DREIGEIST
Additive intelligence

MATERIAL PORTFOLIO

ADDITIVE MANUFACTURING FOR
INDUSTRIAL PURPOSES.

WE PRINT.

3D printing with high-performance plastics

Here you will find an overview of the 3D printers and materials we use to implement your applications.

Other materials on request:

→ Your desired material is not listed yet? Contact us!

Image: © DREIGEIST

Material overview

Digital Light Processing

AVAILABLE PRINTERS DLP

UnionTech GmbH || ETEC – a proud #TeamDM brand

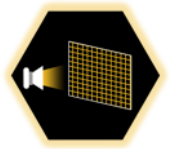
	Build volume	XY resolution	Z resolution	Projector resolution
				
UnionTech Cute 300	249,6 x 140,4 x 240 mm	65 µm	50 – 100 µm	3840 x 2160 Pixels
UnionTech S110	110,3 x 62,6 x 85 mm	58 µm	50 – 100 µm	1920 x 1080 Pixels
ETEC Micro Plus HD	45 x 28 x 100 mm	30 µm	25 – 75 µm	1140 x 912 Pixels
ETEC Perfactory P4 Standard XL	192 x 120 x 180/230 mm	ERM – 50 µm Native – 100 µm	25 – 150 µm	1920 x 1200 Pixels

Image: © DREIGEIST

DLP

BASF FORWARD AM

BASF We create chemistry | FORWARD AM Innovating Additive Manufacturing

DREIGEIST Additive Intelligence.

MATERIAL CHARACTERISTICS

DLP BASF Ultracur3D®

	Mechanical values							Other values	
	Young's Modulus [MPa]	Tensile strength [MPa]	Elongation at break [%]	Flexural modulus [MPa]	Notch impact strength Charpy, 23 °C [kJ/m²]	Notch impact strength Izod, (Machined), 23 °C, [J/m]	Shore hardness	HDT at 0,45 MPa [°C]	Moisture absorption (24 hours) [%]
RG 1100	3080	70	5	2880	0,6	16	D 85	116	0,32
RG 35	2600	80	6	2400	0,6	23	D 85	83	0,33
RG 50	2300	63	4	2100	1,1	11	D 85	66	1,12
RG 3280	10000	76	1	8780	0,98	2,36	D 96	> 280	0,29
ST 45	2300	60	25	2400	1,3	30	D 80	73	-
ST 80	1500	35	20	1700	1,4	24	D 80	46	0,5
ST 1400	1900	45	43	1540	4,6	43	D 78	57	0,33
ST 7500 G	2300	54	13	2150	3,2	25	D 82	64	0,9
EL 4000	-	11	172	-	-	-	A 90	-	2,3
EL 150	-	7	182	-	-	-	A 80	-	2,0
FL 60	-	4	90	-	-	-	A 60	-	1,45
FL 300	-	5	245	-	-	-	A 40	-	1,74
DM 2505	2200	48	4	2150	1,1	15	D 73	-	0,85
DM 2304	-	4	160	-	-	-	A 50	-	-

BASF ULTRACUR3D® RG 1100

Rigid Resin

Ultracur3D® RG 1100 by BASF Forward AM is a high-strength polyurethane-based engineering plastic. Its mechanical properties are comparable to widely used injection molding grades in the automotive and other demanding industries.

Due to its high heat deflection temperature (HDT, 116°C), good chemical resistance and long-term UV stability, this material is ideal for a wide range of technical applications.

Components made of this material are available in transparent and black. The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

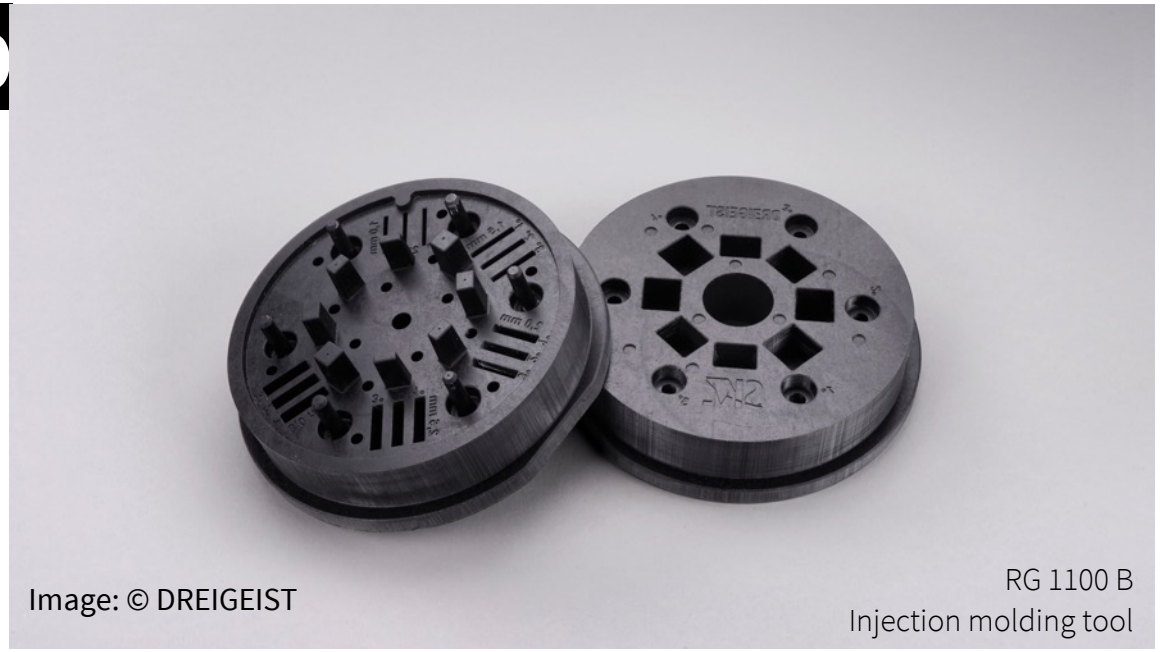


Image: © DREIGEIST

RG 1100 B
Injection molding tool

Technical properties

- High stiffness
- High hardness
- High temperature resistance
- High chemical resistance
- Low water absorption

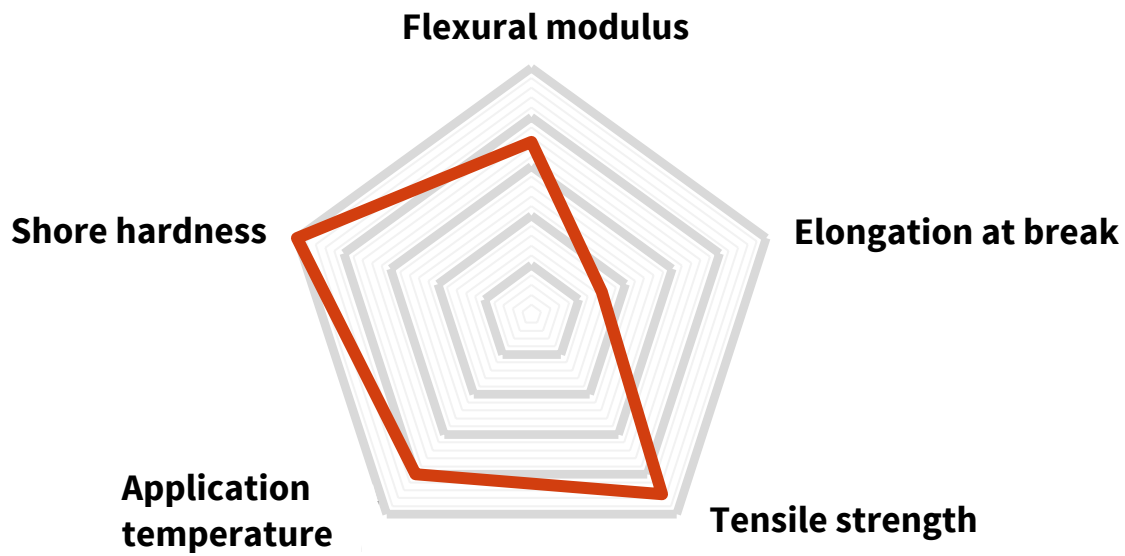


Image: © BASF

RG 1100 B
Lattice demonstrator

BASF ULTRACUR3D® RG 1100

Industries & applications

Automotive

Connectors and housings

Mechanical Engineering

Housings, mounts and complex construction parts

Tooling

(Foam) injection molding tools

Statements

- ✓ Chemical test
- ✓ Steam sterilization
- ✓ Sterilization overview
- ✓ UV stability

BASF ULTRACUR3D® RG 35

Rigid Resin

This photopolymer by BASF Forward AM is based on reactive urethane chemistry. Ultracur3D® RG 35 joins the Rigid series of BASF resins and is particularly suitable for applications that require a combination of high stiffness, hardness and dimensional stability.
In addition, a temperature resistance up to 85 °C is guaranteed.
Components made of this material are available in white, transparent and black. The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

Technical properties

- High stiffness
- High hardness
- High temperature resistance
- High dimensional stability
- Easily polished

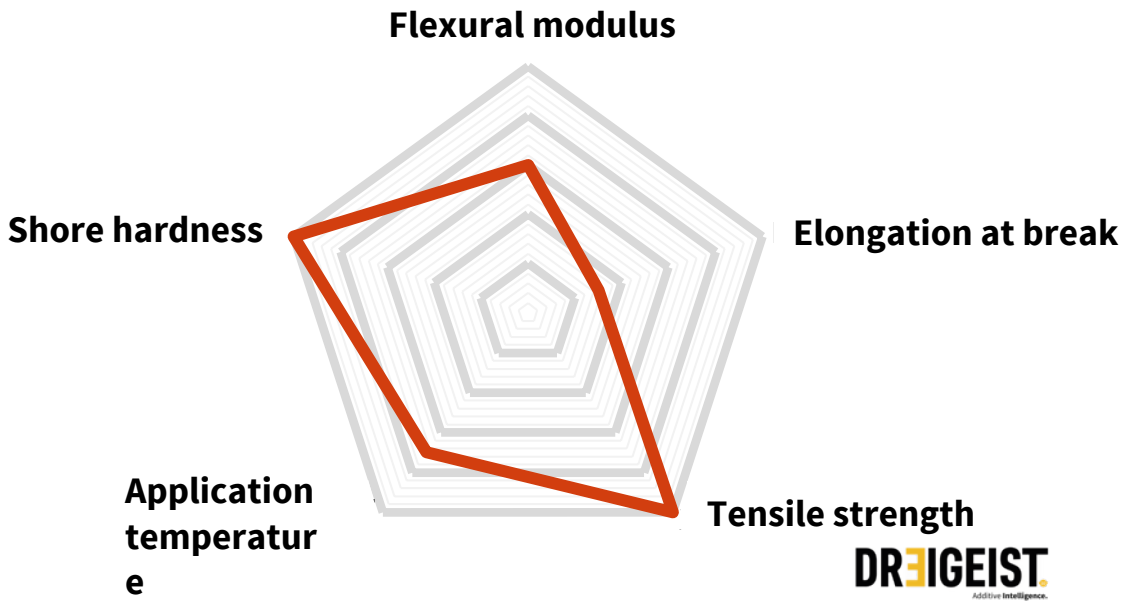


Image: © DREIGEIST

RG 35 White
Silicon casting tool

BASF ULTRACUR3D® RG 35

Industries & applications

Automotive

Connectors and housings

Mechanical Engineering

Durable construction parts

Electronics

Molds & inserts for electric components

Statements

- ✓ ISO 10993-5 Cytotoxicity
- ✓ ISO 10993-10 Skin irritation
- ✓ ISO 10993-10 Skin sensitization
- ✓ ISO 10993-11 Systemic toxicity
- ✓ Chemical test
- ✓ Steam sterilization
- ✓ Sterilization overview
- ✓ UV stability

BASF ULTRACUR3D® RG 50

Rigid Resin

Ultracur3D® RG 50 by BASF Forward AM is a medium viscosity, highly reactive urethane photopolymer for applications requiring high stiffness, very high printing accuracy, low shrinkage during curing and good thermal stability (HDT at 0.45MPa: 66 °C).
Therefore, RG 50 is suitable for 3D printing of high-performance functional parts.
The printed parts can be washed with water, and no harsh solvents are required.
Components made from this material are transparent.
The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

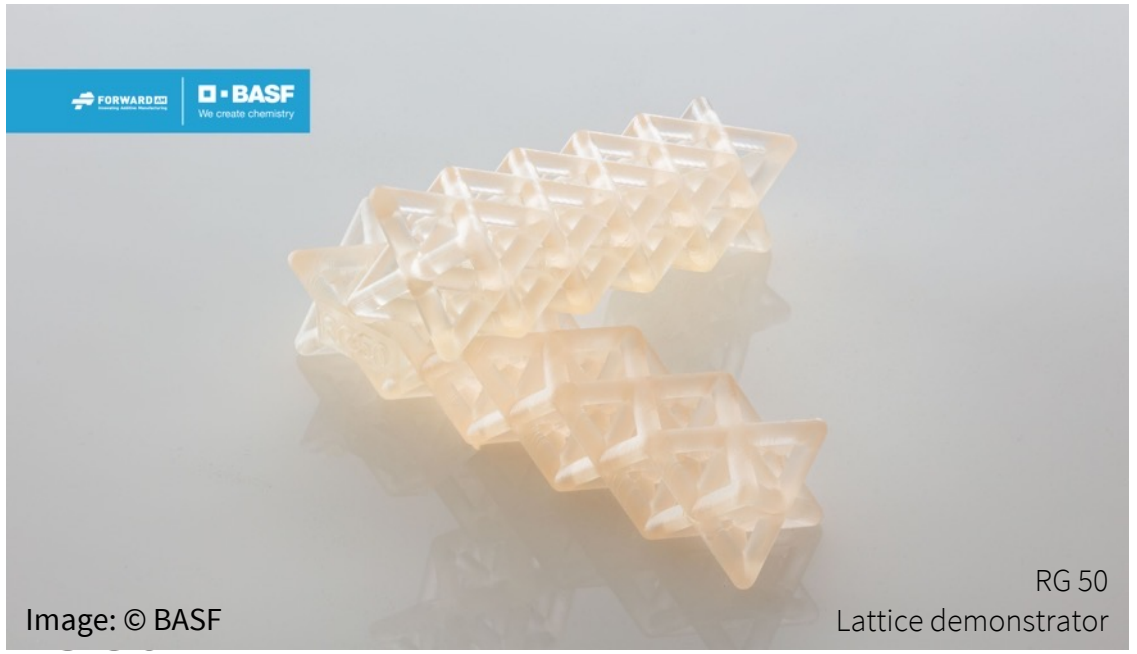
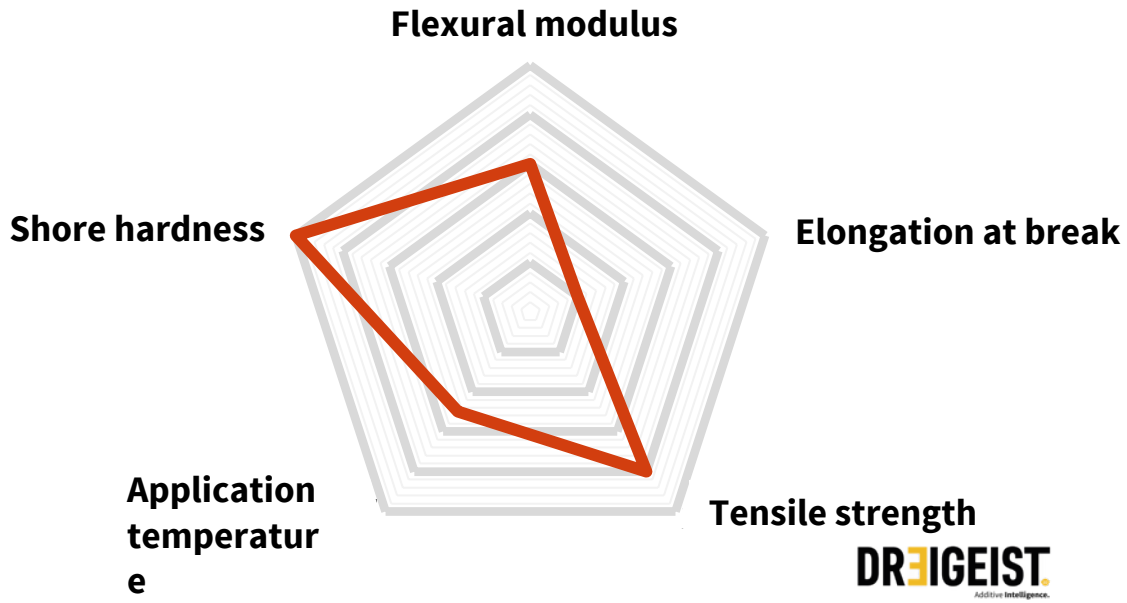


Image: © BASF

RG 50
Lattice demonstrator

Technical properties

- High printing accuracy
- Low shrinkage
- Post-processing using water is possible
- High mechanical values



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BASF ULTRACUR3D® RG 50

Industries & applications

RG 50
Geometry and texture demonstrator

Image: © BASF

Automotive

Connectors and housings

Mechanical Engineering

Jigs and fixtures, mounts, molds and inserts

Electronics

Electrical casting

BASF ULTRACUR3D® RG 3280

Rigid Resin

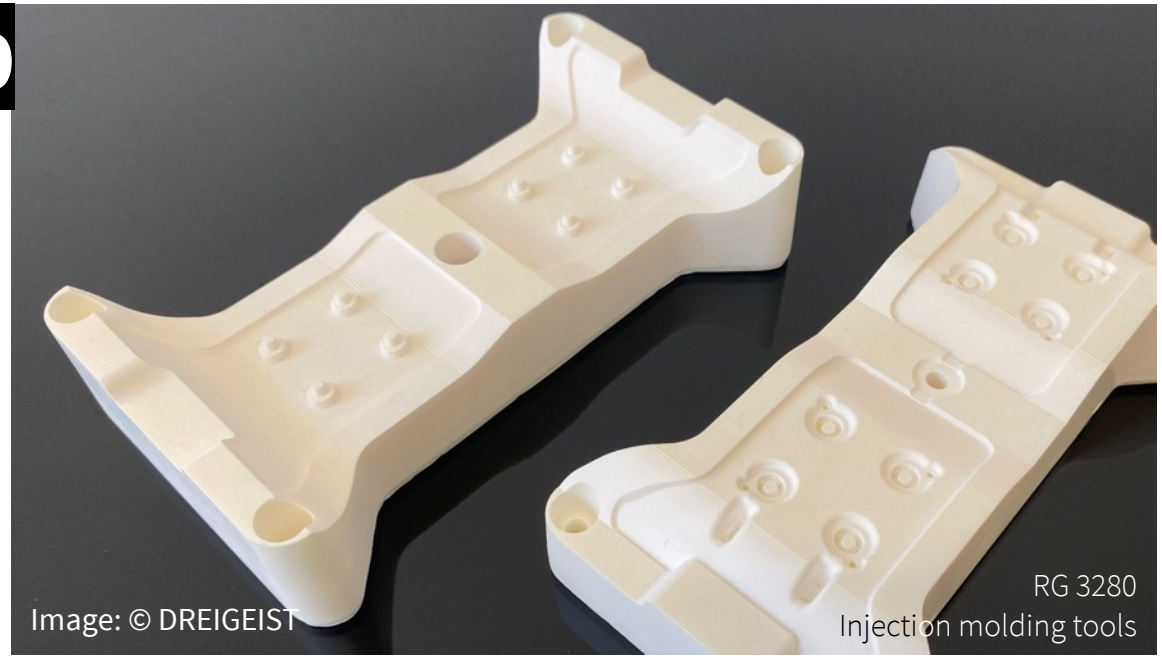
Ultracur3D® RG 3280 is the first composite material to be added to the Rigid line. Due to a high content of ceramic particles, this material has a high stiffness of approx. 10 GPa as well as a high heat deflection temperature of over 280 °C.

Despite the high particle content, the viscosity is low and segregation is limited. This leads to easy handling of the resin.

The high stiffness and temperature resistance make RG 3280 an ideal material for the most demanding applications.

Components made from this material are white.

The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.



Technical properties

- High stiffness
- Very high temperature resistance
- Easy handling
- Fast printing process
- High suspension stability

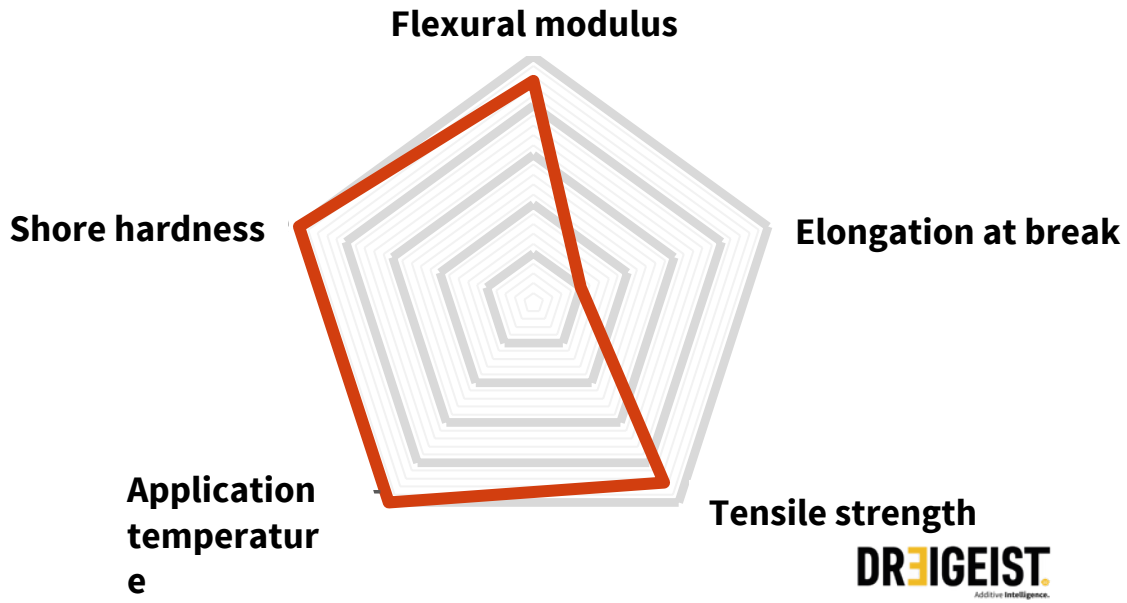


Image: © BASF

RG 3280
Lattice structure

BASF ULTRACUR3D® RG 3280

Industries & applications

Tooling / Molding

Tools for e. g. Injection molding, thermoforming etc.

Aerospace

Wind tunnel testing– Optimization of aerodynamic designs

Statements

✓ Chemical test

Do you already know our White Paper on rapid tooling with BASF Ultracur3D® RG 3280? Learn more here:
https://www.dreigeist.com/case-studies/whitepaper-ultracur3drg3280

BASF ULTRACUR3D® ST 45

Tough Resin

Ultracur3D® ST 45, Ultracur3D® ST 45 M & Ultracur3D® ST 45 B by BASF Forward AM are reactive urethane photopolymers for applications requiring high toughness. They offer an excellent combination of high strength, long-term stability and impact resistance and are well suited for 3D printing of high-performance functional components.

In addition to high printing accuracy and mechanical strength, they also ensure excellent surface finish. Components made from this material are available transparent and in black.

The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

Technical properties

- High strength
- High toughness
- High impact resistance
- High surface quality

Image: © DREIGEIST

ST 45 B
Tensile bars

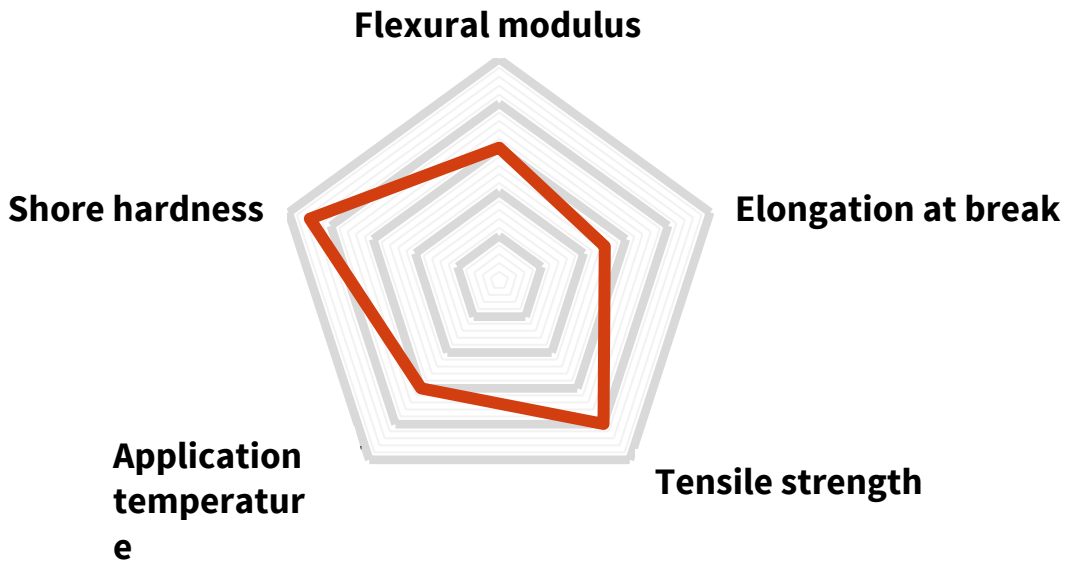


Image: © BASF

BASF ULTRACUR3D® ST 45

Industries & applications

Automotive

Connectors and housings

Mechanical Engineering

High details and texture parts, applications that require a high toughness

Tooling

Prototyping, customized gadgets and tools

Statements

- ✓ ISO 10993-5 Cytotoxicity
- ✓ ISO 10993-10 Skin Irritation (only examined for transparent ST 45)
- ✓ ISO 10993-10 Skin Sensitization (only examined for transparent ST 45)
- ✓ Chemical test
- ✓ Sterilization overview
- ✓ UV stability

BASF ULTRACUR3D® ST 80

Tough Resin

Ultracur3D® ST 80, and its variants B, G and W by BASF Forward AM, are reactive urethane photopolymers for demanding applications.

They are impressively cost-effective all-rounders, offering high toughness, impact resistance and long-term UV stability of components at an attractive price.

Components made from this material are transparent.

The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

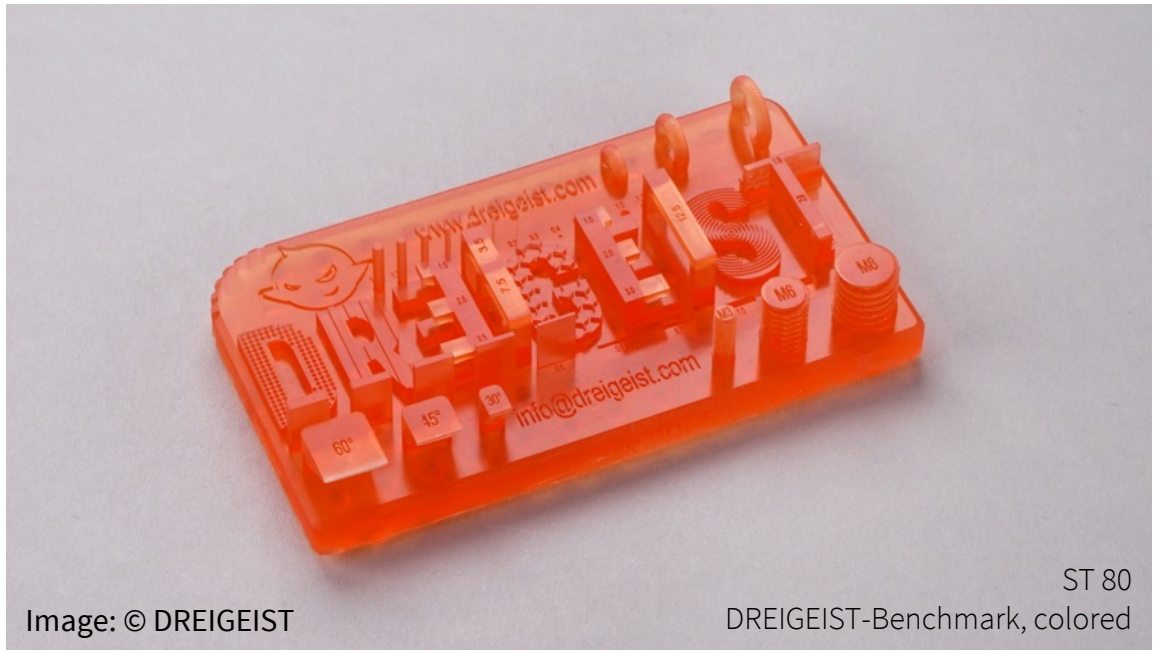
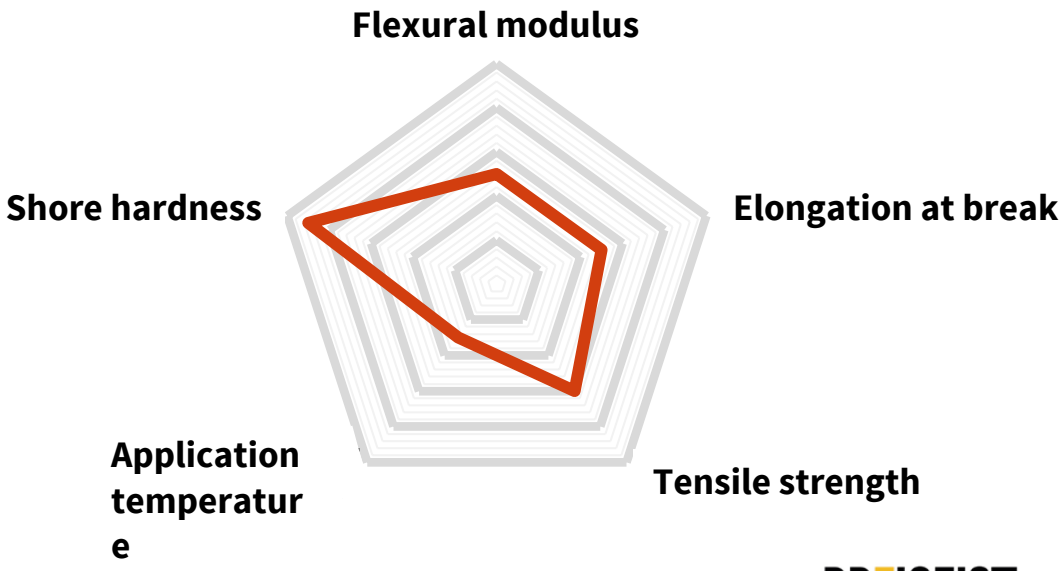


Image: © DREIGEIST

ST 80
DREIGEIST-Benchmark, colored

Technical properties

- Well-balanced multi-purpose material
- High toughness
- High impact resistance
- High UV stability



ST 80
Application example

Image: © BASF

BASF ULTRACUR3D® ST 80

Industries & applications

Automation Engineering

Connectors, housings, electrical castings

Mechanical Engineering

High details and texture parts, applications that require a high toughness

Medical Technology

Orthopedics

Statements

- ✓ ISO 10993-5 Cytotoxicity
- ✓ ISO 10993-10 Skin Irritation (only examined for transparent ST 80)
- ✓ ISO 10993-10 Skin Sensitization (only examined for transparent ST 80)
- ✓ Chemical test
- ✓ Steam sterilization
- ✓ Sterilization overview
- ✓ UV stability

BASF ULTRACUR3D® ST 1400

Multi-purpose Tough Resin

Ultracur3D® ST 1400 closes the gap between the Rigid and the Flexible product line. The material is more ductile and has excellent toughness and elongation at break.

The high impact strength makes it ideal for applications where high durability is required.

Its high endurance combined with biocompatibility statements make ST 1400 suitable for a variety of applications, including: Prosthetic devices, housings, consumer products and fixtures.

Technical properties

- Outstanding toughness and impact resistance
- Medium stiffness, bridging th gap between flexible and rigid materials
- Low viscosity
- Fast printing process

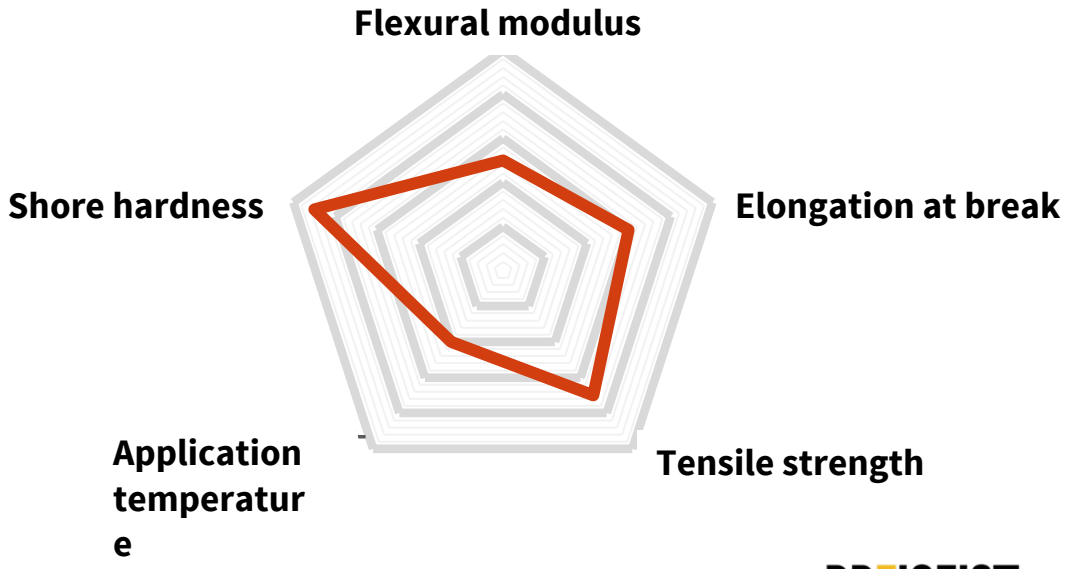


Image: © BASF

ST 1400
Wrist orthosis

BASF ULTRACUR3D® ST 1400

Industries & applications

Automation Engineering

Connectors and housings

Mechanical Engineering

Jigs and fixtures

Medical Technology

Wearables, prosthetics, medical accessories, diagnostic equipment

Statements

- ✓ ISO 10993-5 Cytotoxicity
- ✓ ISO 10993-10 Skin Irritation
- ✓ ISO 10993-10 Skin Sensitization
- ✓ Steam Sterilization
- ✓ Sterilization Overview
- ✓ UV Stability

BASF ULTRACUR3D® ST 7500 G

Multi-purpose Tough Resin

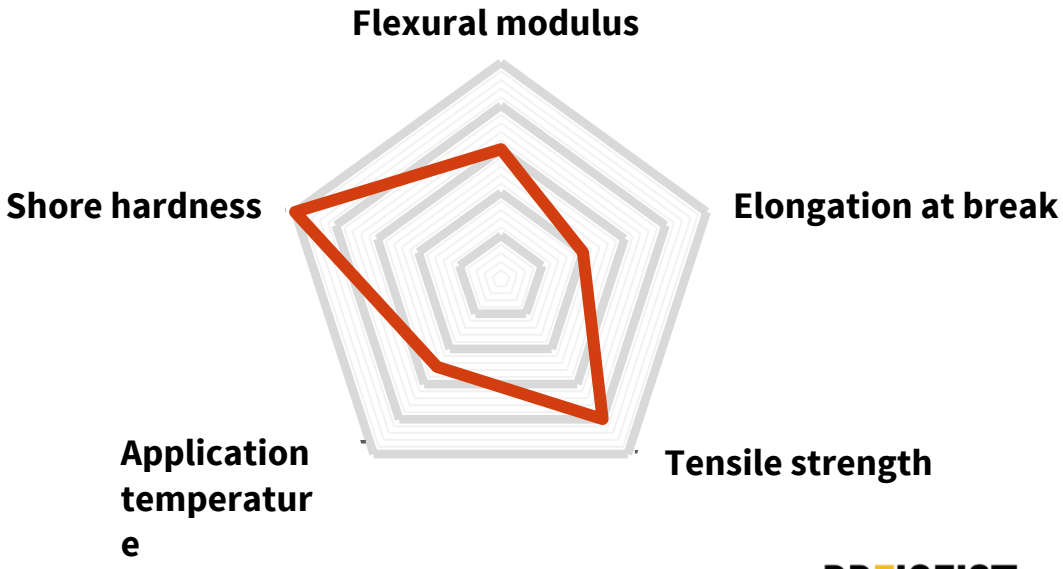
Ultracur3D® ST 7500 G extends the Tough product line and is considered extremely easy and fast to print.

The printed components show excellent surface properties while being able to reproduce complex geometries. This makes the material perfectly suited for game figures, hobby models and functional prototypes.

In addition, the resin has high toughness and low water absorption. This makes it the best choice for applications that require high durability – e.g. in the outdoor sector.

Technical properties

- Very fast and easy to print
- Excellent surface quality and intricate details
- High durability and toughness



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BASF ULTRACUR3D® ST 7500 G

Industries & applications

ST 7500 G
Highly detailed figurine

Image: © BASF

Lifestyle

Figurines, hobby models, outdoor use

Mechanical Engineering

High details and texture parts,
applications that require a high toughness
Functional prototyping

Statements

- ✓ ISO 10993-5 Cytotoxicity
- ✓ Chemical Test
- ✓ UV stability

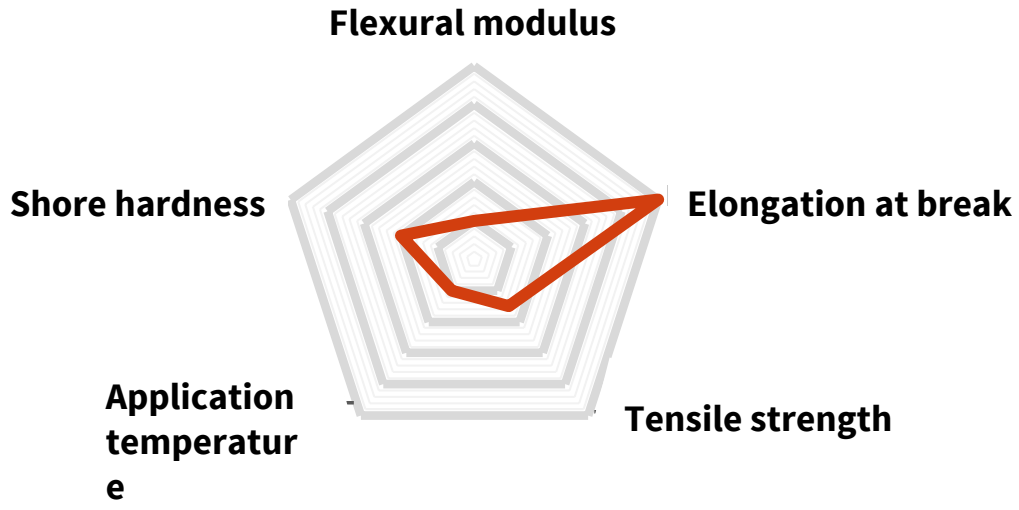
BASF ULTRACUR3D® EL 150

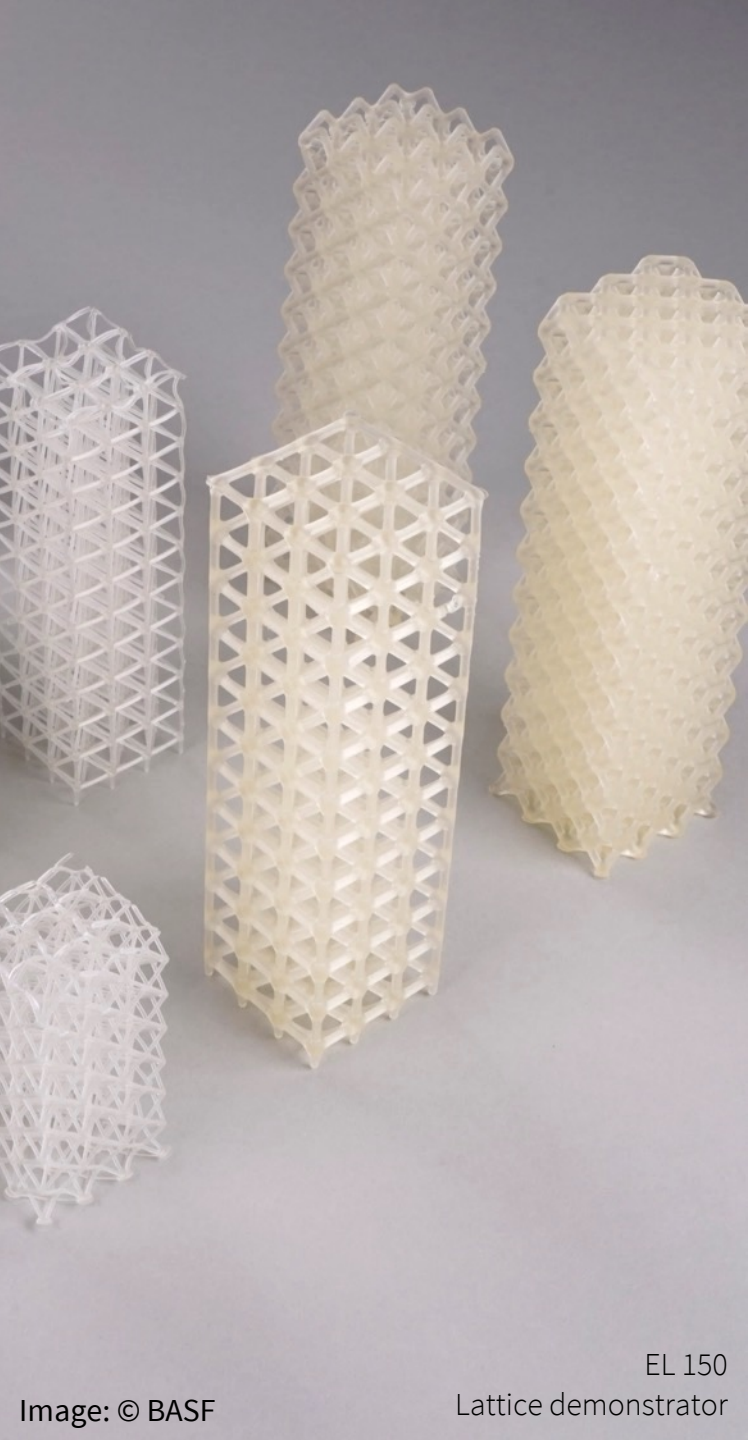
Elastic Resin

Ultracur3D® EL 150 by BASF Forward AM is a highly versatile and reactive urethane photopolymer for highly elastic applications that has a medium softness (Shore 75 A). It offers an optimal combination of high torsional strength, good elongation at break and durable recovery.
Components made from this material are transparent.
The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

Technical properties

- Medium hardness
- High elongation at break
- Optimum combination of high strength, elongation and rebound





EL 150
Lattice demonstrator

Image: © BASF

BASF ULTRACUR3D® EL 150

Industries & applications

Automotive

Flexible grips and cushioning pads

Mechanical Engineering

Flexible parts

Lifestyle & Sports

Footwear

Statements

- ✓ ISO 10993-10 Skin sensitization
- ✓ Chemical test
- ✓ UV stability

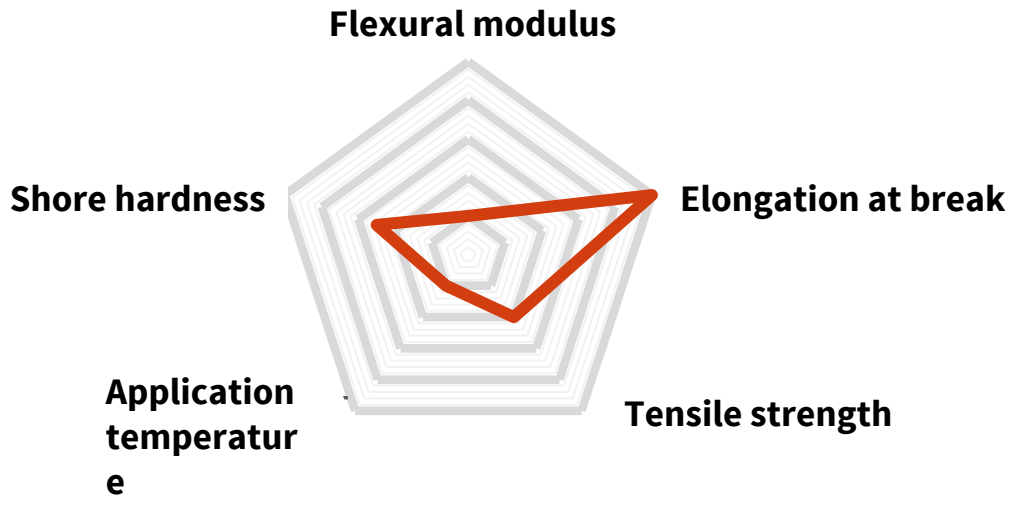
BASF ULTRACUR3D® EL 4000

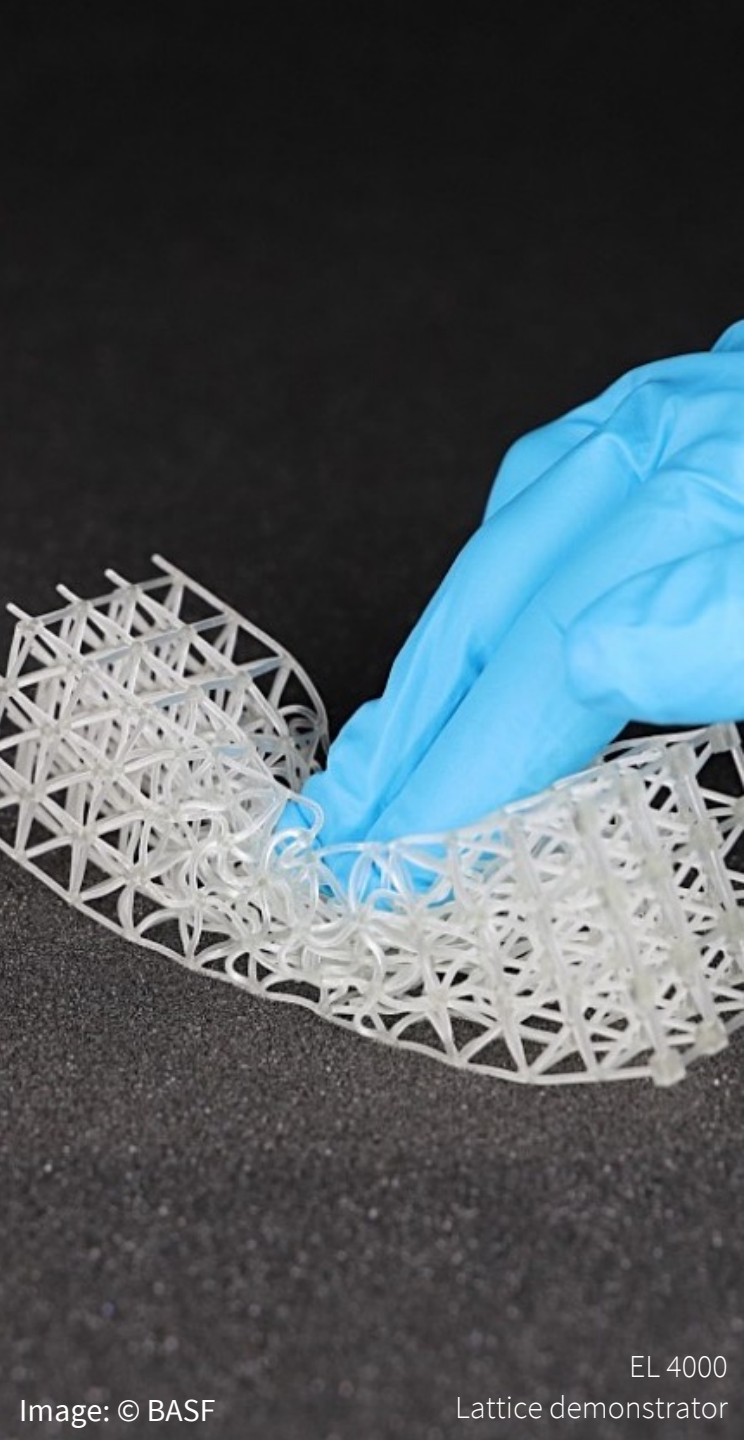
Elastic Resin

Ultracur3D® EL 4000 has a comparatively high hardness of Shore 90 A.
It complements the Elastic and Flexible product portfolio, of which the hardness range has been extended from Shore 40 to 90 A.
EL 4000 has high mechanical strength, rebound and tear resistance.
In addition to the transparent resin, there is also a black-colored option EL 4000 B.

Technical properties

- Highest hardness in the EL series: Shore 90 A
- High green part strength, ideal for printing intricate flexible parts
- High strength, rebound and tear resistance





EL 4000
Lattice demonstrator

Image: © BASF

BASF ULTRACUR3D® EL 4000

Industries & applications

Automotive

Flexible grips and cushioning pads

Mechanical Engineering

Flexible parts

Lifestyle & Sports

Footwear
Bike saddles

Certifications (EL 4000 transparent)

- ✓ ISO 10993-5 Cytotoxicity Testing- Neutral red
- ✓ Chemical test
- ✓ UV stability

BASF ULTRACUR3D® FL 60

Flexible Resin

Ultracur3D® FL 60 by BASF Forward AM is a reactive urethane photopolymer tailored to flexible applications that offers exceptional flexibility with high tear strength.
It has high softness (Shore 60 A) and excellent haptics while maintaining long-term color stability.
Components made from this material are transparent.
The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

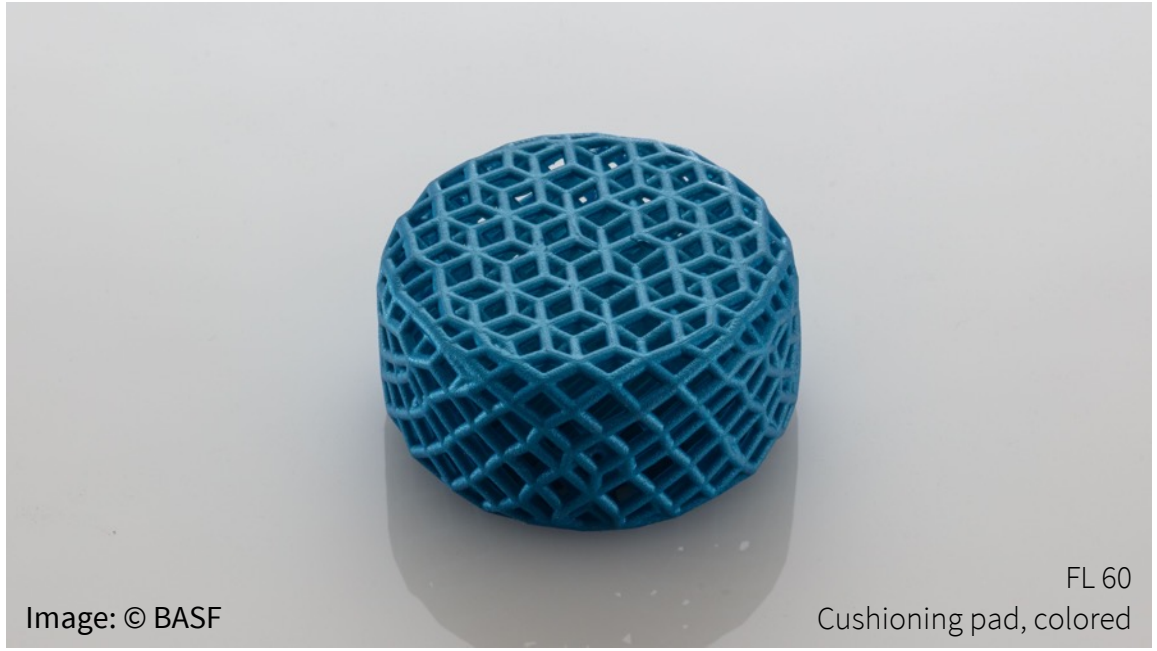


Image: © BASF

FL 60
Cushioning pad, colored

Technical properties

- Low hardness
- Very good haptics
- Very stable clear-white color

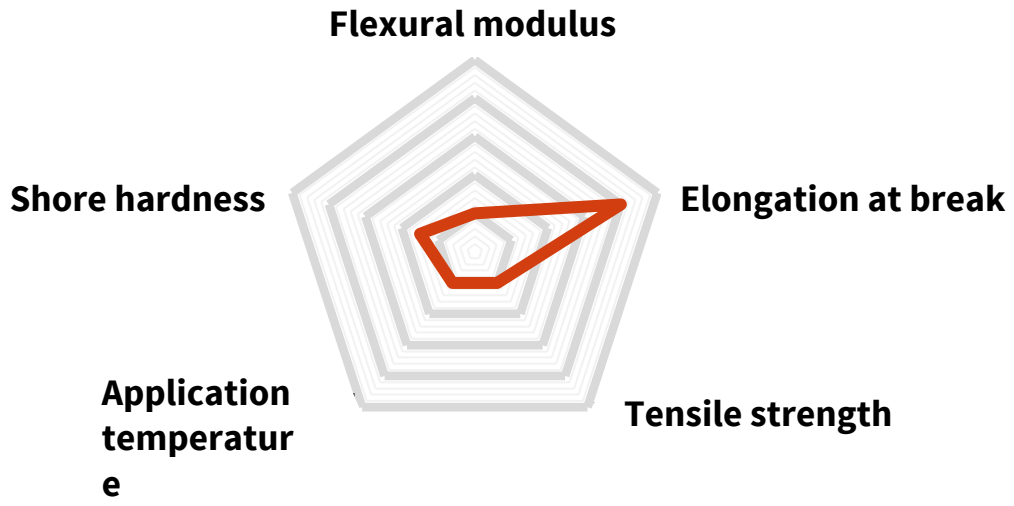


Image: © BASF

FL 60
Lattice demonstrator

BASF ULTRACUR3D® FL 60

Industries & applications

Automotive

Flexible grips and cushioning pads

Mechanical Engineering

Flexible parts
Functional prototyping

Lifestyle & Sports

Footwear

Certifications

- ✓ Sterilization overview
- ✓ UV stability

BASF ULTRACUR3D® FL 300

Flexible Resin

Ultracur3D® FL 300 by BASF Forward AM is a reactive urethane photopolymer tailored to flexible applications, combining exceptional torsional flexibility with high tear strength.

It offers very high softness (Shore 40 A), excellent elongation at break and consistent recovery.

Components made from this material are transparent.

The Color Kits by BASF Forward AM also allow color design entirely according to your wishes.

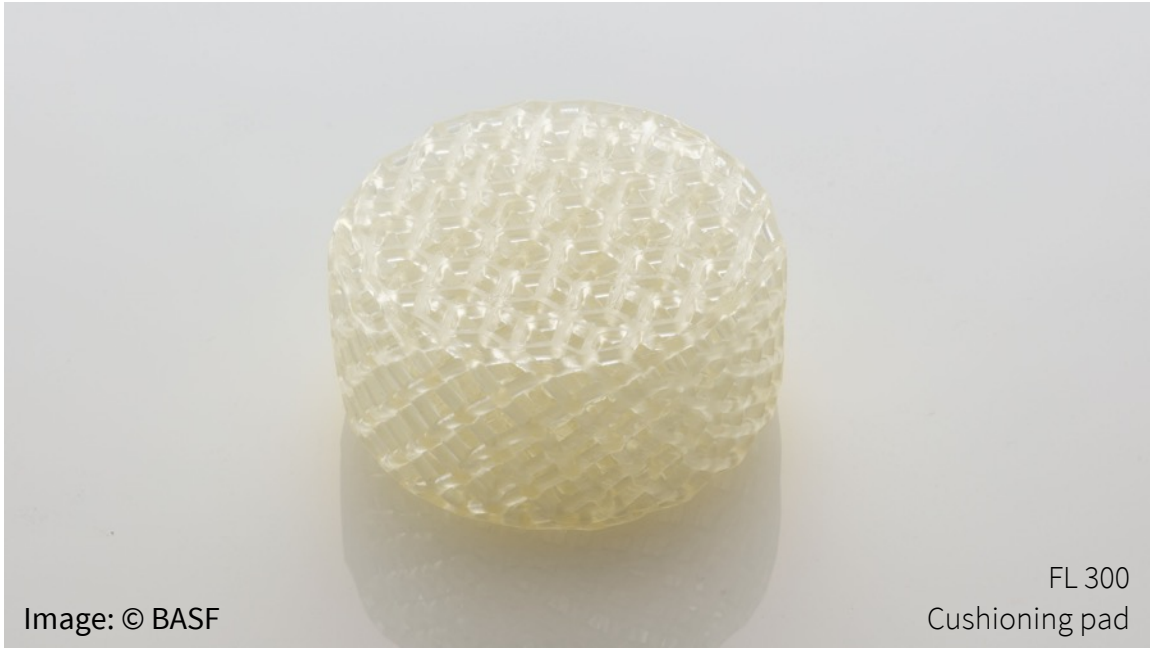
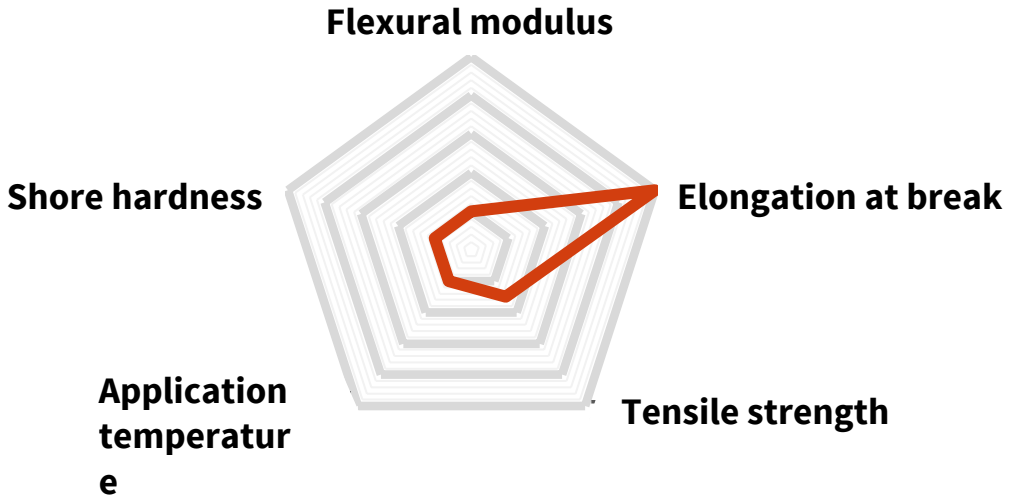


Image: © BASF

FL 300
Cushioning pad

Technical properties

- Very low hardness
- Superior elongation at break



FL 300
Cushioning pad

Image: © BASF

BASF ULTRACUR3D® FL 300

Industries & applications

Automotive

Flexible grips and cushioning pads

Mechanical Engineering

Flexible parts

Prototyping

Lifestyle & Sport

Footwear

Statements

- ✓ ISO 10993-10 Skin Irritation
- ✓ ISO 10993-10 Skin sensitization
- ✓ Chemical test

BASF ULTRACUR3D® DM 2505

Rigid Dental Resin

Ultracur3D® DM 2505 by BASF Forward AM is a rigid resin and the perfect solution for 3D modeling and casting of dental products.

The very high print and detail accuracy of this resin can lower the cost per part for dental prosthesis manufacturers and clinics by reducing post-processing and fitting time.

No cleaning chemicals are needed, as the printed components can be washed off with water.

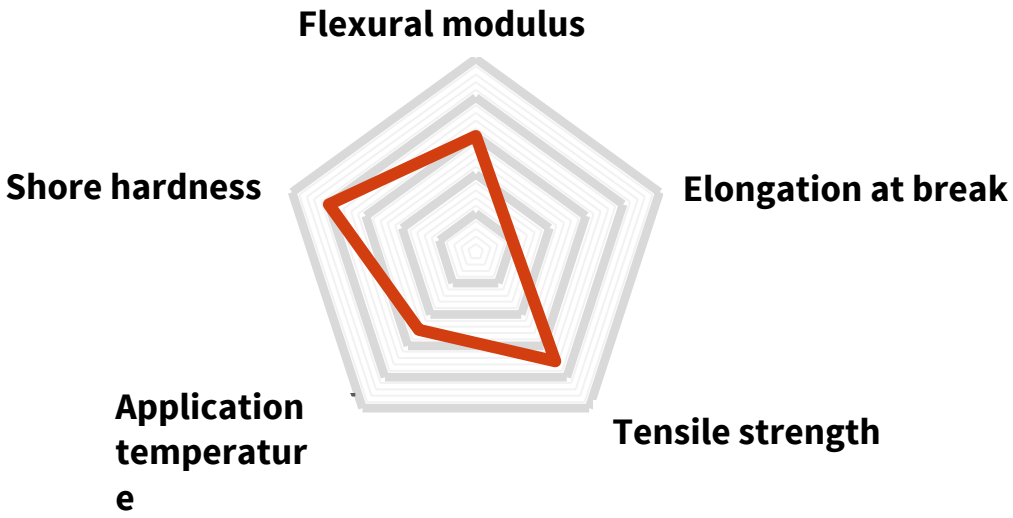
Components made from this material are available in beige.

Image: © BASF

DM 2505
Jaw model

Technical properties

- Precise manufacturing of dental models and molds
- Ideal for thermoforming
- Parts can be washed with water



DM 2505
Lattice demonstrator

Image: © BASF

BASF ULTRACUR3D® DM 2505

Industries & applications

Dental Technology

Dental models and molds

BASF ULTRACUR3D® DM 2304

Flexible Dental Resin

Ultracur3D® DM 2304 by BASF Forward AM is a flexible resin specially developed for non-medical gingival masks in the dental field.

Components made from this resin are flexible and soft and are ideal for use in conjunction with dental models printed with Ultracur3D® DM 2505.

Components made of this material are available in pink.

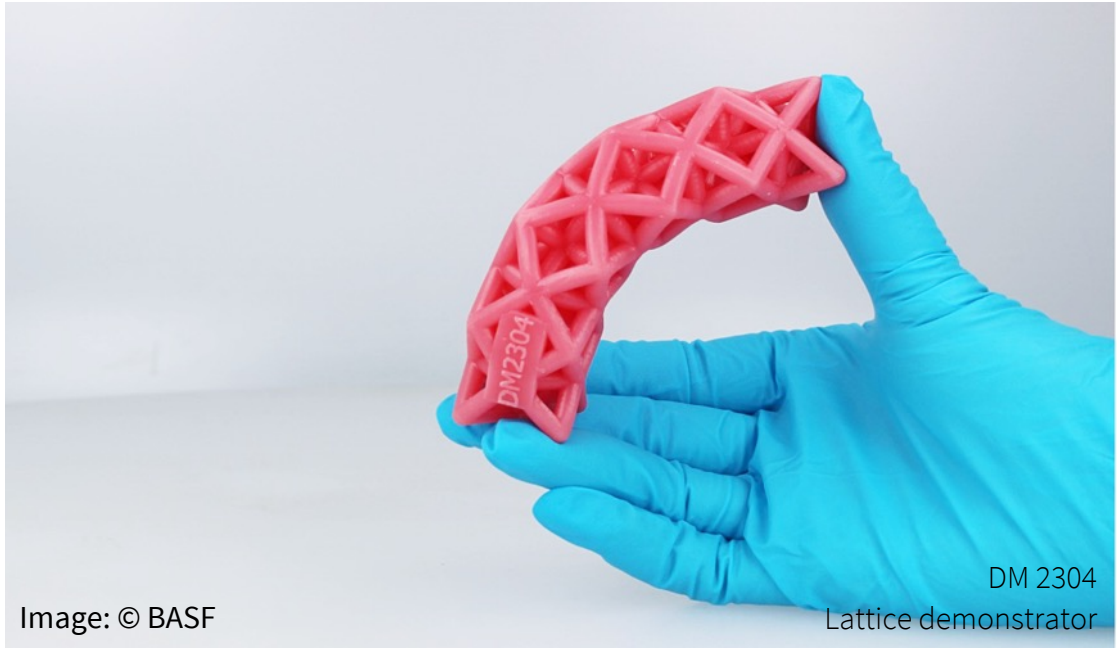
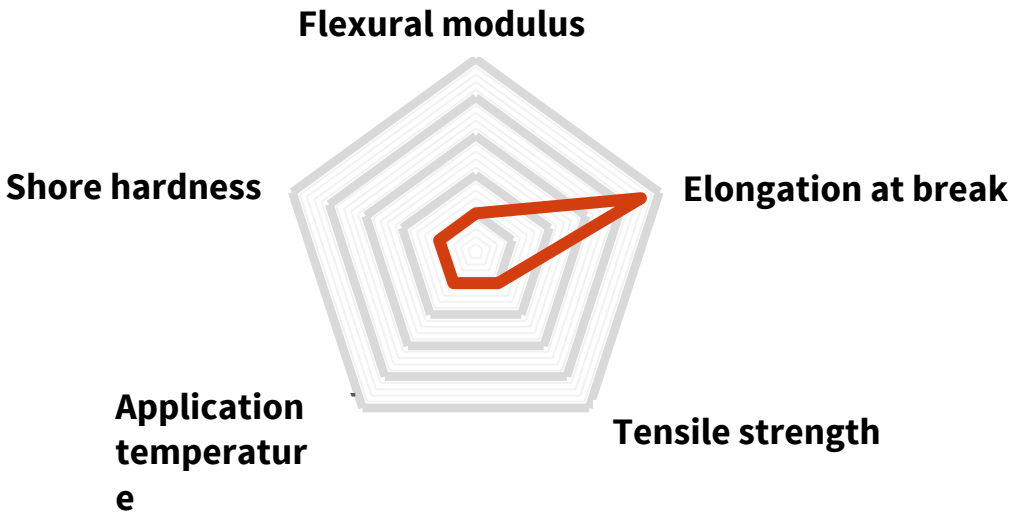


Image: © BASF

DM 2304
Lattice demonstrator

Technical properties

- Optimized for producing gingiva masks in connection with 3D printed dental models
- Highly flexible



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DM 2304 gingiva mask on dental model (DM 2505)

Image: © BASF

BASF ULTRACUR3D® DM 2304

Industries & applications

Dental Technology

Gingiva mask

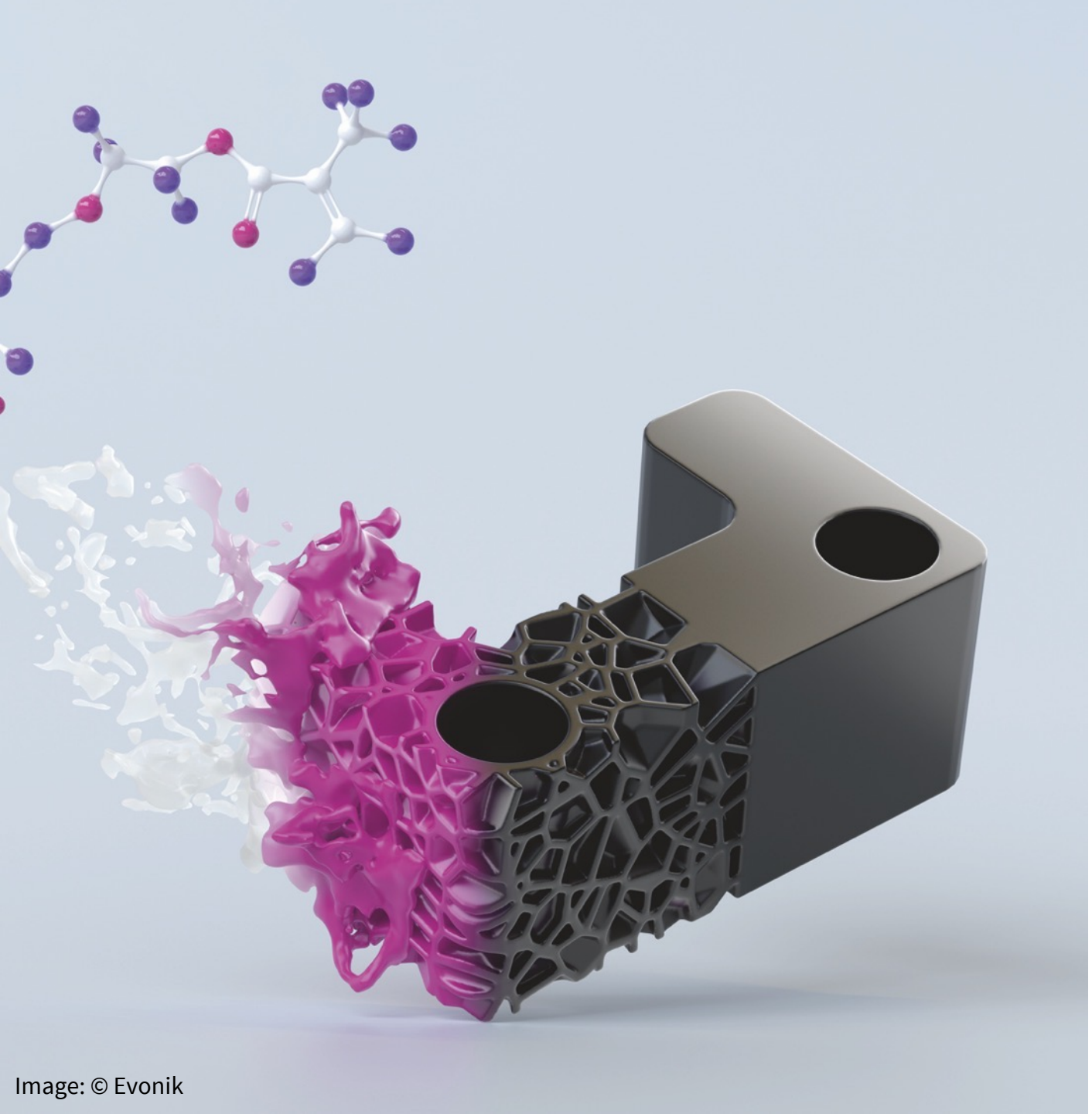


Image: © Evonik

DLP

Evonik INFINAM®

INFINAM®
An Evonik product.

DREIGEIST
Additive Intelligence.

MATERIAL CHARACTERISTICS

DLP Evonik INFINAM®

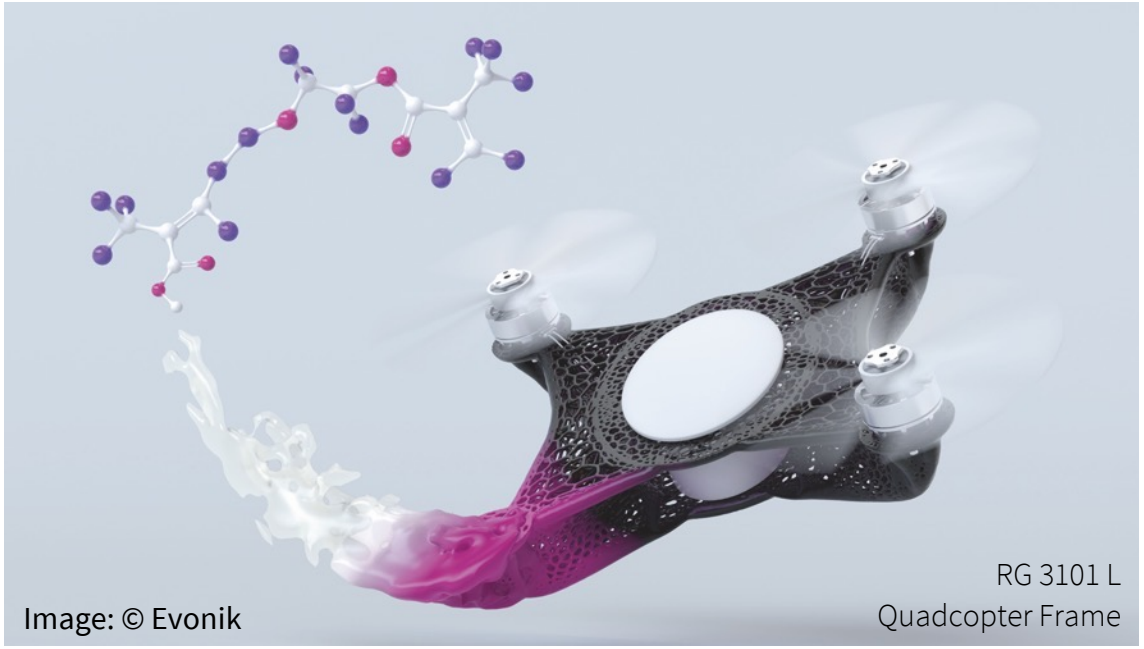
	Mechanical values						Other values	
	Young's Modulus [MPa]	Tensile strength [MPa]	Elongation at break [%]	Flexural modulus [MPa]	Notch impact strength Izod, [J/m]	Shore hardness	HDT at 0,45 MPa [°C]	Moisture absorption (24 hours) [%]
RG 3101 L	2100	52	32	2100	45	D 80	79	-
ST 6100 L	3200	89	6	3400	22	D 89	120	0,3
TI 5400 L	1500	40	210	1080	27	D 80	56	5,4

→ ST 6100 L is also processable in SLA – contact us!

Evonik INFINAM® RG 3101 L

Rigid Resin

Evonik's INFINAM® RG 3101 L is a specialty resin for processing by DLP.
The ready-to-use material combines outstanding impact resistance with high temperature resistance and excellent mechanical properties.
3D components printed from RG 3101 L can be machined and remain fracture-resistant even when subjected to strong forces.



Technical properties

- Well-balanced tensile properties
- High hardness
- High temperature resistance
- Machinable
- Superior impact strength

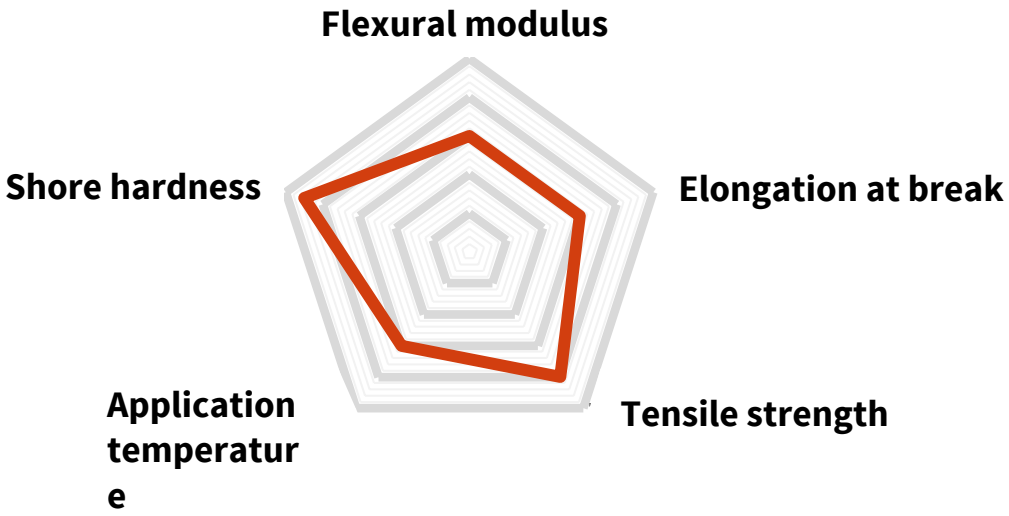


Image: © Evonik

Evonik INFINAM® RG 3101 L

Industries & applications

Automotive

Connectors and housings

Mechanical Engineering

Housings, mounts and complex construction parts

Aerospace

Drone technology

Evonik INFINAM® ST 6100 L

High strength resin for DLP and SLA!

INFINAM® ST 6100 L fills the material gap in ultra-high-strength photopolymers thanks to its high tensile strength, flexural stress and heat resistance.

It can be processed in DLP and also in SLA.

These properties make the resin the material of choice for applications requiring high temperature resistance combined with high mechanical strength.

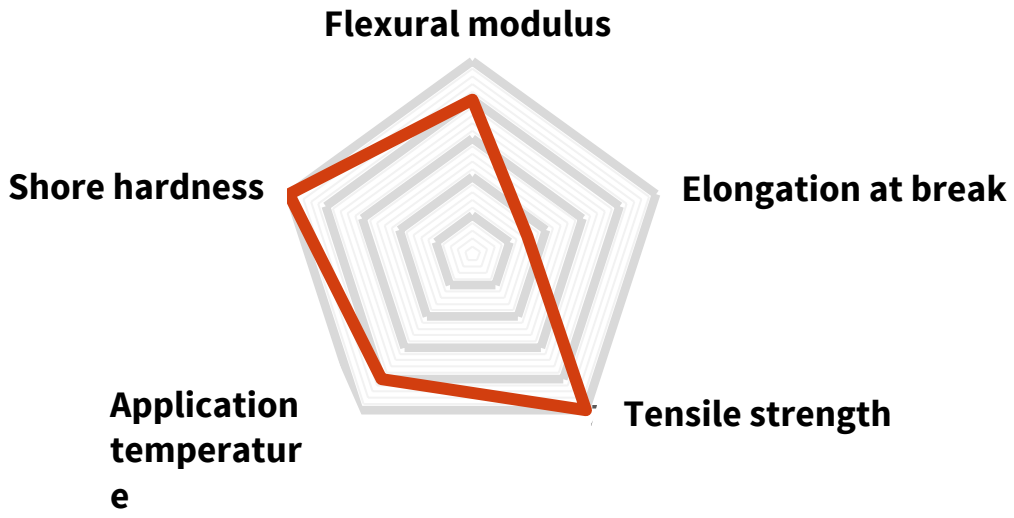
The material is comparable to standard injection molding materials such as glass-filled PA 6.

Image: © DREIGEIST

ST 6100 Tool (right) and resulting CFRP part (left) via autoclave production

Technical properties

- High strength
- Machinable
- High temperature resistance
- High precision
- Easy handling and processing



DREIGEIST
Additive Intelligence.

Image: © Evonik

Evonik INFINAM® ST 6100 L

Industries & applications

Automotive

Connectors and housings

Mechanical Engineering

Housings, mounts and complex construction parts

Tooling / Molding

Tools for e.g. Injection molding, autoclave production technology etc.

Evonik INFINAM® TI 5400 L

PVC-like resin

With the formulation of INFINAM® TI 5400 L, Evonik is responding to customer requests for a PVC-like resin for the growing market of limited designer toys.

The white-colored material is ideal for objects with a high level of detail and excellent surface quality that are virtually indistinguishable from comparable injection-molded components.

Image: © Evonik

Technical properties

- Great impact resistance
- High elongation at break
- Long-term thermomechanic properties

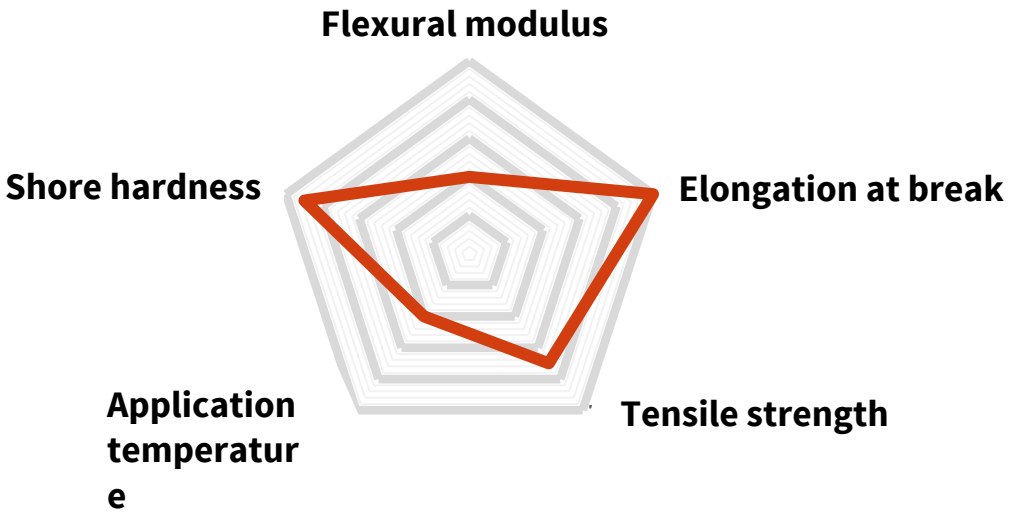


Image: © ETEC

DLP

ETEC – a proud #TeamDM brand

ETEC

DREIGEIST
Additive Intelligence.

MATERIAL CHARACTERISTICS

DLP ETEC

	Mechanical values							Other values		
	Young's Modulus [MPa]	Tensile strength [MPa]	Elongation at break [%]	Flexural modulus [MPa]	Notch impact strength Charpy (u) [kJ/m²]	Shore hardness	Glass transition temperature [°C]	HDT at 0,45 MPa [°C]	Moisture absorption	Biocompatibility
HTM 140 V2	-	56	3,5	3350	-	-	-	140	-	-
R5 Gray	-	49,7	5,24	1960	-	D89	120-150	84,5-102,6	-	-
E - Shell 200 Series	2400	57,8	6	2300	-	-	109	-	0,12 %	✓
E - Clear Series	2150-3250	40-48	2-4	1200-1500	-	D 82-85	-	-	-	-
E - Shell 500	-	-	60	-	-	A 87	-	-	-	✓
E - Shell 600	-	51,6	6,62	1920	-	D 85	86-160	-	-	✓

HTM 140 V2

Rigid Resin

ETEC's HTM140 V2 high-temperature molding material has a heat deflection temperature of 140 °C.

The material is designed to withstand both heat and pressure when the model is vulcanized in rubber, with high detail and no loss of dimensional stability.

It can be used in a variety of applications that require thermal resistance, such as items that are metalized or tested for gas and liquid applications. Another area of use is in the manufacture of molds for low-volume injection molding.

Components made of this material are available in dark green.

HTM 140 V2
Miniature car

Technical properties

- High temperature resistance
- High stiffness
- Usable for vulcanization

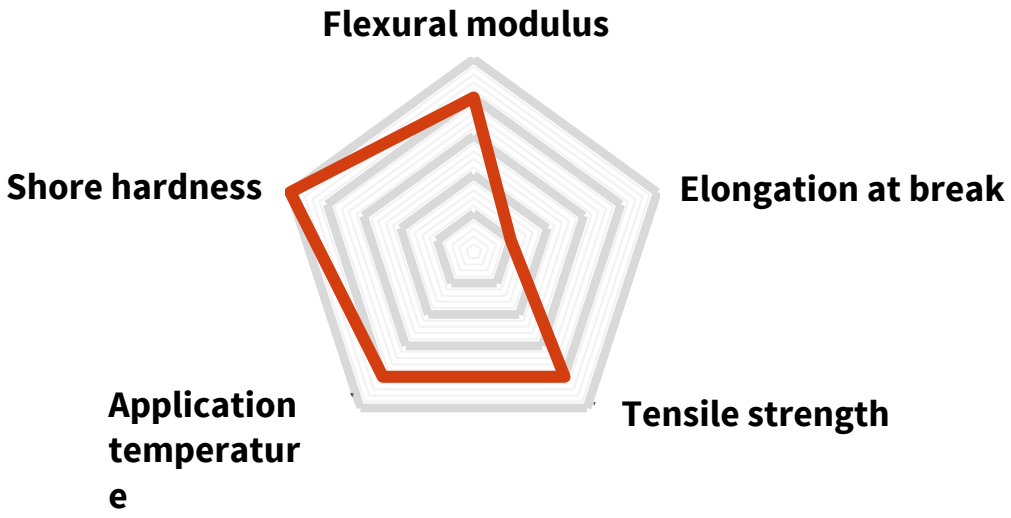


Image: © DREIGEIST

HTM 140 V2
Cooling jacket

HTM 140 V2

Industries & applications

Automotive

Connectors and housings, high-temperature parts

Mechanical Engineering

Temperature-resistant robust parts

Tooling

Injection molding tools

R5 GRAY

Functional Resin - durable

R5 Gray by ETEC is a precise and functional resin for the production of robust and durable parts.

It is an acrylic with a wide processing latitude used to produce parts with high-quality surfaces. Parts exhibit high fatigue strength and excellent tolerance to a wide range of temperatures and humidity.

R5 Gray is ideal for making master patterns in molded rubber part applications and is suitable for electrical housings, medical products, snap-fit joints and automotive applications.

Components made from this material are available in gray.

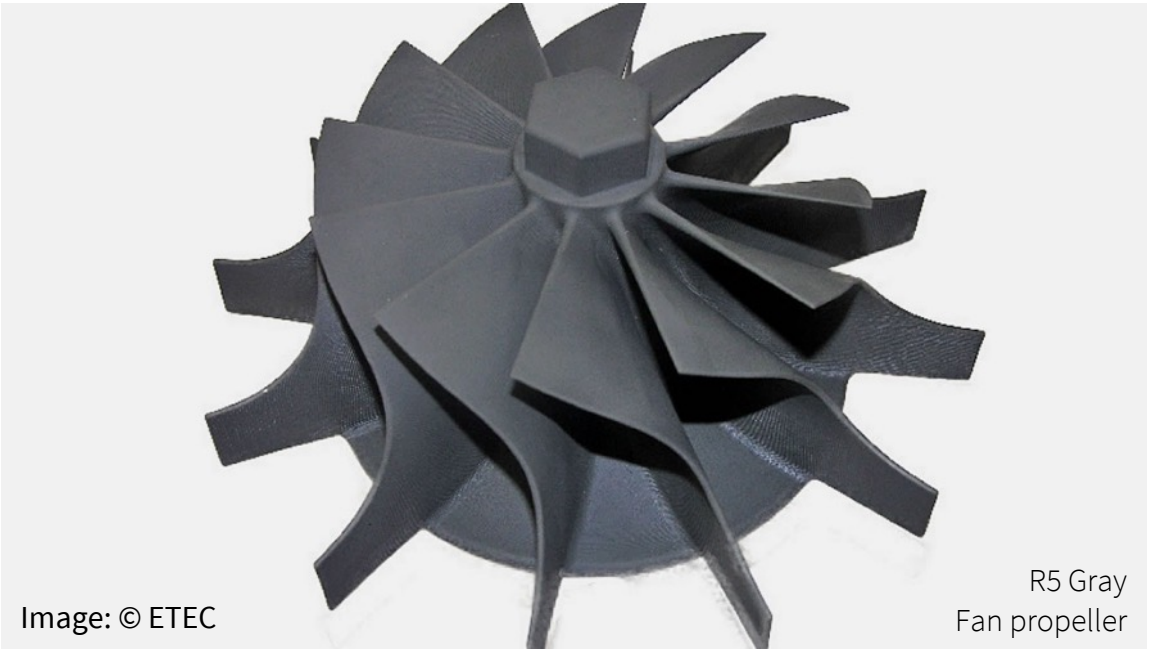
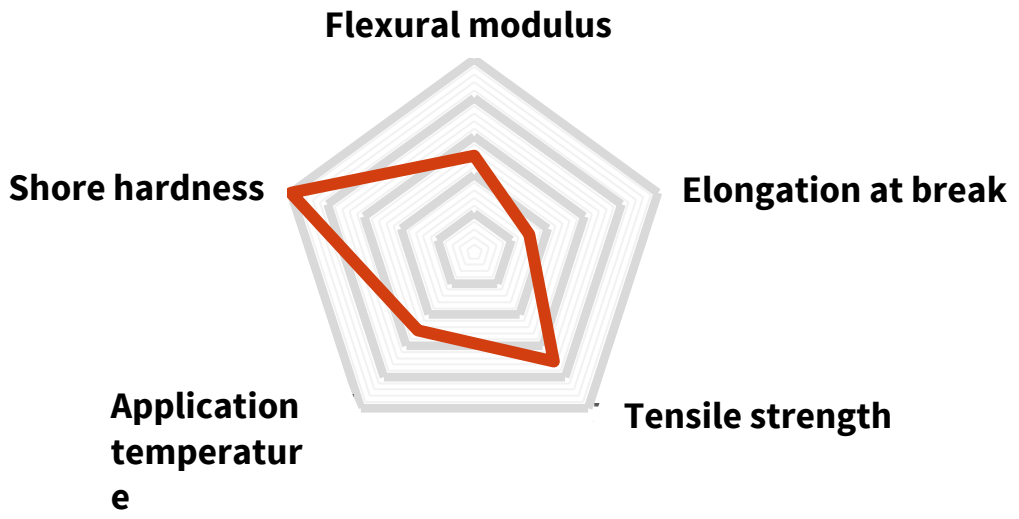


Image: © ETEC

R5 Gray
Fan propeller

Technical properties

- Good mechanical properties
- Durability
- High temperature resistance
- Humidity resistance
- High surface quality



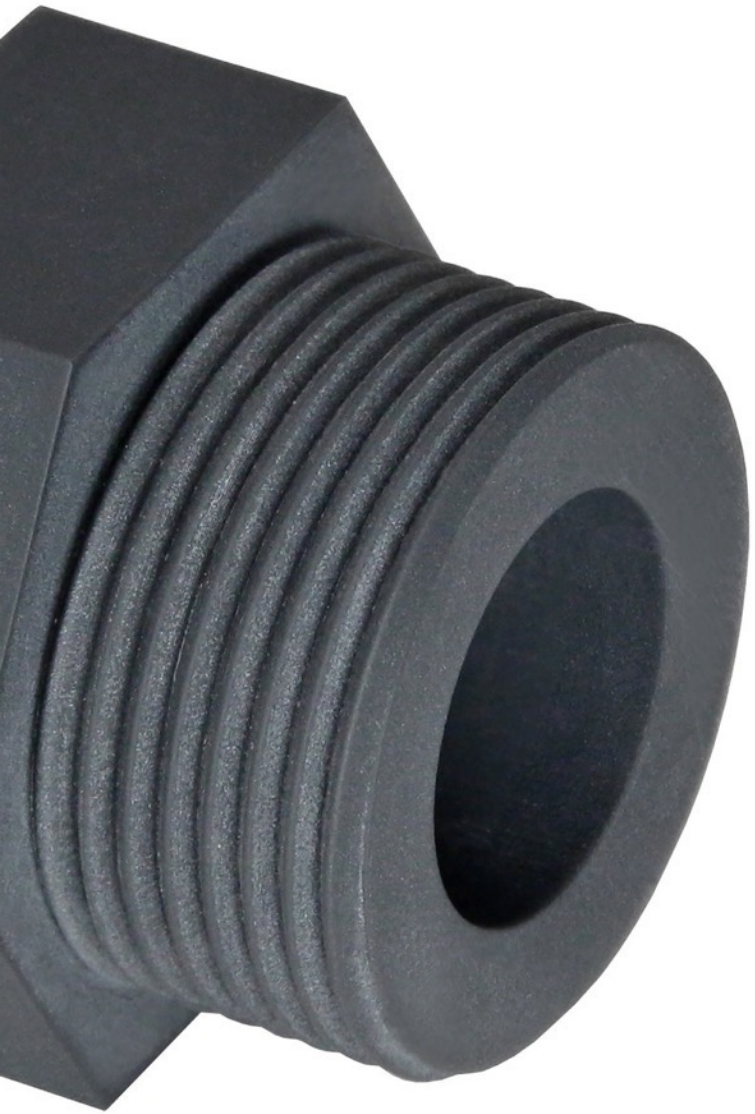


Image: © ETEC

R5 Gray
Screw thread

R5 GRAY

Industries & applications

Automotive

Connectors and housings

Electronics

Housings, mounts and complex construction parts

Aerospace

Small components, complex geometries

E - SHELL 200 SERIES

Resin for Design Applications

ETEC's E-Shell 200 is a low viscosity liquid photopolymer that is processed into strong, tough and water-resistant components.

The material's high level of detail makes it suitable for manufacturing hearing aids, earmolds or medical devices, among other applications.

The E-Shell 200 series is available in a variety of opaque skin tone colors and can be customized as needed. Due to their opaque appearance, E-Shell 200 Series resins can also be used for non-medical applications.

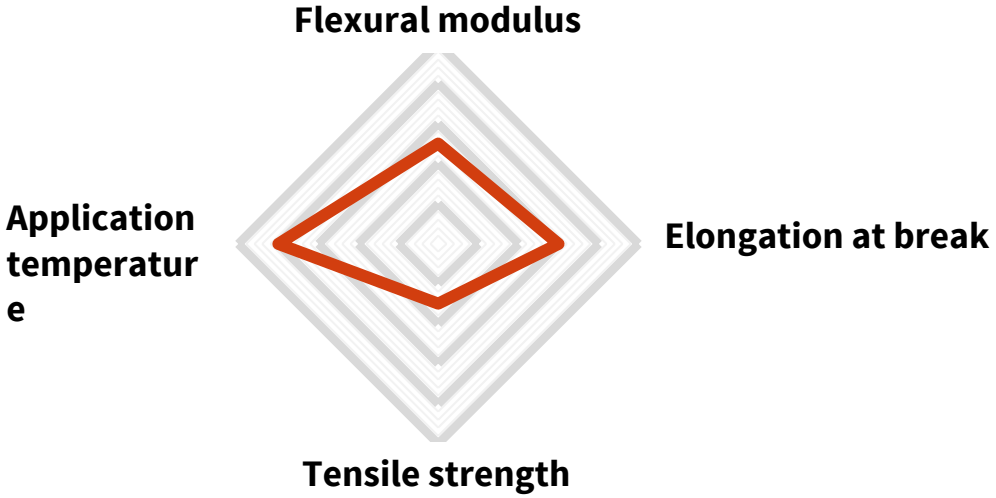
Components made from this material are available in a variety of skin tones.

Image: © ETEC

E-Shell 200
Hearing aid housing

Technical properties

- Biocompatible
- Water-resistant
- High resolutions possible
- Precise fitting



E - SHELL 200

Industries & applications

Medical Technology

Models and molds

Hearing Aid Technology

Hearing aids, ear molds

Certifications

✓ ISO 10993 Biocompatible

Image: © ETEC

E-Shell 200
Hearing aid housing

E - SHELL 450 | E - CLEAR

Resin for Design Applications

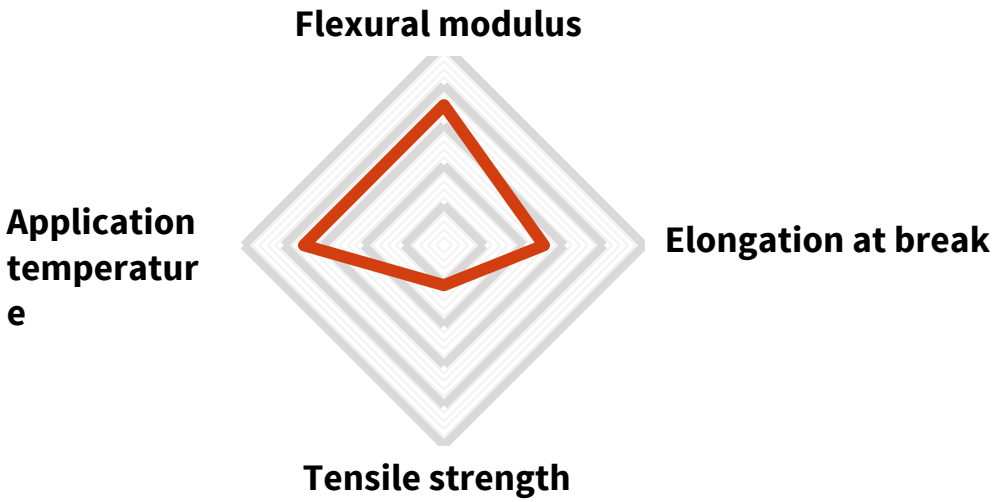
ETEC's E-Shell 450 (E-Clear) is a liquid photopolymer that can be used to produce strong, tough and water-resistant parts.
It is especially suitable for applications in the hearing aid industry, which are characterized by their durability.
In addition to their water resistance, parts are also sweat resistant.

Image: © ETEC

E-Shell 450
Hearing aid

Technical properties

- Biocompatible
- Water-resistant
- RTV sample
- Durable parts



DREIGEIST
Additive Intelligence.

Image: © ETEC

E-Shell 450

E - SHELL 450 | E - CLEAR

Industries & applications

Medical Technology

Models and molds, can be used in humid environments

Hearing Aid Technology

Hearing aids

Certifications

✓ ISO 10993 Biocompatible

E - SHELL 500

Resin for Design Applications

ETEC's E-Shell 500 series was developed specifically for applications in the hearing aid industry and is characterized by its elasticity and excellent durability. The material is a liquid, photoreactive acrylate for the production of functional components. It is CE certified and biocompatible according to risk class IIa of ISO 10993 (Medical Device Regulation).

This material is particularly suitable for soft earmolds of otoplastics. The materials of the E-Shell 500 series are robust, water and sweat resistant.

It is available in clear or opaque pink.

E – Shell 500
Image: © ETEC Hearing aid housing

Technical properties

- Biocompatible
- Water-resistant
- Durable parts
- Soft material

E – Shell 500
Hearing aid housing

Image: © ETEC

E - SHELL 500

Industries & applications

Medical Technology

Models and molds

Hearing Aid Technology

Hearing aids

Certifications

- ✓ ISO 10993 Biocompatible (for certain applications)

E - SHELL 600

Resin for Design Applications

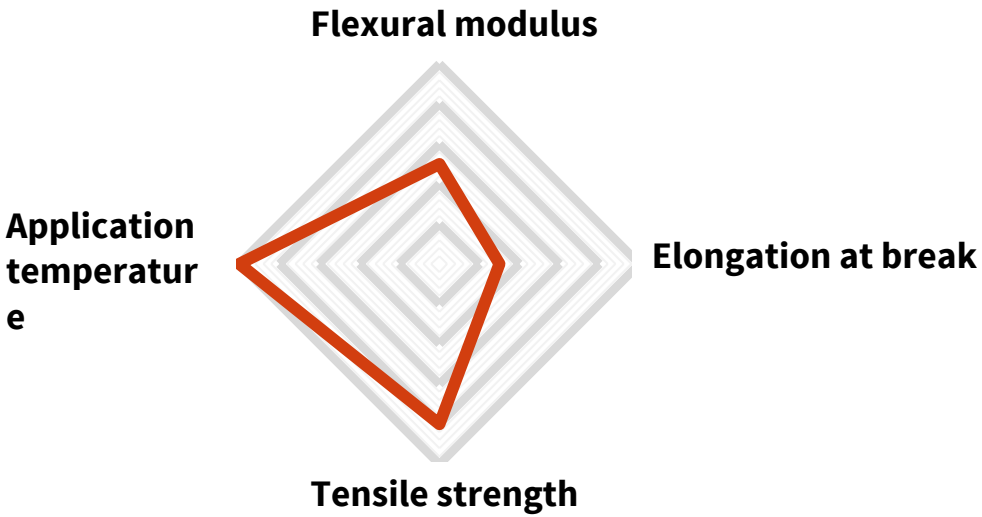
ETEC's E-Shell 600 is specifically designed for hearing aid applications and shows an extraordinarily high transparency. It is CE certified and biocompatible according to Class IIa of ISO 10993 (Medical Device Regulation) for robust, water and sweat resistant hearing and dental applications.
Components made of this material are transparent.

Image: © ETEC

E – Shell 600
Hearing aid housing

Technical properties

- Biocompatible
- Water-resistant
- RTV sample
- Durable parts



E – Shell 600
Structure benchmark

E - SHELL 600

Industries & applications

Medical Technology

Models and molds

Hearing Aid Technology

Hearing aids

Certifications

- ✓ ISO 10993 Biocompatible (for certain applications)

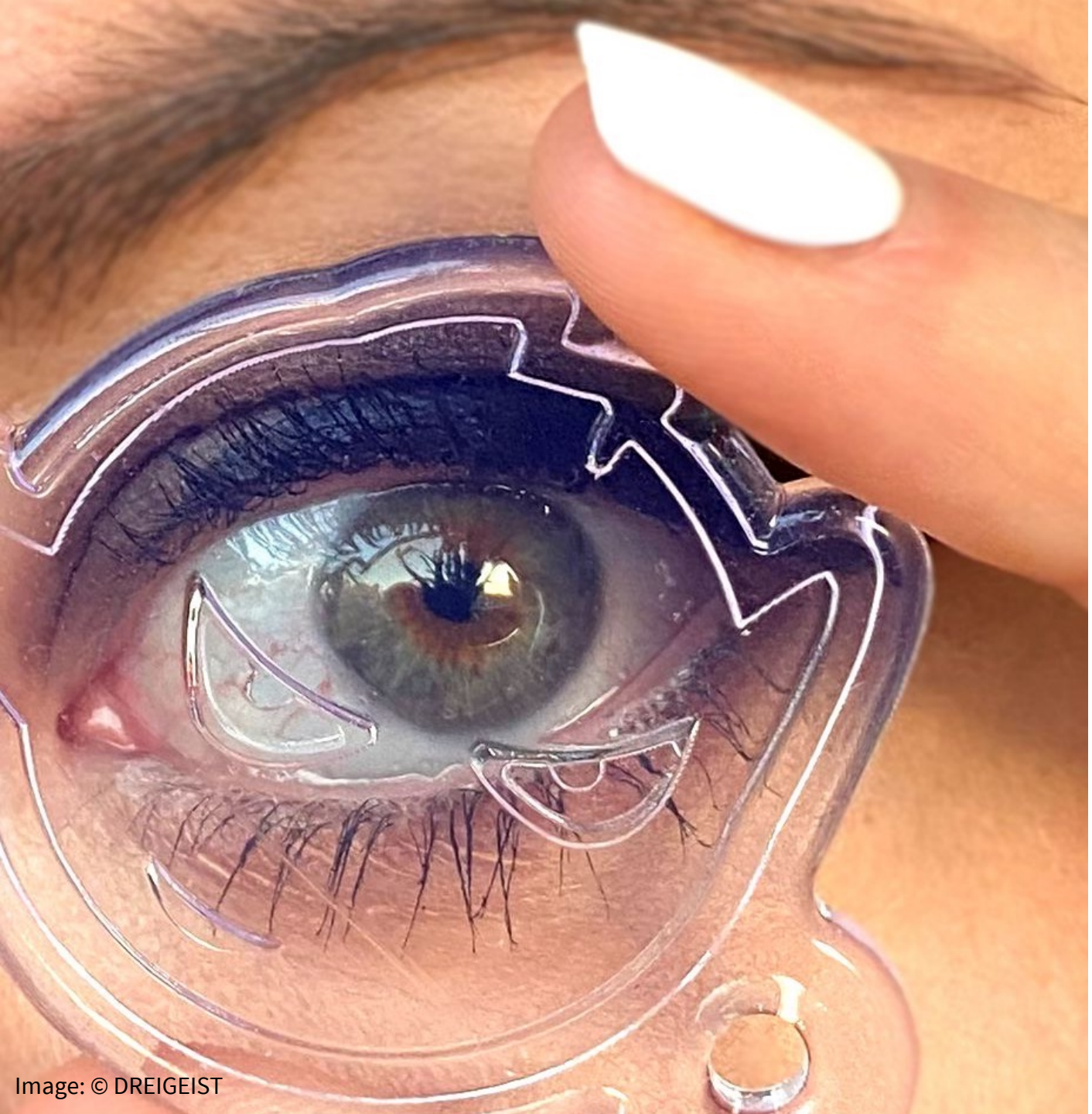


Image: © DREIGEIST

DLP

Formlabs

MATERIALKENNWERTE

DLP Formlabs Standard Resin

	Mechanical properties						Other properties	
	Young's Modulus [MPa]	Tensile strength [MPa]	Elongation at break [%]	Flexural modulus [MPa]	Notch impact strength Izod [J/m]	Shore hardness	HDT at 0,45 MPa [°C]	Moisture absorption (24 hours) [%]
Clear	2800	65	6	2200	25	-	73	< 1

Please note: The characteristic values listed here are comparable for all Formlabs standard resins. The values were taken from the Formlabs material database and were determined by the manufacturer for test specimens produced on Formlabs machines and thus in the proprietary LFS process. The characteristic values may deviate in components manufactured in the DLP process.

Formlabs Clear

Transparent Resin

Formlabs' Clear Resin was developed for Formlabs' proprietary *Low-Force Stereolithography* 3D printing technology, but can also be processed wonderfully on DLP machines with a suitable wavelength (405 nm).

With suitable printing and post-processing parameters, the special feature is the complete, pore-free transparency and smooth surface of the components.

This makes the clear resin very suitable for medical applications, optics, fluidics, etc.

Technical properties

- Fully transparent
- High surface quality
- High level of detail

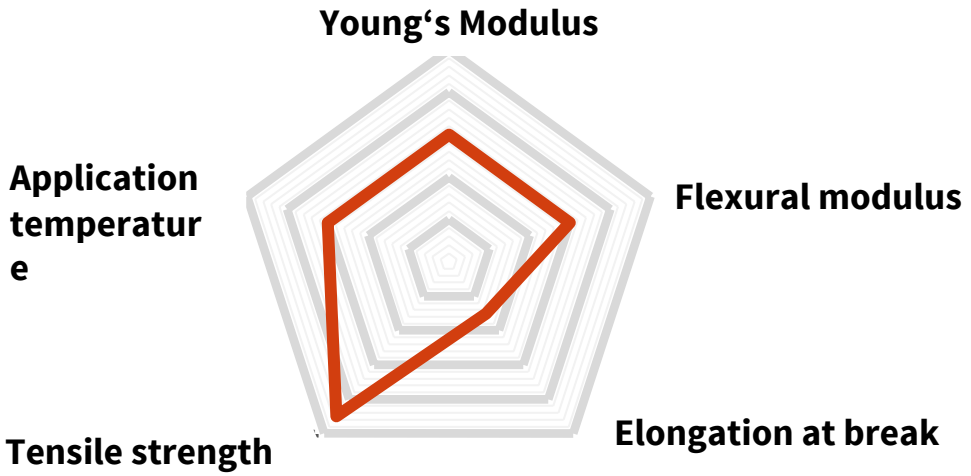


Image: © DREIGEIST Formlabs Clear Resin

Formlabs Clear Resin

Industries & applications

Medical Technology

Models
Medical accessories
Diagnostics

Mechanical Engineering

Housings, mounts, fluidics, optics, molds

Automation Engineering

Connectors and housings

Projection Micro Stereolithography

Image: © DREIGEIST

PµSL

Projection Micro Stereolithographie

BMF BOSTON MICRO FABRICATION

DREIGEIST Additive Intelligence.

AVAILABLE PRINTERS PµSL

BMF microArch S140

Image: © BMF

Build volume	Resolution	Wall thickness	Drill hole diameter
94 x 52 x 45 mm	5 µm Z direction	≥ 80 µm one contact surface	≥ 100 µm vertical
	10 µm XY direction	≥ 60 µm two contact surfaces	≥ 80 µm horizontal

MATERIAL CHARACTERISTICS

PµSL

	Mechanical properties				Other properties			Certifications		
	Young's Modulus [MPa]	Tensile strength [MPa]	Elongation at break [%]	Shore hardness	HDT at 0,45 MPa [°C]	Moisture absorption [%]	Dielectric constant [10 GHz]	In vitro toxicity [ISO 10993-5: 2009]	Pyrogen test [ISO 10993-11: 2017]	Skin irritation test [ISO 10993-10: 2010; -2: 2006]
BMF HTL	2397	71,5	7,8	D 81	114,2	1,05	3,45	-	-	-
BMF HEK	2000	53,8	14,4	D 78	51,5	2,28	3,3	-	-	-
BMF RG	1765	60,4	11,7	D 77	56,5	0,77	2,94	✓	✓	✓

BMF HTL

PµSL Resin

HTL is a high performance engineering material with high strength, stiffness and heat resistance that can withstand temperatures up to 114 °C.

HTL enables the display of high-resolution features and is ideally suited for a wide range of technical and medical applications, including those requiring autoclave sterilization.

Components made from this material are available in yellow-transparent and black.

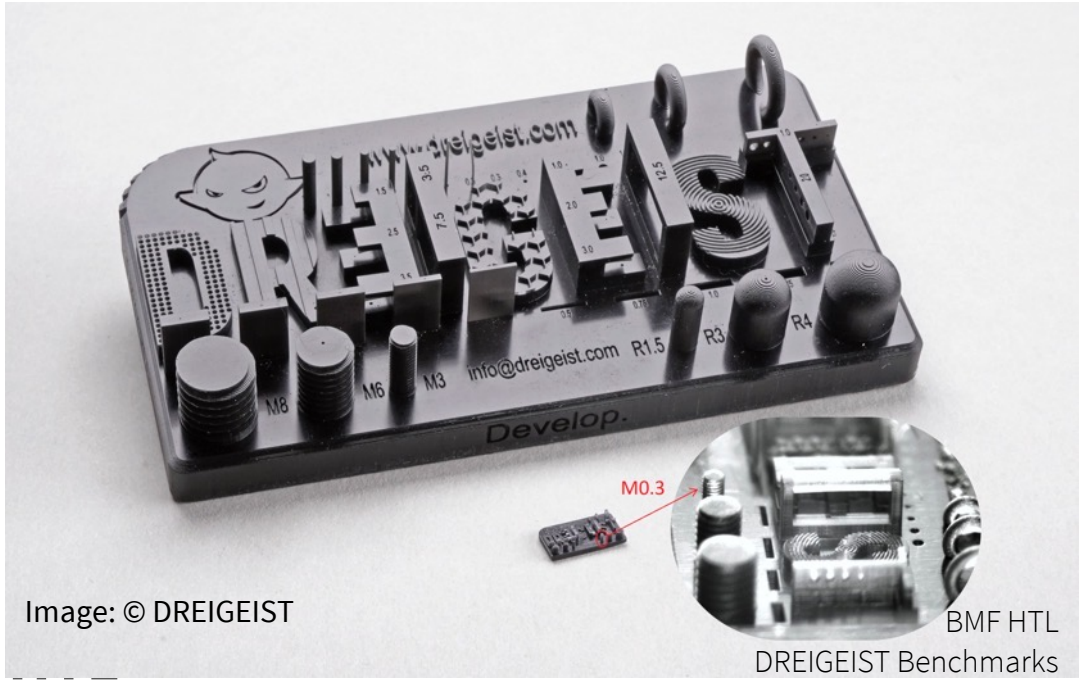
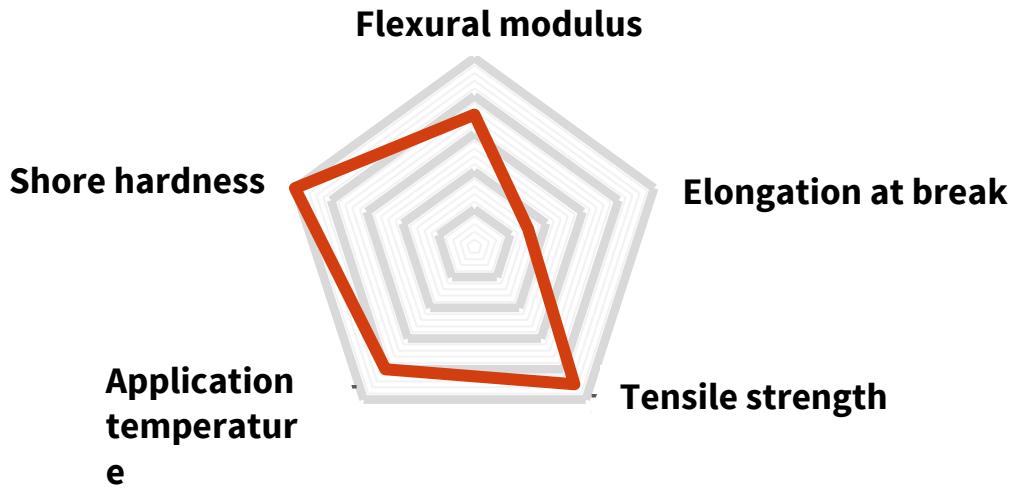


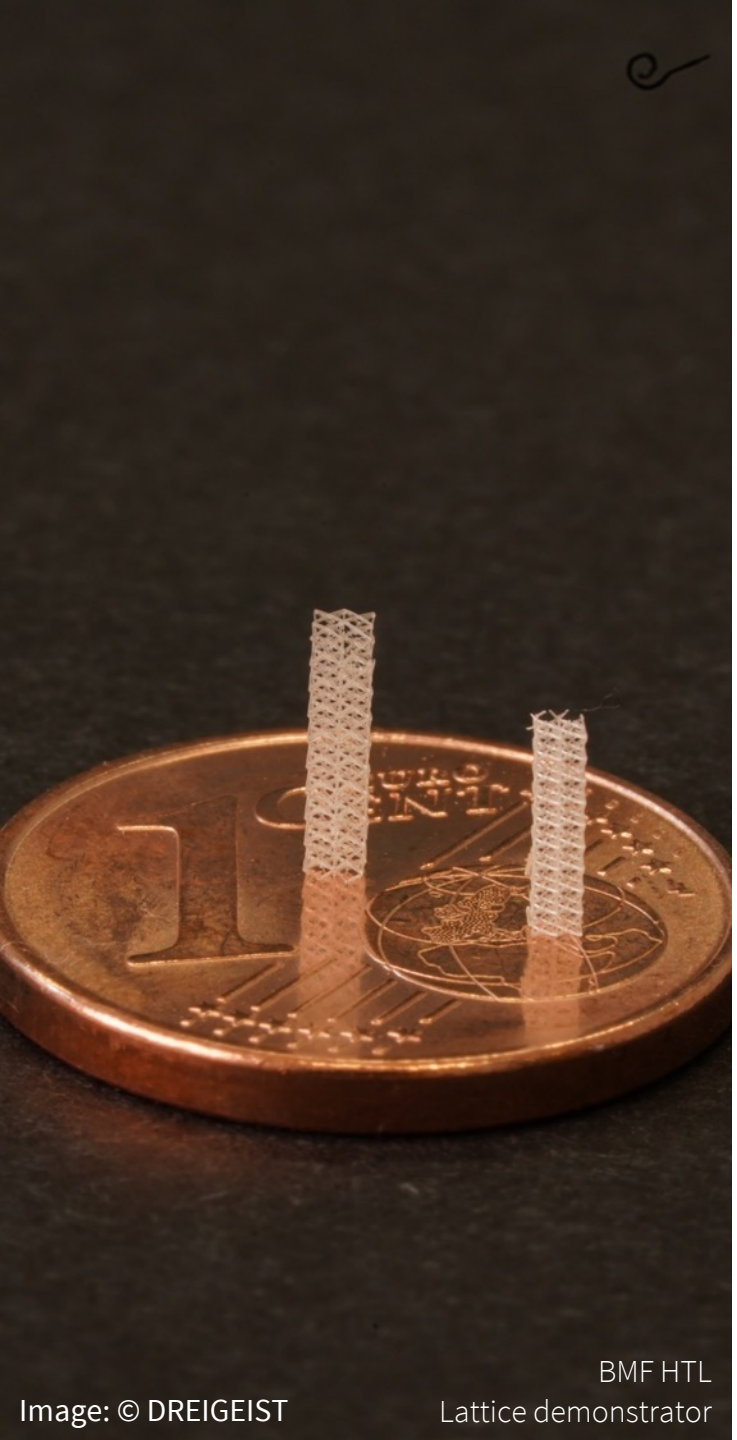
Image: © DREIGEIST

BMF HTL
DREIGEIST Benchmarks

Technical properties

- High stiffness
- High strength
- High temperature resistance (up to 114 °C)
- Sterilization via autoclave possible
- Process size up to 50 µm





BMF HTL
Lattice demonstrator

Image: © DREIGEIST

BMF - HTL

Industries & applications

Electronics

Inserts for small electrical parts,
sensor housing

Mechanical Engineering

Micro gears
Small construction parts
Microfluidics

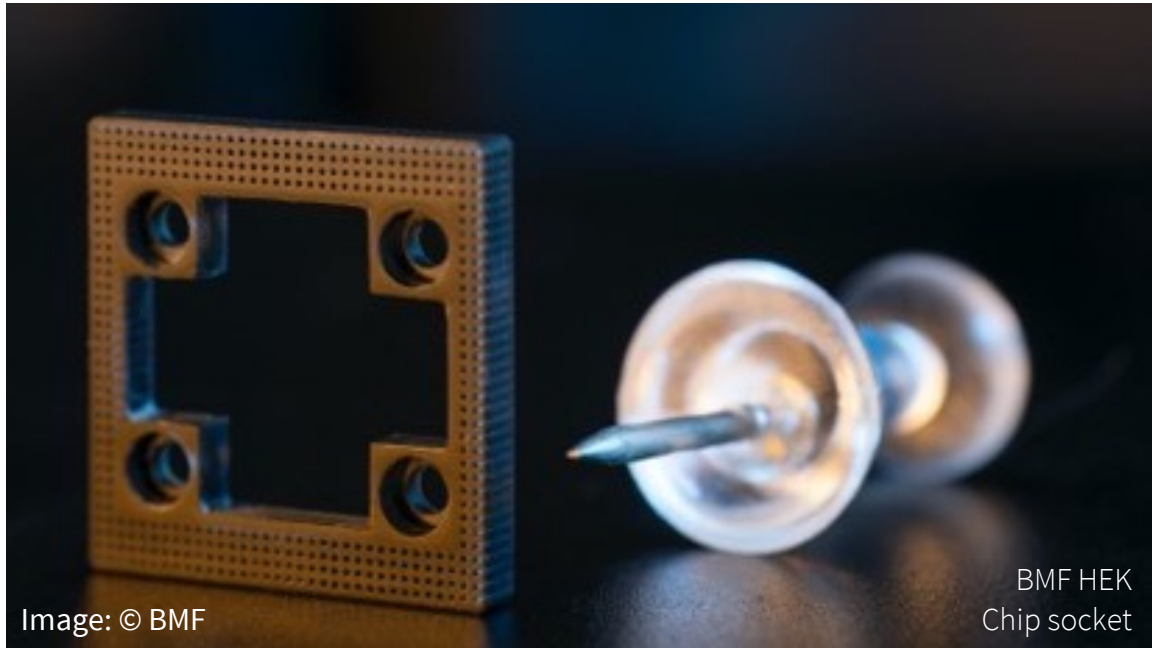
Automation Engineering

Micro gears, inserts, plates

BMF HEK

PµSL Resin

HEK is a stiff, tough material with a good combination of strength and elongation.
It is well suited for use in mechanical parts in the µm range.
Components made of this material are available in yellow-transparent and black.



Technical properties

- High stiffness
- High hardness
- Increased elongation at break
- Min. drill hole size > 80 µm

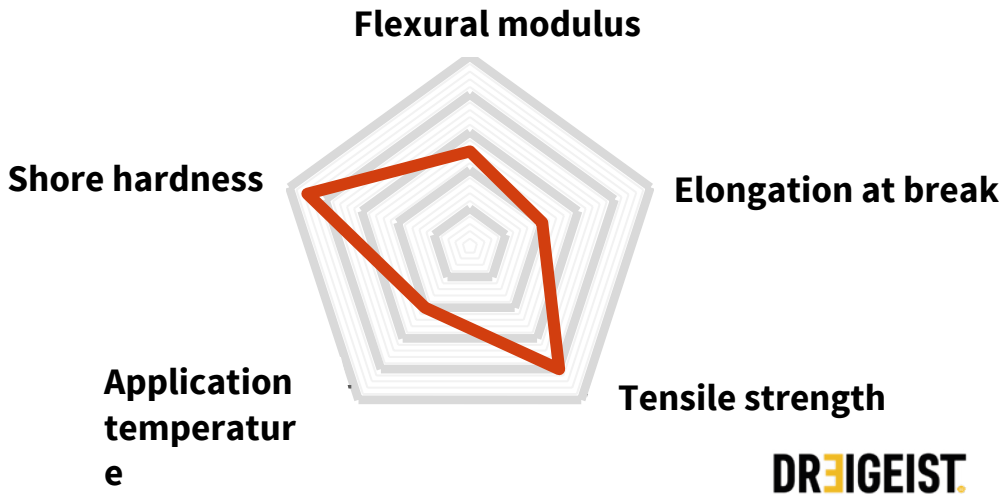


Image: © DREIGEIST

BMF HEK
Geometry demonstrator

BMF HEK

Industries & applications

Electronics

Inserts for small electrical parts,
sensor holders

Mechanical Engineering

Micro gears,
small construction parts,
increased toughness

Automation Engineering

Micro gears, inserts, plug connections

BMF RG

PµSL Resin - biocompatible

RG from BASF Forward AM's Ultracur3D® photopolymer product line is a durable engineering material that can be used for printing functional end-use parts.

Its key feature is that it absorbs very little water and is suitable for a variety of applications such as electrical housings, closures and functional prototyping. In addition, the material is biocompatible.

Components made from this material are available in yellow-transparent and black.

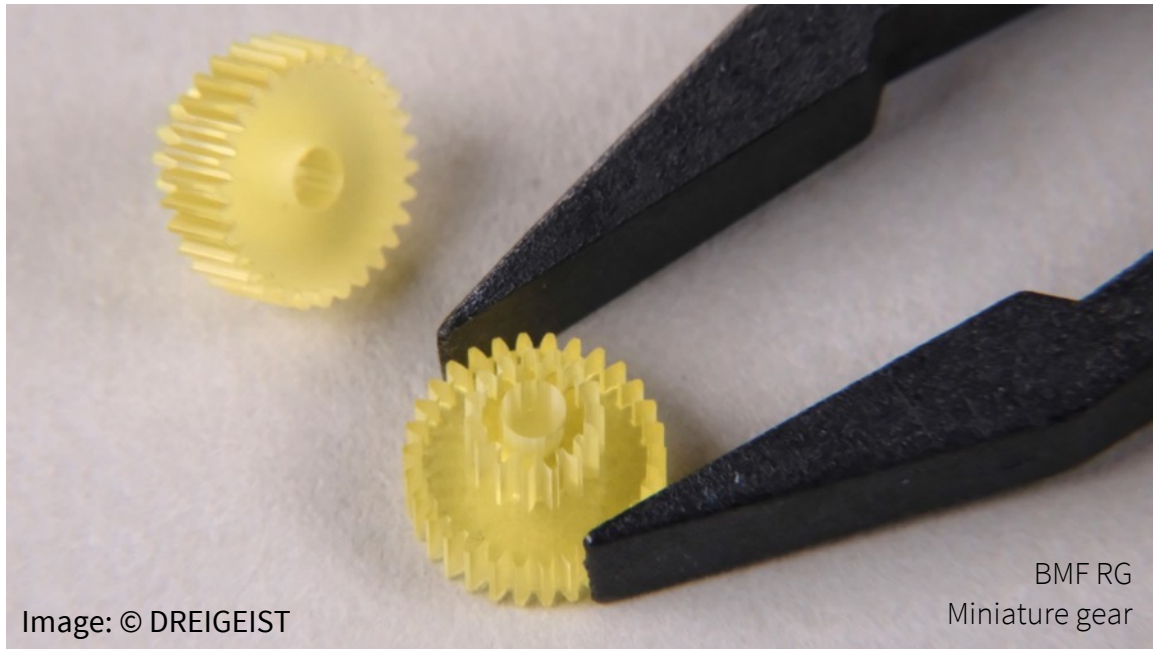
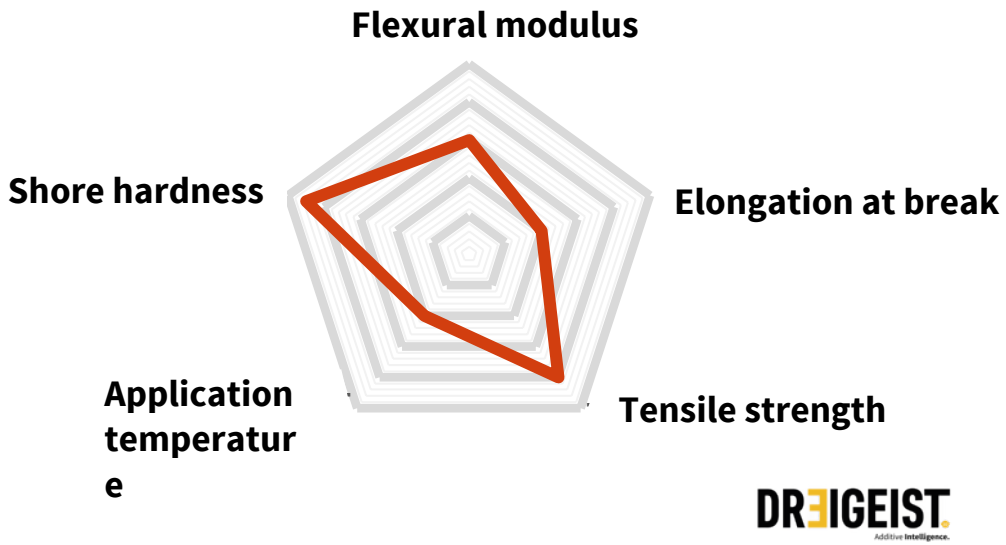


Image: © DREIGEIST

BMF RG
Miniature gear

Technical properties

- Good mechanical properties
- Increased elongation at break
- Biocompatible
- Low water absorption



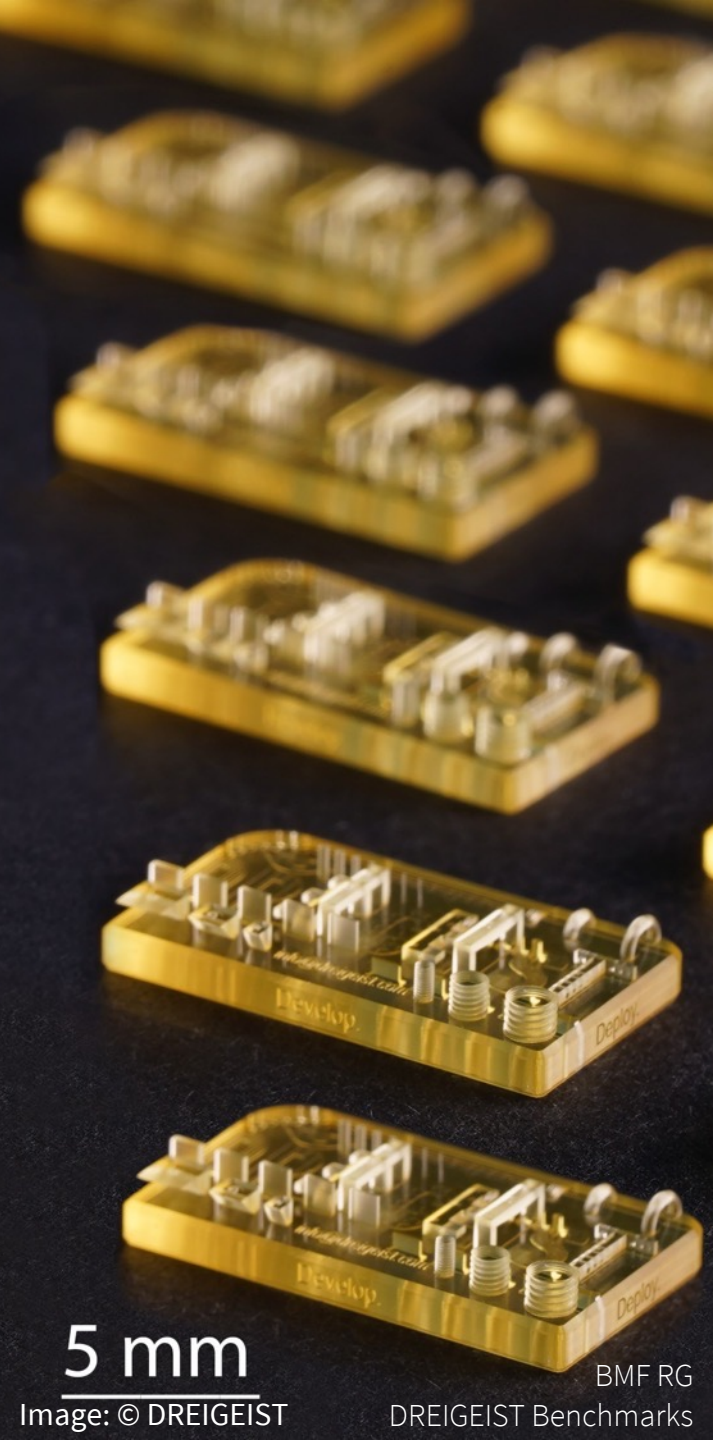


Image: © DREIGEIST

BMF RG
DREIGEIST Benchmarks

BMF RG

Industries & applications

Electronics

Inserts for small electrical parts

Medical Technology

Biocompatible small parts, biocompatible mechanically loadable parts and connections

Automation Engineering

Micro gears, inserts, mechanically loadable parts and connections

Certifications

- ✓ ISO 10993-5: 2009 In-vitro Toxicity
- ✓ ISO 10993-11: 2017 Pyrogen Test
- ✓ ISO 10993-10: 2010; -2: 2006 Skin irritation test

Stereolithography

AVAILABLE PRINTERS SLA

UnionTech Pilot 250

Build volume	Resolution	Minimum wall thickness	Drill hole diameter
250 x 250 x 250 mm	50 µm – 250 µm Z direction	≥ 500 µm one contact surface	≥ 300 µm vertical
	60 µm – 200 µm XY direction	≥ 400 µm two contact surfaces	≥ 300 µm horizontal

Image: © UnionTech

Image: © DREIGEIST

SLA

Stratasys

Somos®

DREIGEIST
Additive Intelligence.

MATERIAL CHARACTERISTICS

SLA Resins Stratasys

	Mechanical properties *						Thermal properties *				Other *	
	Young's Modulus [MPa]	Tensile strength [MPa]	Elongation at break [%]	Flexural modulus [MPa]	Notch impact strength Izod [J/m]	Shore hardness	Glass transition Tg [°C]	HDT at 0,46 MPa [°C]	CTE at 50 – 100 °C [µm/m°C]	CTE at 100 – 150 °C [µm/m°C]	Moisture absorption [%]	Dielectric constant at 60 Hz
Somos® Taurus	2206	49,0	17	1724	35,8	D 83	54	91	157,5	173,4	0,7	4,8
Somos® PerFORM Reflect	9653	72,4	0,96	7722	20	D 94	94	276	50,5	87,4	0,14	4,22

* After UV and thermal post-curing

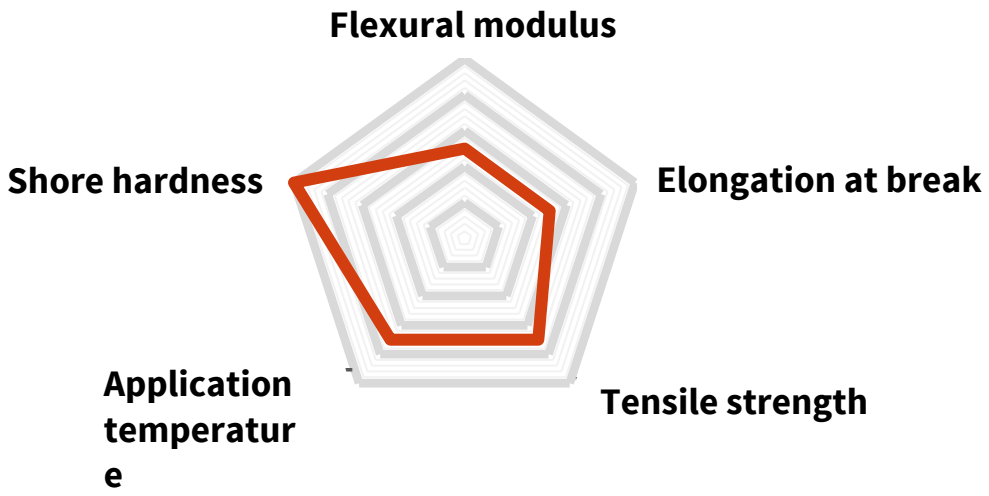
SOMOS® TAURUS

Resin for Design Applications

Somos® Taurus offers a combination of thermal and mechanical robustness not previously possible with stereolithography materials. Its excellent mechanical properties combined with an anthracite appearance make it ideal for the most demanding functional prototyping and end-use applications.
Parts printed with this material are easy to clean and wear well. The high heat deflection temperature of Somos® Taurus allows it to be used for a wide range of applications.
Components made from this material are available in anthracite.

Technical properties

- High mechanical properties
- Broad applicability
- High part precision
- High surface quality
- Temperature resistance up to 90 °C



Somos Taurus
Sensor mounts

Image: © DREIGEIST

SOMOS® TAURUS

Industries & applications

Automotive

Panels and housings

Mechanical Engineering

End-Use parts and serial production

Electronics

Molds, mounts and housings

SOMOS® PERFORM REFLECT

Ceramic-filled high-performance resin

Somos® PerFORM Reflect is a stereolithography material specially developed for 3D printing components for wind tunnel testing with PIV.

It enables faster aerodynamic design optimization – in motorsport and beyond. Based on the industry-leading Somos® PerFORM, this latest addition to the family produces strong, rigid, high-temperature composite parts that are also ideal for injection molds.

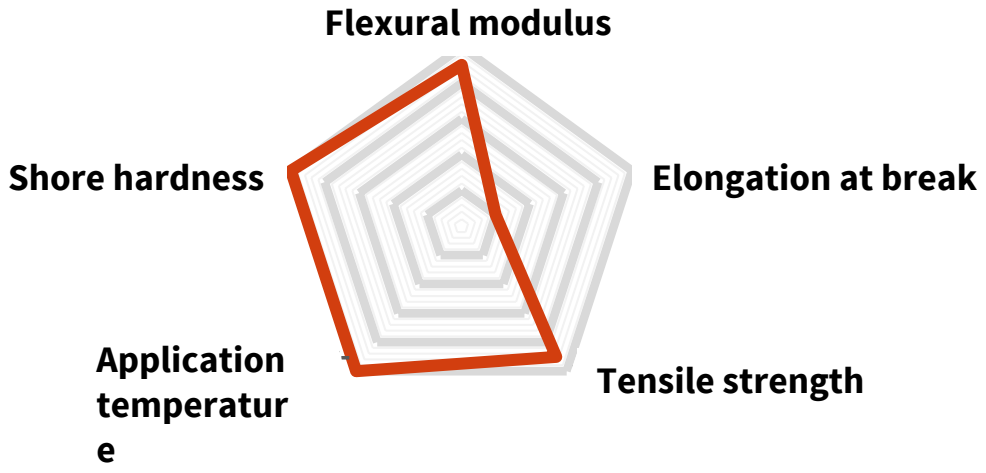
Components made from this material are available in orange.

Image: © DREIGEIST

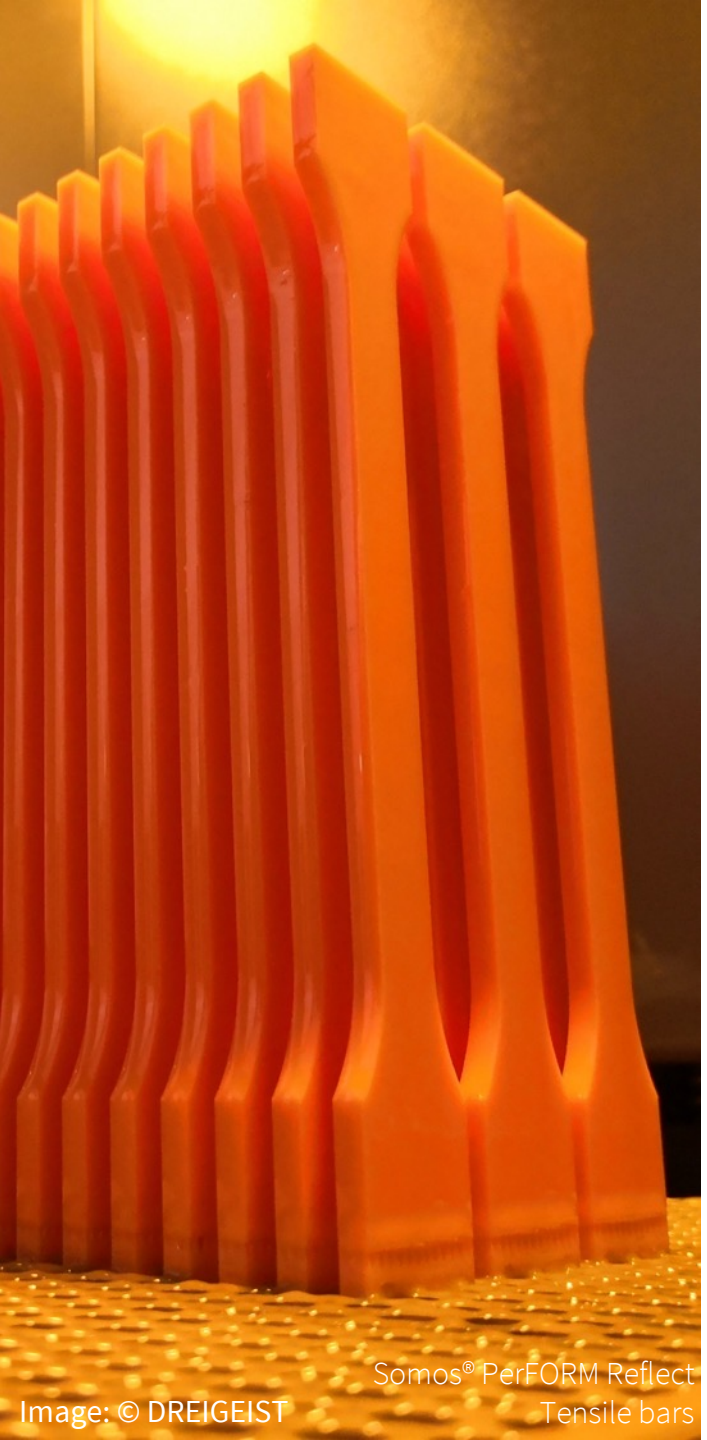
Somos® PerFORM Reflect
Injection molding tool

Technical properties

- Highest details printable
- Particle Imaging Velocimetry (PIV) applicaple
- High temperature resistance
- High surface quality



DREIGEIST
Additive Intelligence.



Somos® PerFORM Reflect
Tensile bars

Image: © DREIGEIST

SOMOS® PERFORM REFLECT

Industries & applications

Automotive

Housing, brackets,
Components with increased load

Aerospace

Wind tunnel tests – optimization of aerodynamic design

Tooling

Injection molding tools

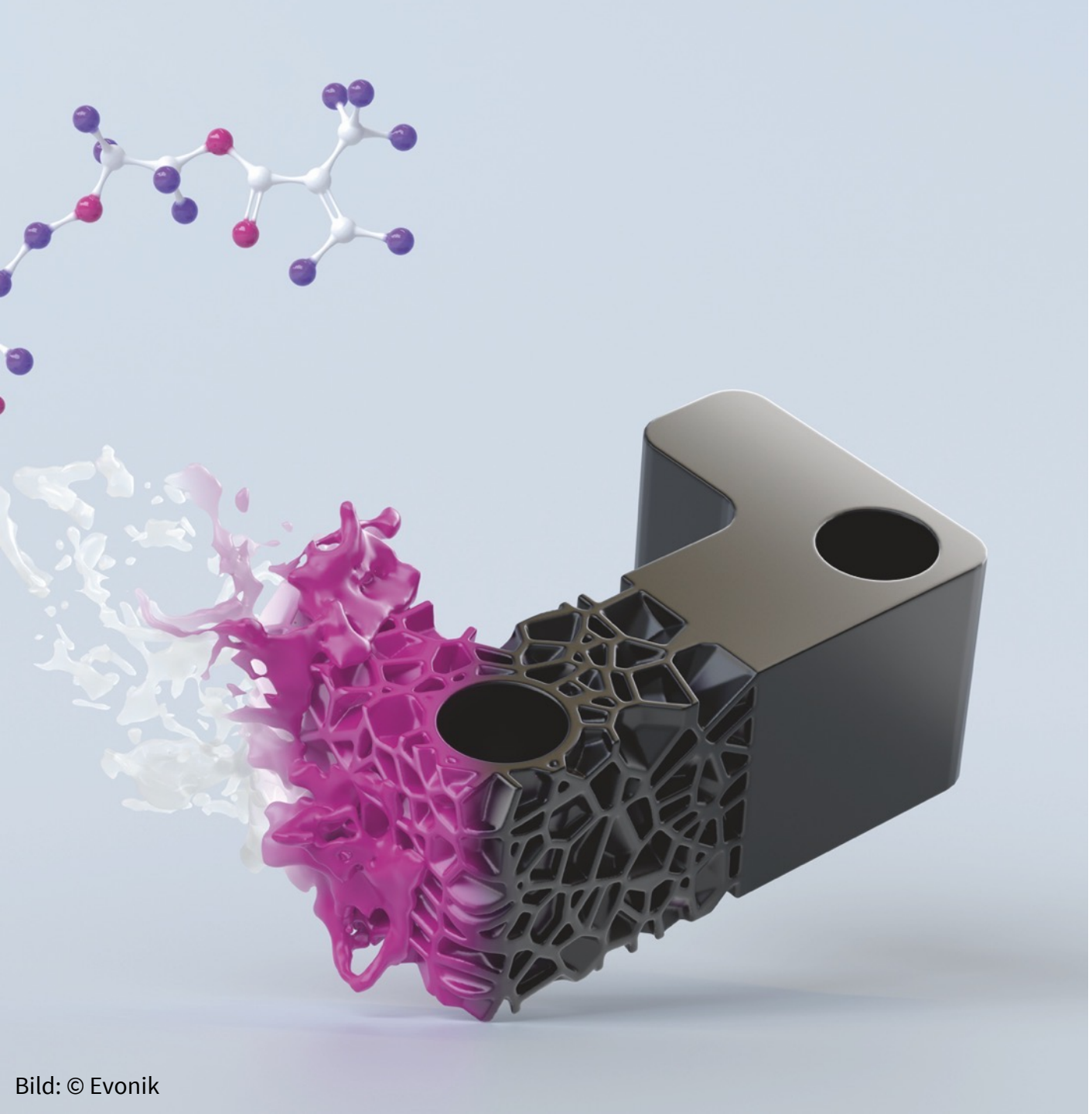


Bild: © Evonik

SLA

Evonik INFINAM®

INFINAM®
An Evonik product.

DREIGEIST
Additive Intelligence.

MATERIAL CHARACTERISTICS

SLA Evonik INFINAM®

	Mechanical values						Other values	
	Young's Modulus [MPa]	Tensile strength [MPa]	Elongation at break [%]	Flexural modulus [MPa]	Notch impact strength Izod, [J/m]	Shore hardness	HDT at 0,45 MPa [°C]	Moisture absorption (24 hours) [%]
ST 6100 L	3200	89	6	3400	22	D 89	120	0,3

Please note: The characteristic values listed here are taken from the Evonik data sheet and were determined by the manufacturer for test specimens printed via DLP.
The characteristic values may deviate in components manufactured in the SLA process.

Evonik INFINAM® ST 6100 L

High strength resin for DLP and SLA!

INFINAM® ST 6100 L fills the material gap in ultra-high-strength photopolymers thanks to its high tensile strength, flexural stress and heat resistance.

It can be processed in DLP and also in SLA.

These properties make the resin the material of choice for applications requiring high temperature resistance combined with high mechanical strength.

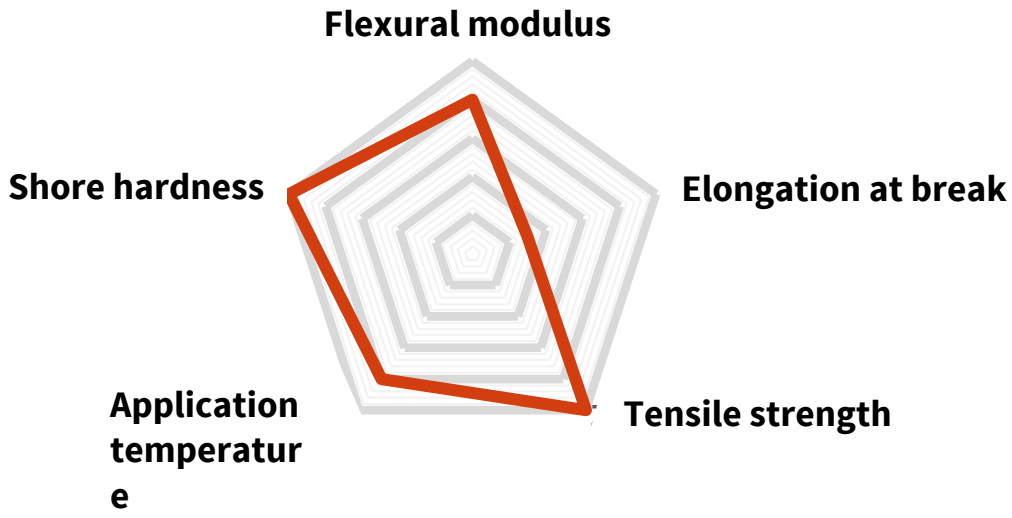
The material is comparable to standard injection molding materials such as glass-filled PA 6.

Image: © DREIGEIST

ST 6100 Tool (right) and resulting CFRP part (left) via autoclave production

Technical properties

- High strength
- Machinable
- High temperature resistance
- High precision
- Easy handling and processing



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Additive Intelligence.

Image: © Evonik

Evonik INFINAM® ST 6100 L

Industries & applications

Automotive

Connectors and housings

Mechanical Engineering

Housings, mounts and complex construction parts

Tooling / Molding

Tools for e.g. Injection molding, autoclave production technology etc.

DISCLAIMER

The information and recommendations contained in this material portfolio are based on manufacturer specifications as well as the knowledge and experience of DREIGEIST Additive Intelligence oHG (DREIGEIST). However, DREIGEIST gives no express or implied warranty or guarantee that any production results described in this document will be achieved under the conditions of the end application or purpose. In addition, there is no warranty/guarantee that the customer's design or application is suitable in terms of performance or product safety for the 3D printing technologies, 3D printing materials, DREIGEIST services or recommendations presented by DREIGEIST.
DREIGEIST assumes no responsibility for any (monetary) losses resulting from the use of the materials, 3D printing technologies, DREIGEIST services or recommendations presented in this material portfolio.
Each customer is responsible for determining the suitability of the 3D printing technologies, 3D printing materials, DREIGEIST services or recommendations for its application or intended use. The appropriate use of the 3D printing technologies, 3D printing materials, DREIGEIST services or recommendations in the final application can be verified, for example, by simulations, tests or analyses on the customer's side.
To generate this material portfolio, the material characteristic values from the technical material data sheets of the manufacturers were used. DREIGEIST does not guarantee that these values are up-to-date or correct. The material properties may deviate from the tabulated values, e. g. due to the process parameters of the 3D printer or the coloring / additivation of the material.
This material portfolio is expressly for information and comparison purposes only.
Mandatory tolerances or measurement protocols to be created must be defined before the start of the project, whereby the nominal value must be centered. Tolerance specifications on attached 2D drawings for production processes such as plastic injection molding or metal die casting are not relevant. The general tolerances for linear dimensions according to DIN ISO 2768-1 apply.
Please ask us for more detailed information if you are interested.
Stand: 11/2023

CONTACT

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HELLO WORLD.

Do you have questions about our products and services?
Would you like personal advice or a price quote?
Our 3D printing experts are ready to help you with words and deeds.

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