCY | N3D-FR427 UL-94 V0 @ 1.6 mm | 2000 | - | 3800 | 45 | - | - | 170 | - | - | |
|  CASTING | N3D-CAST245 | 115 | 4 | 900 | 11 | 750 | 13 | - | - | - | |
| | N3D-CAST373 | 190 | 15 | 365 | 11 | 400 | 20 | - | - | - | |

| | | Product | Properties | | | | | | | | |
|---|---------------|---------|--------------------------|---------------------------------------|--|----------------------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|
| | | | Viscosity @ 25°C (cP) | Dielectric constant (@ 1 kHz/23°C) | Dielectric constant (@ 10 GHz/23°C) | Dissipation factor (@ 10 GHz) | Breakdown strength (@ 23°C) | Volume resistivity (@ 23°C) | Surface resistivity (@ 23°C) | CTE 20°C (above Tg/below Tg) | T _d onset (°C), TGA |
|  ULTRA-LOW LOSS | N3D-DIELEC731 | 1960 | 2.98 | 2.59 | 0.0030 | 800 V/μm | 6.8269E+16 Ω*cm | 2.72018E+16 Ω/sq | 76.73/135.3 | 216 | |

OUR CORE VALUES



RESPONSIBLE INNOVATION

Broad portfolio of specialty acrylate resins and photoinitiators

Technical excellence fostering collaborative innovation

Global manufacturing with high quality standards



MARKET-DRIVEN PRODUCT DEVELOPMENT

Over 65 years' experience in acrylate chemistry and energy curing systems

Dedicated teams of experts across key market fields

Reliable supply chain with flexibility and reactivity



OPERATIONAL EXCELLENCE

Performance attributes designed for application-specific needs

Local R&D and pilot facilities for rapid scale-up of new products

Prioritizing transparency and continuity of supply

More than 400 specialty monomers, oligomers, additives and PIs

Specializing in material design & co-development

Dedicated sustainability & regulatory experts worldwide



SUSTAINABILITY

4 R&D centers across 3 continents

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PRODUCT FINDERS



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TDS/SDS & LITERATURE



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-  **HQ** Exton, PA
-  **R&D** Exton, PA
-  **3DP Center of Excellence** Exton, PA
-  **3DP Applications Dev. Center**
Boulder, CO
-  **Plant** West Chester, PA
-  **Plant** Chatham, VA

ASIA

-  **HQ** Hong Kong, S.A.R. CN
-  **R&D** Guangzhou, CN
-  **R&D** Yokohama, JP
-  **Plant** Nansha, CN

EMEA

-  **HQ** Colombes, FR
-  **R&D** Verneuil-en-Halatte, FR
-  **Photoinitiator Center of Excellence** Wetherby, UK
-  **Plant** Villers-Saint-Paul, FR

OUR COMMITMENTS



Prioritize safety



Reduce waste

SARTOMER[®]
BIO-BASED

Use renewable resources
as much as possible



Shrink our environmental
footprint



Lower energy and
water consumption



Develop openness and dialogue
with stakeholders



SCAN FOR MORE
3D PRINTING LITERATURE



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