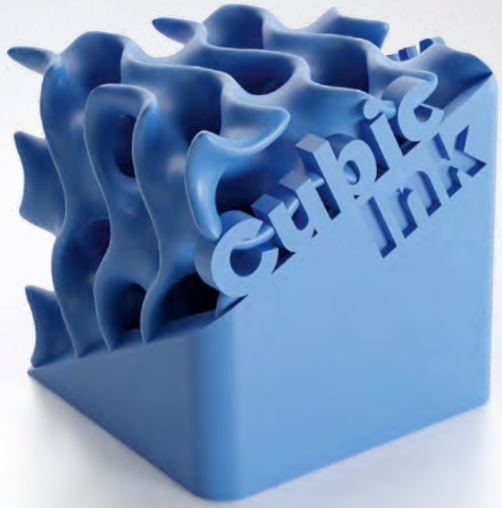
ALTANA

We give shape to ideas®

ALTANA Cubic Ink® High Performance Materials
suitable for DLP, LCD, SLA and Material Jetting



Release Date: October 2025

ALTANA
Global Leader in Specialty Chemicals

The ALTANA Group develops and manufactures high-quality, innovative specialty chemical products. ALTANA's four divisions – BYK, ECKART, ELANTAS, and ACTEGA – have set worldwide standards in their markets.

The Group offers innovative, environmentally compatible special solutions for coatings manufacturers, coatings and plastics processors, the printing and packaging industry, the cosmetics sector, and the electrical industry. The product range includes additives, special coatings and adhesives, effect pigments, sealants and potting compounds, impregnating agents as well as testing and measuring instruments. The four divisions of ALTANA each hold leading positions in their target markets in terms of quality, product solution competence, innovation and service. Our innovative products enable companies to develop future technologies today, technologies that make life easier, safer, and more comfortable.

The ALTANA Group is headquartered in Wesel on the Lower Rhine and has 68 production sites and 71 service and research laboratory sites worldwide. Across the Group, around 8,000 employees work for the global success of ALTANA. In 2024, the company achieved sales of around 3.2 billion euros. About 8 percent of this is invested in research and development each year. With a high profitability compared to the industry as a whole, ALTANA is one of the most innovative as well as fastest-growing and most profitable chemical companies in the world.

We are ALTANA

ALTANA Cubic Ink®
That's what defines us

Industrial AM Materials

Service

We give shape to ideas®

Fast and Agile

Material Portfolios
(DLP, LCD, SLA and Material Jetting)

Cubic Ink® Technologies
UV-curable Resins and Inks for various 3D Printing Technologies

Resins
DLP, LCD, mSLA

Vat Polymerization
- Easy-to-access and affordable
- Higher viscosities allow for big variety of material properties
- Light source dependency on materials' performance

Resins
SLA

Inks
(Multi-)Material Jetting

Inkjet
- Multimaterial capacity
- Multicolor capacity
- Very high precision

Cleaning Fluids

- Individual for each process
- No flamability

Cubic Ink® Applications
Thermoset Materials perform in various Industrial Applications

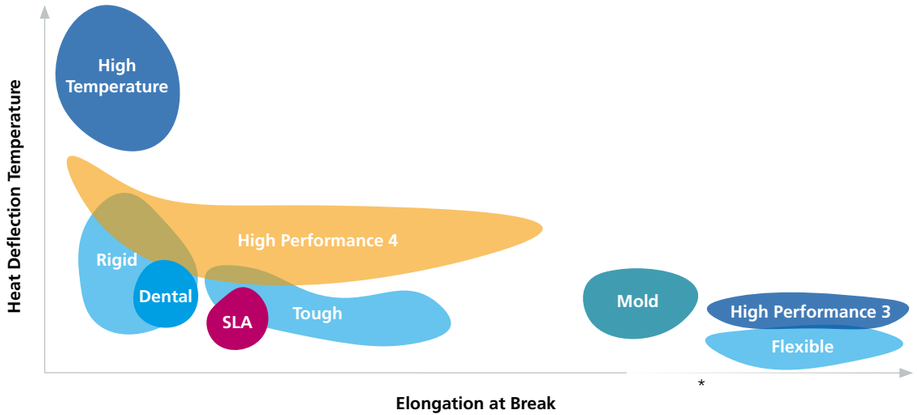
Fulfilling customers wishes, thinking ahead, or even exceeding customer requirements: With this aspiration, Cubic Ink® offers innovative 3D printing materials to perform in various industrial applications. We address industrial relevant properties and work with you on your process solutions.

Tooling
Machinery
Automotive
Connectors
Aerospace
Household
Optical Applications
Microfluidigs
Transpor-tations
Toys
Medical Applications
Audiology
Dental
Eyewear
Footwear

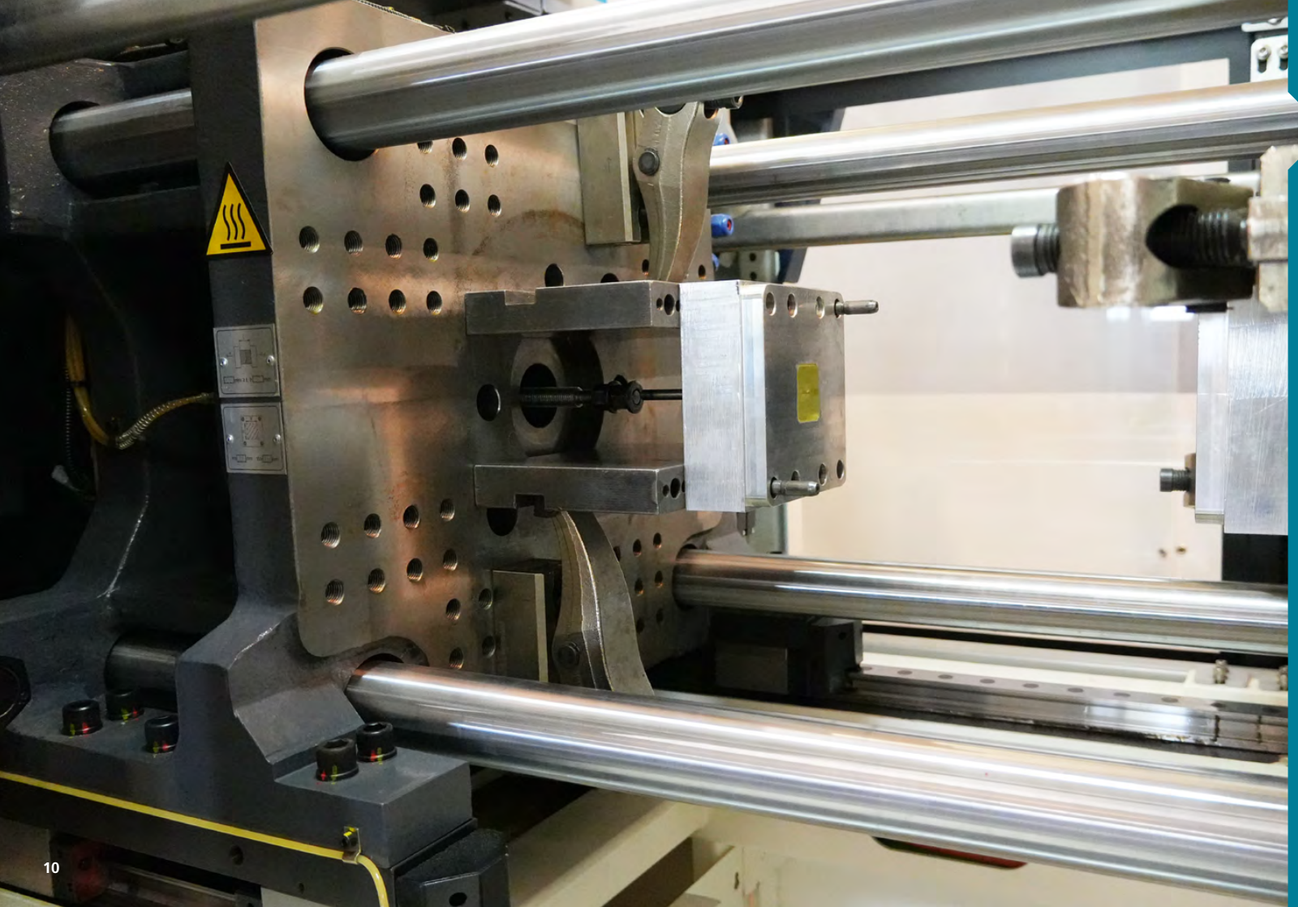
Your advantage
3D printing via photo-activation
- Fast and accurate
- Superior smooth surfaces
- Thermoset materials

Cubic Ink® Material Portfolio
Resins for DLP, LCD, mSLA and SLA

We are setting new standards for industrial 3D printing. Our resin portfolio spans from rigid, tough and flexible to transparent and high perfomance materials such as very high temperature and chemical resistance, impact strength, flame-retardancy, ESD-capability and true elasticity. Specialty tooling applications for casting and injection molding are met with our Mold materials.



*Axis is shortened for this representation



Resins for Molding and Tooling

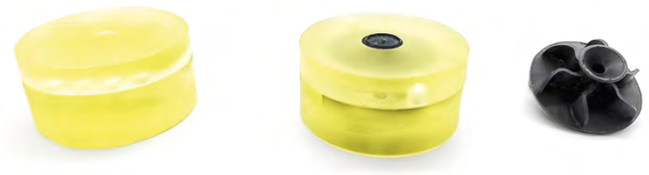
Materials for DLP, LCD and mSLA 3D Printing Technologies

Cubic Ink®
Mold 400 VP

Water-breakable cast materials for injection molding and cast applications – for the creation of real functional prototypes or design studies with the target material

The One-Shot-Mold (OSM) technology combines excellent compatibility of a 3D-printed mold with typical filling materials tolerating high temperature and pressure conditions as well as user-friendly removal resulting in automaizable short cycle times.

Its water-breakable character enables a complete breakup when exposed to water with minimal swelling. Thus, our material allows for complete design freedom of parts, including complex and fine structures.



Performance Indicators

Print Accuracy	Very Good
Min Wall Thickness (Mold)	200 µm
Max Temperature at Process	380 °C
Max Pressure at Process	1200 bar
Minimum Thickness Filling Material	100 µm
Swelling in Water	Minimal

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Uncolored, upon Request
Washing	IPA, Ethanol, Cleaner 400
Post-Processing	UV Post-Cure
Mold Removal	Water, Mold Remover 100

Scan the QR-Code for the technical datasheet and more information.

Technical Details

Removal

Solubility in Water: Media vs. Object Complexity

	Simple	Medium	Complex
H_2O, 23 °C			
H_2O, 50 °C			
Mold Remover 100, 23 °C			
Mold Remover 100, 50 °C			

Casting: 1–10 min
Injection Molding: 2–48 hours

Alkalic aqueous media significantly increases the water solubility and accelerates the de-molding process. Therefore, our **Mold Remover 100** is the ideal ready-to-use solution for the removal process for all our Mold prototypes.

[1] The list is continously expanded according to customer feedback. Potentially higher filling grades possible. [2] Such as ARBOFILL® [3] Pot life up to 3.5 h.

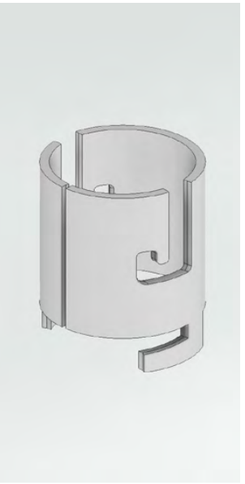
Material Compatibility

Successfully tested in various Applications[1]

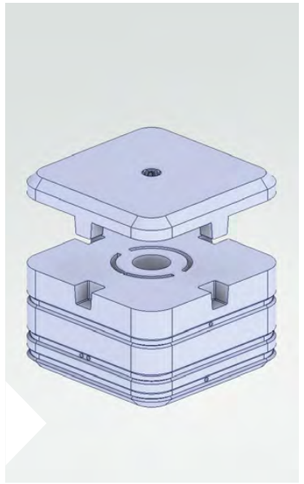
Injection Molding	
Polyethylene	
2-Polypropylene (with up to 36 % GF)	
Polyamide-6 (with up to 40 % GF)	
Polyamide-12	
PVC	
PEEK (up to 30 % CF)	
PPS (up to 80 % CF)	
Polycarbonate (up to 20 % GF)	
Compounds from recycled/ renewable feedstock[2]	

Casting	
2K Silicones (RTV and LRS)[3]	
2K Epoxides (incl. GF and other fillers)	
2K Polyurethanes	
2K Polyesters	
Metal(-alloys) (m.p. < 200 °C)	

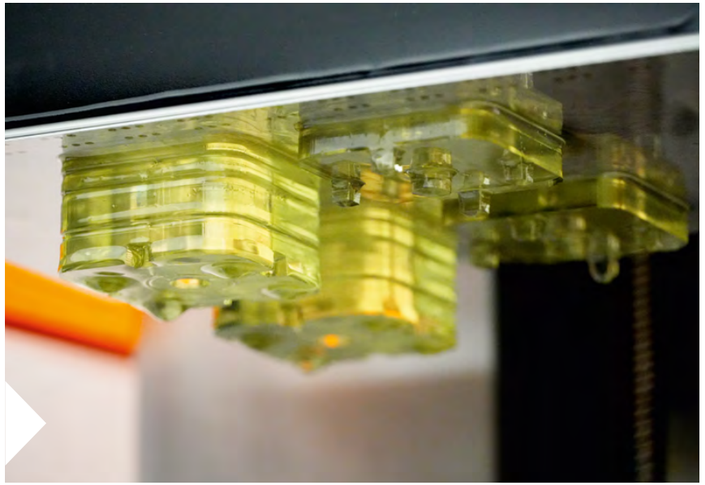
Cubic Ink® One-Shot Mold Technology
Design Freedom meets Speed



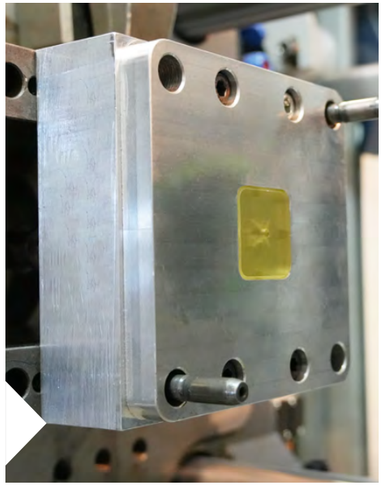
1. Production Part



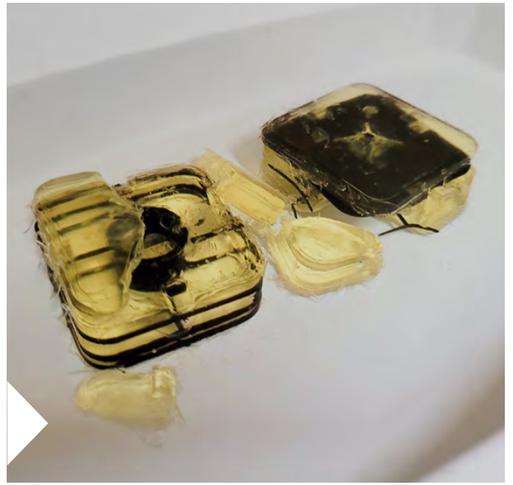
2. Construction of Tool



3. 3D-Printing of Tool



4. Injection Molding



5. Mold Removal via Water-Bath

6. Finished Part

Cubic Ink®
Mold 3100 VP

Mechanical breakable cast material designed for audiology applications

ALTANA Cubic Ink® offers an easy-to-print and -process material for casting of audiology molds with a broad compatibility towards common 2K silicones icluding RTV and LRS with pot lifes up to 3.5 h.

Its superior performance in user-friendly breakability without sharp edges to protect the silicone and operator is due to well balanced material properties that also allow for sufficient stiffness for automatical silicon filiing processes.

Materials can be used in

Audiology

Performance Indicators

Compatibility with 2K-Silicones	Very Good
Minimum Wall Thickness (Mold)	400 µm
Processability	Very Good
Removability	Easy without sharp Edges

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Uncolored, upon Request
Washing	IPA, Ethanol, Cleaner 400
Post-Processing	UV Post-Cure
Mold Removal	Mechanical

Scan the QR-Code for the technical datasheet and more information.

Resins for Functional Prototyping

Materials for DLP, LCD and mSLA 3D Printing Technologies

Cubic Ink®
Dental 3000 VP

Materials for dental models

ALTANA Cubic Ink® materials for the dental sector without body contact, for example, for the production of models for the thermoforming of aligners, are characterized by high-resolution and hollow object-printing with high detail sharpness and dimensional accuracy on all common DLP and LCD machines.

Fine-tuned thermo-mechanical properties and a good scratch resistance allow for a robust post-treatment and further processing via temperature and pressure. The color of the material can be adjusted to the customer's specifications.

Materials can be used in

Dental

Performance Indicators

Price and Processability	Very Good
Material Thickness for Hollow Structures	>3 mm
Thermoforming-Process	up to 220°C
Flexural Strength	83 MPa

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Light Tan, Uncolored, upon Request
Washing	IPA, Cleaner 400
Post-Processing	UV Post-Cure

Scan the QR-Code for the technical datasheet and more information.

Cubic Ink®
Rigid

Rigid materials for high precision objects with balanced (thermo-)mechanical properties

ALTANA Cubic Ink® Rigid Materials for the production of prototypes to final components offer the user balanced thermal and mechanical properties as well as very good chemical resistance at attractive prices. Different material variants enable the production of high-precision objects on common DLP and LCD printers.

The printing of highly transparent or colored objects is also possible with appropriate material pigmentation. The low viscosity of the rigid materials and their high reactivity enable rapid implementation in the process.

Performance Indicators

Price	Low
HDT B	52 – 122 °C
Tensile Strength	37 – 92 MPa
Chemical Resistance	Very Good

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Black, Transparent, upon Request
Washing	IPA, Cleaner 400
Post-Processing	UV Post-Cure (optional thermal Post-Cure)

Rigid 1600 VP

Rigid 2000 VP

Rigid 300 VP Clear

Rigid 300 VP High Resolution

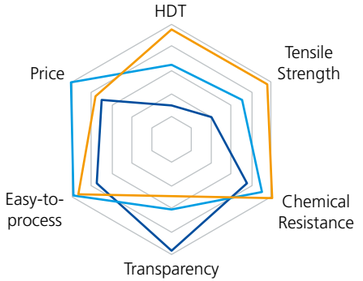
Scan the QR-Code for the technical datasheet and more information.

Technical Details

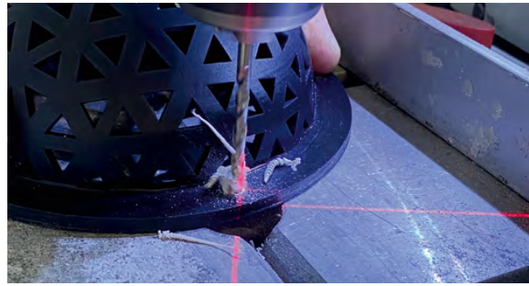
Materials can be used in

Tooling · Machinery · Automotive · Connectors · Household · Optical Applications · Microfluidigs · Toys

Characteristics and Versatility of Rigid



*Rigid 300 VP also available in High Resolution



Rigid 2000 VP

- Prototyping and technical all-round material
- Easy and fast to process
- Very robust at elevated temperatures
- Highly resistant to drilling and thread cutting

Cubic Ink® Tough

All-round materials with balanced properties

The Tough product family from ALTANA Cubic Ink® offers the user excellent opportunities to produce detailed objects at a good price-performance ratio.

Depending on the product variant, it is suitable for the rapid production of prototypes or decorative objects with customized coloring or high transparency through to the production of functional parts in small series.

Copyright: Hulk bust · Free STL File for · Cults

Performance Indicators

Processing	Very Easy
Flexural Strength	57 – 118 MPa
Elongation at Break	12 – 25 %
Izod notched	20 – 31 J/m

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Black, Grey, Transparent, upon Request
Washing	IPA, Cleaner 400
Post-Processing	UV Post-Cure

Tough 1900 VP

Tough 1900 VP Clear

Tough 2100 VP

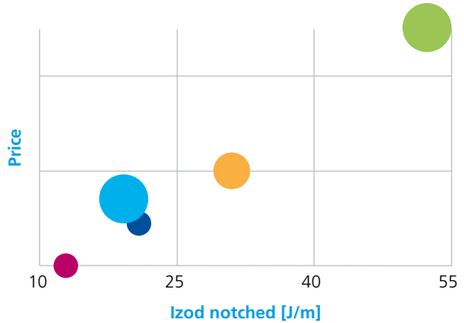
Scan the QR-Code for the technical datasheet and more information.

Technical Details

Materials can be used in

Tooling · Machinery · Optical Applications · Toys

Characteristics and Versatility of Tough



Bubble size represents Transparency

Tough 2100 VP

- Prototyping and technical all-round material
- Easy and fast to process
- Affordable price
- Fairly high impact resistance combined with HDT

Cubic Ink® Flexible

Very soft and flexible materials

ALTANA Cubic Ink® Flexible offers the possibility of adapting hardness in the Shore A range, elasticity and tear strength to the application. Due to its low viscosity the materials are processable on both common open DLP and LCD printers.

The color of the materials can also be adjusted to customer requirements.

Performance Indicators

Shore Hardness	30 – 85 A
Compression Set-B (22h, 23 °C)	< 5 %
Elongation at Break	160 – 190 %
Tear Strength (notched)	30 – 115 N/mm

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Uncolored, Black, upon Request
Washing	IPA
Post-Processing	UV Post-Cure

Flexible 1400 VP

Flexible 1500 VP Black

Scan the QR-Code for the technical datasheet and more information.

Technical Details

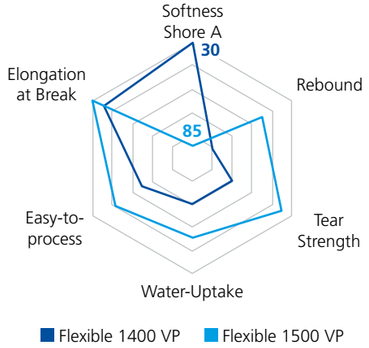
Materials can be used in

Tooling

Machinery

Medical Applications

Characteristics and Versatility of Flexible



Flexible 1400 VP **Flexible 1500 VP**

High Temperature and High Performance Resins for Industrial Additive Manufacturing

Materials for DLP, LCD and mSLA 3D Printing Technologies

Cubic Ink®
High Temperature

Materials with very high heat and chemical resistance

ALTANA Cubic Ink® High Temperature materials are the first choice for applications with the highest demands on temperature and heat resistance.

Due to superior thermal and chemical stabilities with heat deflection beyond 300 °C for High temperature 200 VP, reduced brittleness and increased impact resistance for High Temperature 1901 VP, those materials are designed, and yet customizable, for use in harsh environments. If necessary for applications in the medical field, the materials additionally pass the cytotoxicity requirements.

An ESD version is available for sensitive areas, such as electronic industry parts.

Performance Indicators

HDT B	220–≫300 °C
Shore Hardness	85–90 D
CTE (0–250 °C)	70–130 ppm/K
Chemical Resistance	Superior

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Uncolored, Black
Washing	IPA, Cleaner 400
Post-Processing	UV and/or Thermal Post-Cure

High Temperature 200 VP

High Temperature 303 VP-ESD Black

High Temperature 1901 VP

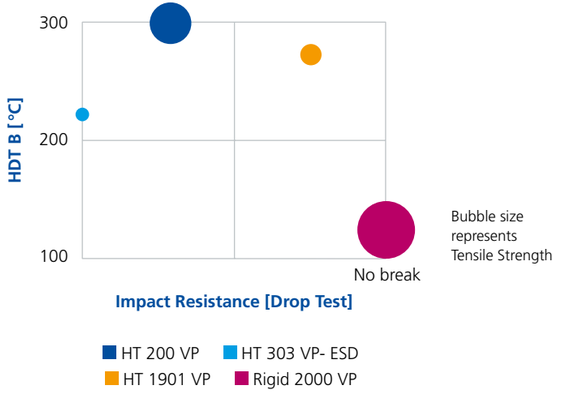
Scan the QR-Code for the technical datasheet and more information.

Technical Details

Materials can be used in

Tooling · Machinery · Automotive · Transportation · Aerospace · Connectors

Characteristics and Versatility of High Temperature



HT 1901 VP **Competitor Material**

Soaking for 24 hours in acetone

Cubic Ink®
High Performance 3-1700 VP

Elastic and tear resistant material with low water uptake

Cubic Ink® High Performance 3-1700 VP is an elastic and soft material with outstanding low water uptake, a broad range of operating temperatures, a comparative UV- and temperature ageing stability and a high tear strength.

The material is supplied as a ready-to-use one-component resin that can be used again over a long period of time, even after interruptions or changes to a build job. Thanks to this and its low viscosity, which does not require a heated build chamber, the first hurdle in the use of open DLP and LCD printers for flexible and elastic materials has been overcome.

Performance Indicators

Cytotoxicity-Test	Passed
Tear Strength (notched)	120 kN/m
Thermal Stability	Very Good
Rebound	30 %

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Uncolored, Black
Washing	DPM/IPA
Post-Processing	Thermal Post-Cure

Scan the QR-Code for the technical datasheet and more information.

Technical Details

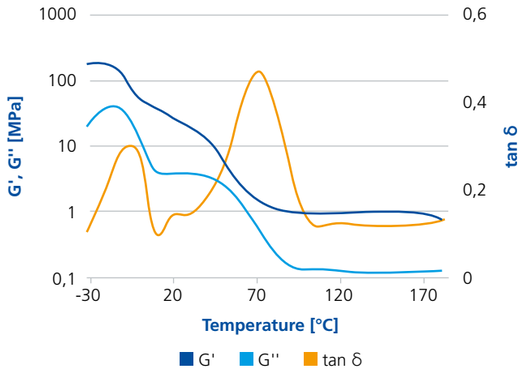
Materials can be used in

Medical Applications

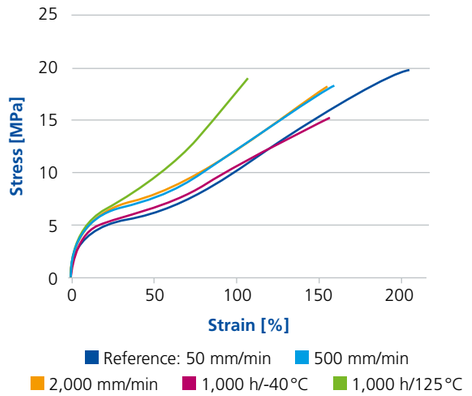
Footwear

Transpor-tation

DMA



Tensile Testing



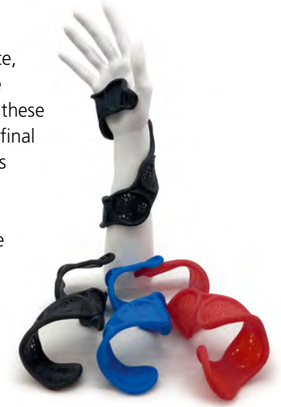
Cubic Ink®
High Performance 4

Highly versatile technical all-round materials with very good impact strength, high thermal form stability and scratch resistance. Biocompatibility upon request.

With its High Performance 4 product family, ALTANA Cubic Ink® offers excellent technical all-round materials that can be used for a wide variety of applications and end uses. From the manufacture of orthopaedic aids and mechanically resilient parts to eyewear frames, flame-retardant objects and ESD applications, there are many areas of application for the user.

Well-balanced toughness, high impact and temperature resistance, combined with very good surface quality and print accuracy makes these materials a customer's choice for final part production. Cytotoxicity-tests passed for several products.

The color and transparency of the materials can also be adjusted to customer requirements.



Performance Indicators

Izod notched	25 – 100 J/m
HDT B	65 – 100 °C
Elongation at Break	5 – 50 %
Cytotoxicitiy-Test	Passed

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Black, Transparent, upon Request
Washing	Water, Cleaner 200, Cleaner 400
Post-Processing	UV and/or Thermal Post-Cure

HP 4-3800 VP

HP 4-4800 VP

HP 4-7704 VP

HP 4-9701 VP

Scan the QR-Code for the technical datasheet and more information.

Technical Details

Materials can be used in

Automotive

Transportation

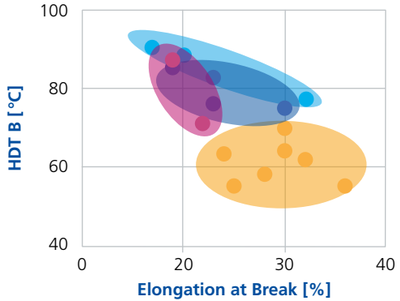
Connectors

Household

Medical Applications

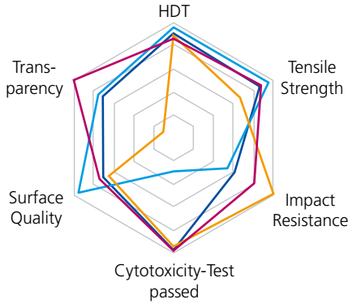
Eyewear

Post-Curing of HP 4-4800 VP Anthrazit



- Hg (elevated temperatures during process)
- Flashes (elevated temperatures during process)
- LED (≤60 °C)
- LED (≥80 °C)

Characteristics and Versatility of High Performance 4



- HP 4-3800 VP*
- HP 4-9701 VP
- HP 4-4800 VP
- HP 4-7704 VP

*also available with ESD-properties (HP 4-2800 VP-ESD Black) & flame retardant properties (HP 4-1000 VP-V0)

Cubic Ink®
High Performance
4-1000 VP-V0

UL 94 V-0 certified-material

ALTANA Cubic Ink® High Performance 4-1000 VP-V0 is a flame retardant material with high rigidity. It is V-0 according to UL 94 and ist low viscosity results in very good processability and maximal design freedom.

Materials can be used in

Connectors Automotive Machinery

Performance Indicators

Flammability	V-0
Viscosity	Low
HDT B	123 °C
Tensile Strength	97 MPa

Processing Guide

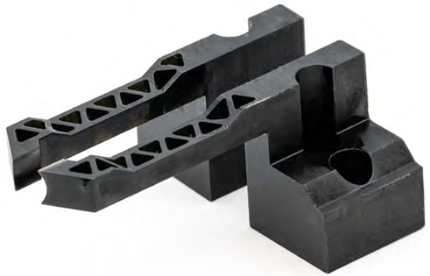
Printing Technology	DLP, LCD and mSLA
Color	Uncolored, Black
Washing	Water
Post-Processing	UV and Thermal Post-Cure

Scan the QR-Code for the technical datasheet and more information.

Cubic Ink®
High Performance
4-2800 VP-ESD Black

ESD material with excellent processability and low viscosity

ALTANA Cubic Ink® ESD materials are designed to meet the customer's ESD requirements. Thanks to their low viscsoity a very good processability is given. The tough yet customizable range of properties of these materials makes them a good choice for a broad range of applications.



Materials can be used in

Transpor-tation Machinery Tooling

Performance Indicators

Volume Resistivity	1.8 x 10^7 Ω·cm
HDT B	94 °C
Elongation at Break	4.0 %
Chemical Resistance	Very Good

Processing Guide

Printing Technology	DLP, LCD and mSLA
Color	Black
Washing	Water
Post-Processing	UV and/or Thermal Post-Cure

Scan the QR-Code for the technical datasheet and more information.

Resins for Functional Prototyping and Tooling

Materials for SLA 3D Printing Technologies

Cubic Ink®
High Performance 2-1400 VP

Transparent all-round material for stereolithography

ALTANA Cubic Ink® High Performance 2-1400 VP is a transparent material with a balanced set of mechanical and thermomechanical properties. It has a very low water uptake, a good surface finish and low shrinkage. This material is especially designed to be used on stereolithography printers.

Available in different colors and shades.

Performance Indicators

Water-Uptake	<0.1 %
Chemical Resistance	Very Good
Izod notched	38 J/m
Shrinkage	Low

Processing Guide

Printing Technology	SLA
Color	Transparent, Black, upon Request
Washing	PC/IPA
Post-Processing	UV Post-Cure

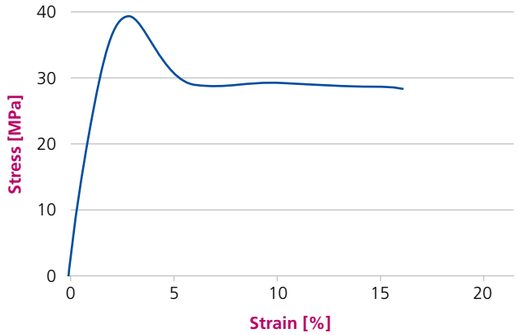
Scan the QR-Code for the technical datasheet and more information.

Technical Details

Materials can be used in

Machinery · Tooling · Optical Applications · Household · Toys

Tensile Testing (5 mm/min)



Benefits of SLA-Technology

- Top-down vat polymerization
- Laser Technology (355 nm)
- Fast and accurate
- Dual-cure thermosets
- Viscosity-stability
- Low shrinkage

Inks for Functional Prototyping, Supports and Special Applications

Materials for Multi-Material 3D Printing

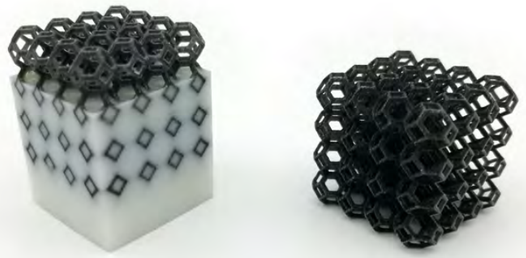
Support Materials

Easy to remove watersoluble support materials

ALTANA Cubic Ink® Support inks for material jetting are carefully matched to the object inks and, after dissolving in water, produce objects with the highest surface quality and sharpness of detail.

Due to the water-soluble or water-breakable character, the supports can be removed automatically in a water-bath without chemical solvents or manually with low forces. The hardness and dissolution times are adjustable.

The inks can be processed excellently on many print head types and with the corresponding ink supply systems, but can also be adapted to specific requirements.



Materials can be used in

Industrial

Tooling

Performance Indicators

Dissolution Time	Variable
Viscosity	10 – 1,000 mPa·s
Shore Hardness	30 A – 60 D

Support removal[1]

Dissolution Time – Support 5300	1 hours
Dissolution Time – Support 4001	2 hours
Dissolution Time – Support 1201	5 hours
Dissolution Time – Support 2700	15 hours

[1] Time until total dissolution of support based on a model geometry in water at 40 °C and ultra-sound.

Scan the QR-Code for the technical datasheet and more information.

Cubic Ink®
Flexible and Rigid Multi-Material Capacity

UV curable rigid, tough and flexible inks for material jetting

Benefit from the possibilities of Material Jetting with the ALTANA Cubic Ink® portfolio such as multi-color or multi-material printing to combine hard/soft segments. Based upon our deep understanding and experience regarding low viscosity fluids, we can offer a broad range of inks for various end-uses. Additionally, material jetting is also suitable for coating existing objects with functional or decorative, tactile effects.

Performance Indicators

Shore Hardness	30 A–85 D
Elongation at Break	3–350 %
Ink Stability	Very Good
Chemical Resistance, Ageing and Weatherability (DIN74069) of Rigid- and Tough-material	Good

Processing Guide

Printing Technology	Material Jetting
Color	CMYK, White, Spot Color
Washing	Water
Post-Processing	UV

For more information regarding Rigid, Tough and Flexible Materials for Material Jetting please contact us via **cubic.ink@altana.com**

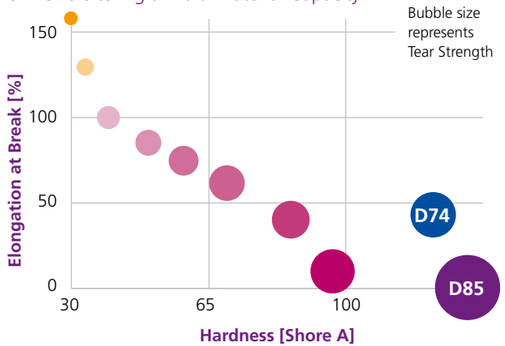
Technical Details

Materials can be used in

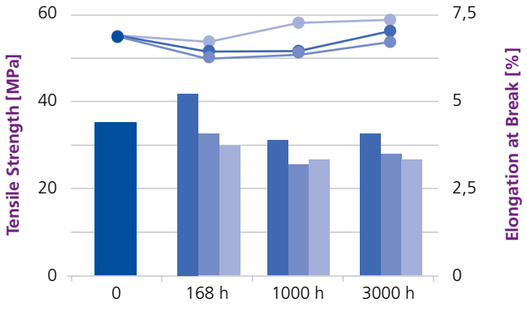
Industrial · Machinery · Medical Applications

Tough 1700 is successfully used in outdoor multilayer applications with certified weatherability following DIN 74069.

Characteristics and Versatility
of Flexible to Rigid Multi-Material Capacity



Ageing of Rigid 700
(points: tensile strength; bars: elongation at break)



Cubic Ink®
High Performance 4-1203

Technical all-round material with HDT B up to 100 °C

Cubic Ink® High Performance 4-1203 shows a good balance between temperature form-stability and toughness for final part production including passing horizontal-burning tests.

Materials can be used in

Machinery Connectors Automotive

Performance Indicators

HDT B	100 °C
Elongation at Break	6 %
Flammability	HB
Flexural Strength	118 MPa

Processing Guide

Printing Technology	Material Jetting
Color	Black, Uncolored, upon Request
Washing	Water
Post-Processing	UV and/or Thermal Post-Cure

Scan the QR-Code for the technical datasheet and more information.

Cubic Ink®
Clear 1600

Transparent and colorless material

ALTANA Cubic Ink® Clear materials are designed for applications where a high transparency and clarity is needed. The post-curing and bleaching was optimized to an easy and short procedure. Other optical properties such as the refractive index along with the mechanical properties can be customized.

Materials can be used in

Machinery Optical Applications

Performance Indicators

Transparency	Very Good
Elongation at Break	6.5 %
Shore Hardness	76 D
Viscosity (40 °C)	11 mPa·s

Processing Guide

Printing Technology	Material Jetting
Color	Transparent
Washing	Water
Post-Processing	UV Post-Cure

Scan the QR-Code for the technical datasheet and more information.

Cubic Ink® – Molding and Functional Prototyping Resins

Properties and Characterization methods[1]		Mold 400 VP	Mold 3100 VP	Dental 3000 VP	Rigid 300 VP Clear	Rigid 300 VP High Res	Rigid 1600 VP	Rigid 2000 VP
Viscosity @25 °C [mPa·s]	DIN EN ISO 3219	72	34	710	240	170	770	340
Tensile Strength [MPa]	DIN EN ISO 527-5A	42	28	51	43	37	62	92
Tensile Modulus [MPa]	DIN EN ISO 527-5A	1,900	1,600	2,500	2,300	1,900	3,000	3,600
Elongation at Break [%]	DIN EN ISO 527-5A	42	8.2	7.0	6.7	8.0	3.2	4.8
Flexural Strength [MPa]	DIN EN ISO 178	–	–	83	84	57	105	140
Flexural Modulus [MPa]	DIN EN ISO 178	–	–	2,200	2,300	1,800	2,700	3,300
Deflection at Fracture [%]	DIN EN ISO 178	–	–	>10	8.2	9.5	7.1	6.2
Shore Hardness	DIN EN ISO 7619	80 D		85 D	84 D	80 D	85 D	85 D
Izod unnotched [J/m]	DIN EN ISO 180	–	–	–	–	–	–	–
Izod notched [J/m]	DIN EN ISO 180	–	19	–	18	17	15	14
Charpy unnotched [kJ/m²]	DIN EN ISO 179-1	–	–	–	–	–	–	–
Charpy notched [kJ/m²]	DIN EN ISO 179-1	–	–	–	–	–	–	1.0
HDT A [°C]	DIN EN ISO 75	–	–	–	–	–	–	101
HDT B [°C]	DIN EN ISO 75	–	52	70	53	52	80	122
Tg [°C]	DSC, TMA, DMA	–	–	–	–	–	–	135
Flammability	UL 94	–	–	–	–	–	–	HB

Cubic Ink® – Molding and Functional Prototyping Resins

Properties and Characterization methods[1]		Mold 400 VP	Mold 3100 VP	Dental 3000 VP	Rigid 300 VP Clear	Rigid 300 VP High Res	Rigid 1600 VP	Rigid 2000 VP
Tear Strength [kN/m]	DIN EN ISO 34-1 B	–	–	–	–	–	–	–
Compression Set-B [%]	DIN EN ISO 815-1	–	–	–	–	–	–	–
Rebound [%]	DIN 53512	–	–	–	–	–	–	–
Water Uptake, 24 h, 23 °C [%]		–	–	0.2	0.1	0.3	0.2	0.3
Chemical Resistance		–	–	Very Good	Good	Good	Very Good	Very Good
Thermal stability		–	–	–	–	–	–	Superior
Weathering	ISO 4892-3	–	–	–	–	–	–	Very Good
CTE [10^{-6} K^{-1}]	DIN EN ISO 11359-2	–	–	–	–	–	–	60/157
Specific Heat Capacity, 20 °C [J/(g K)]	DIN EN ISO 11357-4	–	–	–	–	–	–	1.15
Dielectric strength [kV/mm]	IEC60243-1	–	–	–	–	–	–	27
Relative Permittivity (10,000 Hz, 23 °C)	IEC 60250	–	–	–	–	–	–	5.6
Volume Resistivity [Ω·cm]	IEC60093	–	–	–	–	–	–	1.7×10^{15}
Comparative Tracking Index [V]	IEC60112	–	–	–	–	–	–	>600
Cytotoxicity-test	DIN EN ISO 10993-5	–	–	On Request	–	–	On Request	–

[1] Properties with post-processing – washed with different fluids and different UV post-treatment. All material properties can vary with printer, print settings, object orientation, part geometry, post-processing and age of sample. For more information and details please take a look into the proper TDS.

Cubic Ink® – Functional Prototyping and High Temperature Resins

Properties and Characterization methods[1]		Tough 1900 VP	Tough 1900 VP Clear	Tough 2100 VP	Flexible 1400 VP	Flexible 1500 VP	HT 200 VP	HT 303 VP-ESD Black	HT 1901 VP
Viscosity @25 °C [mPa·s]	DIN EN ISO 3219	90	90	170	120	110	740	1040	230
Tensile Strength [MPa]	DIN EN ISO 527-5A	36	32	73	3	14	66	48	63
Tensile Modulus [MPa]	DIN EN ISO 527-5A	1,900	1,600	2,800	–	50	4,100	3,700	2,500
Elongation at Break [%]	DIN EN ISO 527-5A	14	20	12	160	190	2.1	1.7	4.8
Flexural Strength [MPa]	DIN EN ISO 178	68	57	118	–	–	83	72	90
Flexural Modulus [MPa]	DIN EN ISO 178	1,800	1,500	2,700	–	–	3,300	3,600	2,100
Deflection at Fracture [%]	DIN EN ISO 178	>10	>10	>10	–	–	2.6	2.0	6.8
Shore Hardness	DIN EN ISO 7619	78 D	78 D	84 D	30 A	85 A	90 D	90 D	85 D
Izod unnotched [J/m]	DIN EN ISO 180	–	–	380	–	–	–	–	–
Izod notched [J/m]	DIN EN ISO 180	21	19	36	–	–	14	14	14
Charpy unnotched [kJ/m²]	DIN EN ISO 179-1	–	–	78	–	–	–	–	–
Charpy notched [kJ/m²]	DIN EN ISO 179-1	–	–	4.1	–	–	0.6	0.7	0.8
HDT A [°C]	DIN EN ISO 75	–	–	62	–	–	>300	216	122
HDT B [°C]	DIN EN ISO 75	54	47	76	–	–	>300	221	272
Tg [°C]	DSC, TMA, DMA	–	–	95	–	–	>300	257	>300
Flammability	UL 94	–	–	HB	–	–	HB	HB	HB

Cubic Ink® – Functional Prototyping and High Temperature Resins

Properties and Characterization methods[1]		Tough 1900 VP	Tough 1900 VP Clear	Tough 2100 VP	Flexible 1400 VP	Flexible 1500 VP	HT 200 VP	HT 303 VP-ESD Black	HT 1901 VP
Tear Strength [kN/m]	DIN EN ISO 34-1 B	–	–	–	32	114	–	–	–
Compression Set-B [%]	DIN EN ISO 815-1	–	–	–	<5 (@70 °C)	<1 (@23 °C)	–	–	–
Rebound [%]	DIN 53512	–	–	–	4	27	–	–	–
Water Uptake, 24 h, 23 °C [%]		0.1	0.1	1.6	–	0.8	0.3	0.5	0.4
Chemical Resistance		Good	Good	OK	–	–	Superior	Superior	Superior
Thermal stability		–	–	Very Good			Superior	Superior	Very Good
Weathering	ISO 4892-3	–	–	OK	–	–	Good	–	Good
CTE [10^{-6} K^{-1}]		–	–	72/169	–	–	70	98	130
Specific Heat Capacity, 20 °C [J/(g K)]	DIN EN ISO 11357-4	–	–	1.35	–	–	1.19	1.30	0.96
Dielectric strength [kV/mm]	IEC60243-1	–	–	29	–	–	22	2	26
Relative Permittivity (10,000 Hz, 23 °C)		–	–	7.0	–	–	7.6	118	6.1
Volume Resistivity [Ω·cm]	IEC60093	–	–	9.6×10^{14}	–	–	1.8×10^{14}	6.6×10^{7}	1.4×10^{15}
Comparative Tracking Index [V]	IEC60112	–	–	>600	–	–	>600	>600	>600
Cytotoxicity-test	DIN EN ISO 10993-5	–	–	–	–	–	On Request	–	On Request

[1] Properties with post-processing – washed with different fluids and different UV post-treatment. All material properties can vary with printer, print settings, object orientation, part geometry, post-processing and age of sample. For more information and details please take a look into the proper TDS.

Cubic Ink® – High Performance and SLA Resins

Properties and Characterization methods[1]		HP 3-1700 VP	HP 4-3800 VP	HP 4-4800 VP	HP 4-7704 VP	HP 4-9701 VP	HP 4-1000 VP-V0	HP 4-2800 VP-ESD Black	HP 2-1400 VP-SLA
Viscosity @25 °C [mPa·s]	DIN EN ISO 3219	1030	47	820	240	66	460	190	430
Tensile Strength [MPa]	DIN EN ISO 527-5A	19	49	36	43	56	97	67	39
Tensile Modulus [MPa]	DIN EN ISO 527-5A	35	2,400	1,600	2,000	2,600	4,500	3,100	2,100
Elongation at Break [%]	DIN EN ISO 527-5A	190	12	21	18	8.8	2.7	4.0	14
Flexural Strength [MPa]	DIN EN ISO 178	–	67	49	62	87	130	120	68
Flexural Modulus [MPa]	DIN EN ISO 178	–	170	1,300	1,600	2,200	4,100	2,800	1,800
Deflection at Fracture [%]	DIN EN ISO 178	–	>10	>10	>10	>10	>3.5	7.2	>10
Shore Hardness	DIN EN ISO 7619	84 A	81 D	76 D	80 D	81 D	88 D	86 D	80 D
Izod unnotched [J/m]	DIN EN ISO 180	–	260	670	650	390	220	110	370
Izod notched [J/m]	DIN EN ISO 180	No break	34	99	52	33	14	16	38
Charpy unnotched [kJ/m²]	DIN EN ISO 179-1	–	–	102	75	45	19	11	42
Charpy notched [kJ/m²]	DIN EN ISO 179-1	No break	3.4	10	5.8	5.0	1.0	1.5	3.8
HDT A [°C]	DIN EN ISO 75	–	48	67	52	33	98	78	47
HDT B [°C]	DIN EN ISO 75	–	74	84	78	75	123	94	51
Tg [°C]	DSC, TMA, DMA	-5 / 71	97	81	–	–	80	111	42
Flammability	UL 94	–	HB	HB	–	–	V-0	HB	–

[1] Properties with post-processing – washed with different fluids and different UV post-treatment. All material properties can vary with printer, print settings, object orientation, part geometry, post-processing and age of sample. For more information and details please take a look into the proper TDS.

Cubic Ink® – High Performance and SLA Resins

Properties and Characterization methods[1]		HP 3-1700 VP	HP 4-3800 VP	HP 4-4800 VP	HP 4-7704 VP	HP 4-9701 VP	HP 4-1000 VP-V0	HP 4-2800 VP-ESD Black	HP 2-1400 VP-SLA
Tear Strength [kN/m]	DIN EN ISO 34-1 B	120	–	–	–	–	–	–	–
Compression Set-B [%]	DIN EN ISO 815-1	24 (@ 70°C)	–	–	–	–	–	–	–
Rebound [%]	DIN 53512	30	–	–	–	–	–	–	–
Water Uptake, 24 h, 23 °C [%]		<0.1	4.4	0.6	1.6	2.6	2.1	0.2	<0.1
Chemical Resistance		Good	Good	OK	OK	OK	OK	Good	Very Good
Thermal stability		Good	Very Good	Very Good	Good	Very Good	Good	Very Good	Good
Weathering	ISO 4892-3	Good	OK	OK	OK	–	–	–	Very Good
CTE [10^{-6} K^{-1}]		124/149	91/113	113/122	–	–	53/141	79/159	68/176
Specific Heat Capacity, 20 °C [J/(g K)]	DIN EN ISO 11357-4	1.90	1.65	1.77	–	–	–	1.50	1.80
Dielectric strength [kV/mm]	IEC60243-1	–	22	19	–	–	23	1	18
Relative Permittivity (10,000 Hz, 23 °C)		–	8.3	6.9	–	–	7.1 (1 MHz)	260	7.1
Volume Resistivity [Ω·cm]	IEC60093	–	9.6×10^{14}	3.1×10^{14}	–	–	3.3×10^{11}	1.8×10^{7}	4.2×10^{12}
Comparative Tracking Index [V]	IEC60112	–	>600	>600	–	–	200	>600	>600
Cytotoxicity-test	DIN EN ISO 10993-5	On Request	On Request	On Request	On Request	–	–	–	–

ALTANA

Cubic Ink®
ALTANA New Technologies GmbH

located at

ACTEGA GmbH
Mielestraße 13
31275 Lehrte
GERMANY

Tel +49 (0)5132 5009-600

cubic.ink@altana.com
www.altana.com

Learn more about Cubic Ink® materials
www.altana.com/cubic-ink
www.altana.de/cubic-ink

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