LOCTITE®

3D PRINTING

OUR 3D PRINTING MATERIAL SOLUTIONS

WE MAKE ADDITIVE MANUFACTURING HAPPEN

Henkel

Henkel Adhesive Technologies

V 01

A BROAD RANGE OF MATERIALS TO MEET YOUR INDUSTRIAL REQUIREMENTS ACROSS MULTIPLE APPLICATIONS

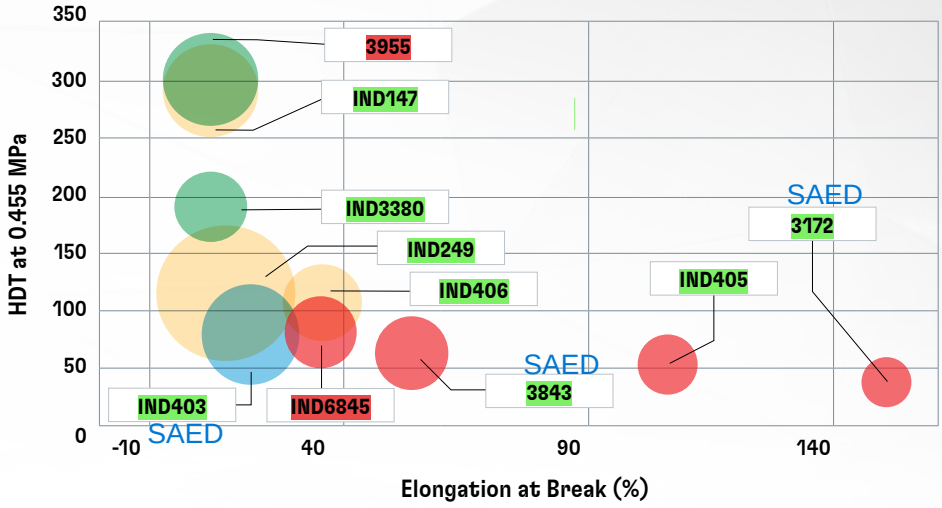
LEARN MORE ABOUT LOCTITE RESINS, CUSTOMIZED FOR DLP AND LCD PRODUCTION PROCESSES

INDUSTRIAL PRODUCTION RESINS

RIGID RESINS: COMPARISON OF HDT AND ELONGATION AT BREAK

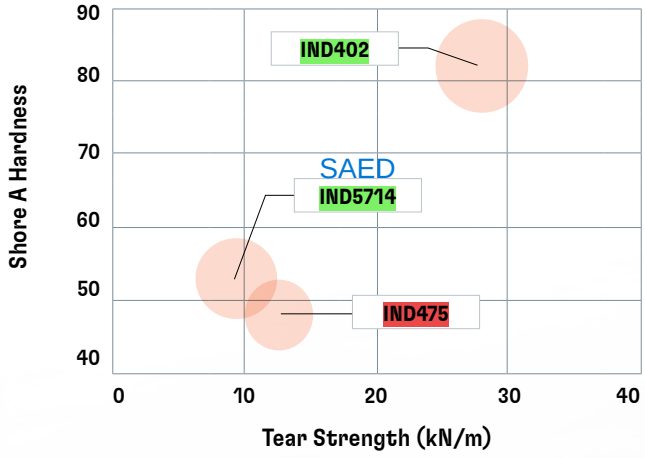
Specialty
General Purpose
Tough
High Temperature

Bubble size represents Tensile Stress at Break (MPa)



ELASTOMER RESINS: COMPARISON OF SHORE A HARDNESS AND TEAR STRENGTH

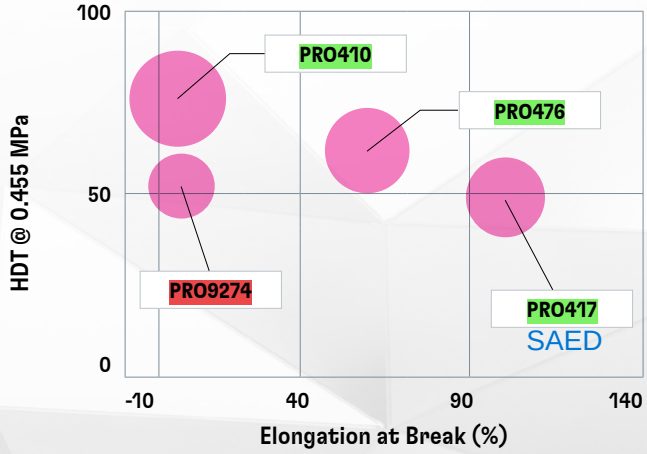
Bubble size represents Tensile Stress at Break (MPa)



PROTOTYPING & PRODUCTION RESIN

RIGID RESINS: COMPARISON OF HDT AND ELONGATION AT BREAK

Bubble size represents Tensile Stress at Break (MPa)



LOCTITE 3DP Product Overview

	Color	HDT at 0.455 MPa (°C)	Tensile Stress at Break (MPa)	Elongation at Break (%)	Young's Modulus (MPa)	Flexular Modulus (MPa)	IZOD Impact Notched (J/m)	Shore Hardness (3 sec)
		ASTM D648	ASTM D638 (D412[1])	ASTM D638 (D412[1])	ASTM D638	ASTM D790	ASTM D256	ASTM D2240
TOUGH								
SAED 3172	Gray	52	39	100	1,500	1,100	73	63 D
3843	Clear	63	44	41	1,700	1,900	65	63 D
	White	60	49	48	1,700	1,700	58	76 D
SAED	Matte Black	63	51	43	1,800	1,800	53	67 D
IND405	Clear	53	38	96	1,400	1,300	72	76 D
	Black	53	45	100	1,400	1,400	51	76 D
IND6845	Matte Black	80	48	40	2,100	2,100	30	82 D
SPECIALTY								
3955	Black (FST)	> 300	67	2	3,600	4,600	23	82 D
IND3380	Black (ESD)	190	50	2	3,000	3,400	13	86 D
HIGH TEMPERATURE								
IND147	Black	290	67	2	3,200	3,700	15	94 D
IND249	Black	115	98	5	3,300	3,600	24	88 D
IND406	Black	107	55	25	1,600	1,900	35	79 D
ELASTOMER								
IND402	Black	-	7	260	42	-	-	82 A (5 sec)
IND475	Black	-	3.2	140	2.5	-	-	48 A (5 sec)
	White	-	4.6	160	1.1	-	-	62 A (5 sec)
SAED IND5714	Gray	-	2.8	190	4.5	-	-	53 A (5 sec)
GENERAL PURPOSE								
SAED IND403	Black	80	70	10	2,600	2,700	27	78 D
PROTOTYPING								
PRO410	Black	76	48	5	1,900	2,500	28	84 D
SAED PRO417	Black	49	40	100	1,300	900	54	73 D
PRO476	Black	62	42	60	1,700	2,000	45	78 D
PRO9274	Gray	52	33	7	1,500	2,100	23	80 D

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Tough Resins

TOUGH MATERIALS FOR FINAL PARTS PRODUCTION

Unique high impact resistant 3D printing materials for durable, functional and production parts.

IDEAL FOR

- Manufacturing aids
- Housings and coverings
- Jigs and fixtures
- Insoles

PROPERTIES

- Printable at room temperature
- Excellent performance and durability vs. other resins in the market
- Printable at high resolution
- Outstanding surface finishing

SAED

LOCTITE 3D 3172

TOUGH & HIGH IMPACT MATERIAL

Scan QR code to access the TDS

Resin that enables functional parts production that require high stiffness with a good surface finish and high impact resistance. Attributes are similar to Polypropylene (PP).

Benefits

- Tough & durable
- Superior impact strength
- Nice surface finish, machine-able

PROPERTY[1]	METHOD	
Color	-	Gray
HDT at 0.455 MPa (°C)	ASTM D648	52
Tensile Stress at Break (MPa)	ASTM D638	39
Elongation at Break (%)	ASTM D638	100
Young's Modulus (MPa)	ASTM D638	1,500
Flexular Modulus (MPa)	ASTM D790	1,100
IZOD Impact Notched (J/m)	ASTM D256	73
Shore Hardness (D) 3 sec	ASTM D2240	63

SAED

LOCTITE 3D 3843

TOUGH RESIN

Scan QR code to access the TDS

Semi-flexible resin with moderate temperature resistance HDT60, high impact strength, and versality for a broad range of applications. Ideal for a wide variety of tooling applications on the production floor.

Benefits

- Moderate heat resistance, HDT 60° C
- Tough with outstanding surface finish
- Superior strength and impact resistant

PROPERTY[1]	METHOD			
Color	-	Clear	White	Matte Black
HDT at 0.455 MPa (°C)	ASTM D648	63	60	63
Tensile Stress at Break (MPa)	ASTM D638	44	49	51
Elongation at Break (%)	ASTM D638	41	48	43
Young's Modulus (MPa)	ASTM D638	1,700	1,700	1,800
Flexular Modulus (MPa)	ASTM D790	1,900	1,700	1,800
IZOD Impact Notched (J/m)	ASTM D256	65	58	53
Shore Hardness (D) 3 sec	ASTM D2240	63	76	67

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Tough Resins

TOUGH MATERIALS FOR FINAL PARTS PRODUCTION

Unique high impact resistant 3D printing materials for durable, functional and production parts.

IDEAL FOR

- Manufacturing aids
- Housings and coverings
- Jigs and fixtures
- Insoles

PROPERTIES

- Printable at room temperature
- Excellent performance and durability vs. other resins in the market
- Printable at high resolution
- Outstanding surface finishing

LOCTITE 3D IND405

HIGH IMPACT, HIGH ELONGATION RESIN

Scan QR code to access the TDS

Rigid, high elongation and high tough one-part material with excellent surface finish properties. Properties are comparable to an unfilled thermoplastic like Polypropylene (PP).

Benefits

- High impact resistance with high elongation
- Easy to print (one-part material)
- Tough and Durable
- The toughest clear resin (only applicable for clear material)

PROPERTY[1]	METHOD		
Color	-	Clear	Black
HDT at 0.455 MPa (°C)	ASTM D648	53	53
Tensile Stress at Break (MPa)	ASTM D638	38	45
Elongation at Break (%)	ASTM D638	96	100
Young's Modulus (MPa)	ASTM D638	1,400	1,400
Flexular Modulus (MPa)	ASTM D790	1,300	1,400
IZOD Impact Notched (J/m)	ASTM D256	72	51
Shore Hardness (D) 3 sec	ASTM D2240	76	76

LOCTITE 3D IND6845

UNIQUE COMBINATION OF HDT AND TOUGHNESS

Scan QR code to access the TDS

Resin that offers a solid balance of HDT and toughness, producing smooth, detailed parts. Its strong impact resistance suits wear-prone components.

Benefits

- Excellent H&S rating
- TPO-free
- Improved processing/printability

PROPERTY[1]	METHOD	
Color	-	Matte Black
HDT at 0.455 MPa (°C)	ASTM D648	80
Tensile Stress at Break (MPa)	ASTM D638	48
Elongation at Break (%)	ASTM D638	40
Young's Modulus (MPa)	ASTM D638	2,100
Flexular Modulus (MPa)	ASTM D790	2,100
IZOD Impact Notched (J/m)	ASTM D256	30
Shore Hardness (D) 3 sec	ASTM D2240	82

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Specialty Resins

RESINS WITH DISTINCT PROPERTIES

Specialized resins characterized by distinct and unique properties tailored to specific industrial or commercial applications.

LOCTITE 3D 3955

FST MATERIAL WITH UL94 V0 FLAMMABILITY

Scan QR code to access the TDS

First photopolymer with flame retardancy that passes vertical burn and aerospace FST standards .

Benefits

- Fire Safety Material
- Halogen Free
- Excellent flexural and tensile physical properties
- UL94 V0 flammability at a thickness of 3 mm
- FST (AITM2-0002, AITM2-0007, AITM3-0005)

Ideal for

- Electrical connectors and housing
- Aerospace and rail applications

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	> 300
Tensile Stress at Break (MPa)	ASTM D638	67
Elongation at Break (%)	ASTM D638	2
Young's Modulus (MPa)	ASTM D638	3,600
Flexular Modulus (MPa)	ASTM D790	4,600
IZOD Impact Notched (J/m)	ASTM D256	23
Shore Hardness (D) 3 sec	ASTM D2240	82

LOCTITE 3D IND3380

ESD

Scan QR code to access the TDS

Known for its smooth surface finish and high chemical resistance with versatility in diverse applications.

Benefits

- Displays electrostatic dissipative properties (ESD)
- High HDT of 190°C
- High accuracy and fine detail printing

Ideal for

- Tooling at high temperature
- Jigs and fixtures for electronic device manufacturing processes

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	190
Tensile Stress at Break (MPa)	ASTM D638	50
Elongation at Break (%)	ASTM D638	2
Young's Modulus (MPa)	ASTM D638	3,000
Flexular Modulus (MPa)	ASTM D790	3,400
IZOD Impact Notched (J/m)	ASTM D256	13
Shore Hardness (D) 3 sec	ASTM D2240	86

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

High Temperature Resins

TEMPERATURE RESISTANT MATERIALS FOR FINAL PARTS PRODUCTION

Unique 3D printing materials for functional production parts that withstands high temperature requirements.

IDEAL FOR

- Functional prototyping
- Encapsulation
- Mounts and housings
- HVAC Components
- Clips and Plugs for Control Systems/ Cabinets
- Connectors, Electronic Housings

PROPERTIES

- Printable at room temperature
- Outstanding performance and durability vs. other resins in the market
- Easy to print at high resolution

LOCTITE 3D IND147

HIGH TEMPERATURE RESIN FOR TOOLING & MOLDING

Scan QR code to access the TDS

Rigid resin designed for tooling and molding applications owing to its high stiffness and high temperature resistance withstanding up to 290°C

Benefits

- Good dimensional stability
- Good surface finish

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	290
Tensile Stress at Break (MPa)	ASTM D638	67
Elongation at Break (%)	ASTM D638	2
Young's Modulus (MPa)	ASTM D638	3,200
Flexular Modulus (MPa)	ASTM D790	3,700
IZOD Impact Notched (J/m)	ASTM D256	15
Shore Hardness (D) 3 sec	ASTM D2240	94

LOCTITE 3D IND249

EXCELLENT FOR FINE FEATURE RESOLUTION

Scan QR code to access the TDS

A high-temperature, high-strength material that prints challenging geometries with fine feature resolution. This low viscosity material features exceptionally high green strength to enable ease of processing.

Benefits

- Exceptionally high stiffness
- High accuracy
- Good temperature resistance
- Very high chemical resistance

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	115
Tensile Stress at Break (MPa)	ASTM D638	98
Elongation at Break (%)	ASTM D638	5
Young's Modulus (MPa)	ASTM D638	3,300
Flexular Modulus (MPa)	ASTM D790	3,600
IZOD Impact Notched (J/m)	ASTM D256	24
Shore Hardness (D) 3 sec	ASTM D2240	88

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

High Temperature Resins

TEMPERATURE RESISTANT MATERIALS FOR FINAL PARTS PRODUCTION

Unique 3D printing materials for functional production parts that withstands high temperature requirements.

IDEAL FOR

- Functional prototyping
- Encapsulation
- Mounts and housings
- HVAC Components
- Clips and Plugs for Control Systems/ Cabinets
- Connectors, Electronic Housings

PROPERTIES

- Printable at room temperature
- Outstanding performance and durability vs. other resins in the market
- Easy to print at high resolution

LOCTITE 3D IND406

OUR TOUGHEST HIGH TEMPERATURE RESIN

Tough resin designed for interior applications in Automotive, due to its high surface quality, dimensional accuracy and temperature resistance.

Scan QR code to access the TDS

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	107
Tensile Stress at Break (MPa)	ASTM D638	55
Elongation at Break (%)	ASTM D638	25
Young's Modulus (MPa)	ASTM D638	1,600
Flexular Modulus (MPa)	ASTM D790	1,900
IZOD Impact Notched (J/m)	ASTM D256	35
Shore Hardness (D) 3 sec	ASTM D2240	79

Benefits

- High heat deflection temperature, HDT >100 °C
- Tough and durable
- Good surface finish

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Elastomer Resins

ELASTOMERIC MATERIALS FOR FUNCTIONAL PROTOTYPING AND FINAL PARTS PRODUCTION

Unique 3D printing materials for durable, functional, production parts with elastomeric behavior.

IDEAL FOR

- Gaskets
- Seal prototyping
- Anatomical models
- Consumer products
- Tube's prototyping
- Gaskets, seals prototyping
- Lattice structures for sportswear

PROPERTIES

- Printable at room temperature
- True elastomeric behavior
- Stable -20 to +100°C
- Good interlayer adhesion with low shrinkage
- Outstanding performance and durability

LOCTITE 3D IND402

HIGH REBOUND

Scan QR code to access the TDS

Single component elastomer material with high elongation and high resilience, excellent tensile strength and high energy return while also not requiring thermal post processing.

Benefits

- True elastomeric behavior
- Excellent interlayer adhesion
- Good rebound performance

PROPERTY[1]	METHOD	
Color	-	Black
Tensile Stress at Break (MPa)	ASTM D412	7
Elongation at Break (%)	ASTM D412	260
Young's Modulus (MPa)	ASTM D638	42
Shore Hardness (A) 5 sec	ASTM D2240	82

LOCTITE 3D IND475

EASY TO PRINT

Scan QR code to access the TDS

An industrial strength UV resin that cures to a soft, elastomeric material. IND475 is suitable for applications where resilience, snap back, and tear resistance is desired, such as lattice structures and functional prototyping. This single component resin is easy to print of a variety of platforms, making it a superior material for elastomeric applications.

Benefits

- True elastomeric behavior
- Fast Printing with low shrinkage behavior
- High resilience / High energy return
- Exceptional durability compression forces

PROPERTY[1]	METHOD		
Color	-	Black	White
Tensile Stress at Break (MPa)	ASTM D412	3.2	4.6
Elongation at Break (%)	ASTM D412	140	160
Young's Modulus (MPa)	ASTM D638	2.5	1.1
Shore Hardness (A) 5 sec	ASTM D2240	48	62

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Elastomer Resins

ELASTOMERIC MATERIALS FOR FUNCTIONAL PROTOTYPING AND FINAL PARTS PRODUCTION

Unique 3D printing materials for durable, functional, production parts with elastomeric behavior.

IDEAL FOR

- Gaskets
- Seal prototyping
- Anatomical models
- Consumer products
- Tube's prototyping
- Gaskets, seals prototyping
- Lattice structures for sportswear

PROPERTIES

- Printable at room temperature
- True elastomeric behavior
- Stable -20 to +100°C
- Good interlayer adhesion with low shrinkage
- Outstanding performance and durability

SAED

LOCTITE 3D IND5714

ONE-PART SOLUTION FOR HIGH-REBOUND

LOCTITE 3D IND5714 is a gray elastomer with high rebound properties and excellent repetitive strain resistance. Shore A hardness combined with excellent compression set, good tear resistance and strength makes this material ideal for use in a wide variety of industrial elastomeric, safe touch applications.

Scan QR code to access the TDS

PROPERTY[1]	METHOD	
Color	-	Gray
Tensile Stress at Break (MPa)	ASTM D412	2.8
Elongation at Break (%)	ASTM D412	190
Young's Modulus (MPa)	ASTM D638	4.5
Shore Hardness (A) 5 sec	ASTM D2240	53

Benefits

- Safe touch and high rebound
- Improved processing with excellent H&S Rating
- TPO-Free

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

General Purpose Resins

Our general-purpose 3D resin is an ideal choice for tooling and mold applications. Its versatility and precision make it a valuable resource for creating durable and high-quality components.

IDEAL FOR

- Tooling and molds
- Interior applications in automotive

SAED

LOCTITE 3D IND403

HIGH MODULUS TOUGH RESIN FOR TOOLING

Rigid resin ideal for tooling and end use parts up to 80°C service temperature. Great dimensional accuracy and printability at high resolution.

Scan QR code to access the TDS

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	80
Tensile Stress at Break (MPa)	ASTM D638	70
Elongation at Break (%)	ASTM D638	10
Young's Modulus (MPa)	ASTM D638	2,600
Flexular Modulus (MPa)	ASTM D790	2,700
IZOD Impact Notched (J/m)	ASTM D256	27
Shore Hardness (D) 3 sec	ASTM D2240	78

Benefits

- High heat deflection temperature, HDT 80 °C
- Tough with good dimensional stability
- Good surface finish

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Prototyping Resins

RESIN MATERIALS FOR PRECISION PROTOTYPING AND PRODUCTION NEEDS

LOCTITE Pro series resins offer a seamless transition from prototyping to high-volume production. They provide durability, reliability, and performance at an affordable price for producing large quantities of parts. These resins are compatible with a wide range of DLP/LCD printers.

LOCTITE 3D PRO410

HIGH-SPEED, HIGH-RESOLUTION PHOTOPOLYMER FOR PRECISE PROTOTYPING

Scan QR code to access the TDS

Benefits

- Excellent surface finish
- 3X faster printing*
- Accurate prototypes

Ideal for

- Printer setup and calibration
- Rapid prototypes

*vs other LOCTITE 3D printing resins

SAED

LOCTITE 3D PRO417

HIGH-STRENGTH PHOTOPLASTIC FOR DIVERSE PROTOTYPE AND TOOLING APPLICATIONS

Scan QR code to access the TDS

Benefits

- Moderate heat resistance, HDT 49° C
- Tough with outstanding surface finish
- Superior strength and impact resistant

Ideal for

- Manufacturing aids
- Jigs and fixtures
- Housings and covers
- Insoles

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	76
Tensile Stress at Break (MPa)	ASTM D638	48
Elongation at Break (%)	ASTM D638	5
Young's Modulus (MPa)	ASTM D638	1,900
Flexular Modulus (MPa)	ASTM D790	2,500
IZOD Impact Notched (J/m)	ASTM D256	28
Shore Hardness (D) 3 sec	ASTM D2240	84

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	49
Tensile Stress at Break (MPa)	ASTM D638	40
Elongation at Break (%)	ASTM D638	100
Young's Modulus (MPa)	ASTM D638	1,300
Flexular Modulus (MPa)	ASTM D790	900
IZOD Impact Notched (J/m)	ASTM D256	54
Shore Hardness (D) 3 sec	ASTM D2240	73

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Prototyping Resins

RESIN MATERIALS FOR PRECISION PROTOTYPING AND PRODUCTION NEEDS

LOCTITE Pro series resins offer a seamless transition from prototyping to high-volume production. They provide durability, reliability, and performance at an affordable price for producing large quantities of parts. These resins are compatible with a wide range of DLP/LCD printers.

LOCTITE 3D PRO476

HIGH-STRENGTH PHOTOPLASTIC OPTIMIZED FOR LCD PRINTING

Scan QR code to access the TDS

Benefits

- Tough
- High impact resistance
- Moderate heat resistance, HDT 60°C
- Excellent surface finish

Ideal for

- Textured and highly detailed parts
- Performance prototypes
- Jigs, fixtures & manufacturing aids
- Housing and covers

PROPERTY[1]	METHOD	
Color	-	Black
HDT at 0.455 MPa (°C)	ASTM D648	62
Tensile Stress at Break (MPa)	ASTM D638	42
Elongation at Break (%)	ASTM D638	60
Young's Modulus (MPa)	ASTM D638	1,700
Flexular Modulus (MPa)	ASTM D790	2,000
IZOD Impact Notched (J/m)	ASTM D256	45
Shore Hardness (D) 3 sec	ASTM D2240	78

LOCTITE 3D PRO9274

GENERAL PURPOSE PHOTOPOLYMER FOR PRECISE PROTOTYPING

Scan QR code to access the TDS

Benefits

- Easy to print
- High detail
- Durable
- Economical

Ideal for

- High volume general purpose
- Prototypes and test parts
- Jigs, fixtures and tools

PROPERTY[1]	METHOD	
Color	-	Gray
HDT at 0.455 MPa (°C)	ASTM D648	52
Tensile Stress at Break (MPa)	ASTM D638	33
Elongation at Break (%)	ASTM D638	7
Young's Modulus (MPa)	ASTM D638	1,500
Flexular Modulus (MPa)	ASTM D790	2,100
IZOD Impact Notched (J/m)	ASTM D256	23
Shore Hardness (D) 3 sec	ASTM D2240	80

For further information please see TDS, contact Technical Service Centre or Customer Service Representative. The physical properties provided in this document are typical results of printed parts and are provided for reference purposes only. [1] All data after post-cure. HDT: Heat Deflection Temperature. Test method for Elastomer: D412. For additional information please refer to the respective TDS.

Innovative Solutions In Action: Case Studies

TOUGH RESIN

Spare Parts for Alstom Manufactured with LOCTITE Materials

Challenge

Alstom is a multinational company that provides sustainable mobility solutions for high-speed trains. An Alstom fleet that has been running for ten years was experiencing part degradation. The Alstom Maintenance team in Nola, Italy, needed to replace two-hundred footrest parts due to damaged or vandalized parts aboard the AGV ETR575. Alstom explored solutions, such as a new mold, which was too expensive to produce spare parts. Alstom decided to make the switch and explore 3D Printing solutions.

Solution

Alstom discovered that 3D Printing was the best solution to manufacture spare parts. They considered the long-term stability of the resin for parts that would withstand years in a commercial setting and settled on the LOCTITE 3D Printing portfolio. After evaluating the LOCTITE materials portfolio, Alstom determined that LOCTITE 3D 3843 was the best solution for their application requirements. LOCTITE 3D 3843 exhibits a superior finish and moderate temperature resistance, which ultimately sealed the choice for this material.

Benefits

Alstom received the footrest parts and immediately implemented them in a passenger saloon of an AGV ETR575, a very high-speed, electric multiple-unit passenger train. Ultimately, they reduced their lead time by 96% and cut overall costs by 25%. Alstom's original lead time was 180 days, but after turning to LOCTITE, their lead time is now only one week. By leveraging 3D Printing and Additive Manufacturing, the team saved more than 20,000 EUR and 172 days of lead time, which is monumental from an operations standpoint.

Scan QR code for more details

HIGH TEMPERATURE RESIN

LOCTITE Materials Used to Manufacture Blow Molds for PepsiCo

Challenge

Creating conventional metal tooling for the blow molding of bottles is an expensive and time-consuming proposition. In a time where speed to market has never been so important in the consumer goods sector, food & beverage giant PepsiCo decided to adapt a hybrid model and set out to explore the possibilities of combining parts of a conventional metal mold with 3D printed inserts in order to redesign their bottle and package designs to fulfil customers desires.

Solution

PepsiCo chose Nexa3D's xPEEK147 from Henkel LOCTITE for the 3D printed tool inserts due to the material's strength and impressive performance factors, including its very high heat-deflection temperature. PepsiCo found the material performance to be ideal for producing the mold components it needs.

Benefits

By leveraging 3D Printing and the additive process for the 3D printed inserts and combining this with parts of a conventional metal mold a complete mold set can be made in 12 hours, with 8 hours of 3D printing time and 4 hours of curing. These hybrid-made molds can then successfully be used for more than 10,000 bottles before failure – at up to a 96% reduction of cost compared to traditional metal tooling.

Scan QR code for more details