TIGITAL® 3D-Set

THERMOSET Materials

Portfolio 2022

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Powder
Bed
Fusion (**PBF**)

I.

We developed a line of performance polymers based on thermosets for industrial scale 3D printing production for a wide variety of applications for Selective Laser Sintering (SLS).

TIGITAL® - 3D Set - Processing Technology Advantages

SLS –
Selective **L**aser **S**intering

- Modulus up to 3300 MPa
- Full isotropic behaviour
- Superior insulation properties
- Fast accurate production
- Flame retardancy up to UL 94-V0

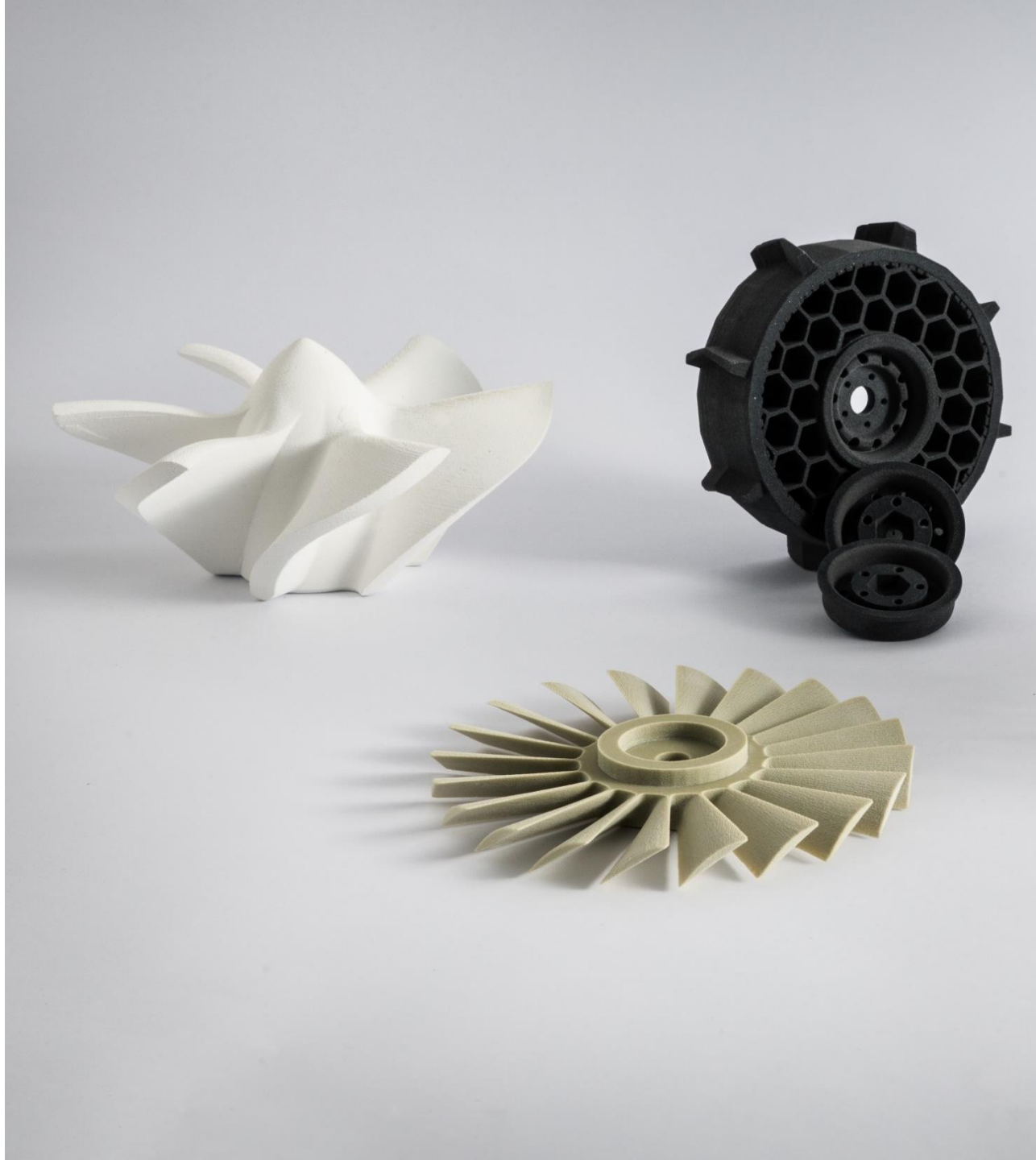
LOM – Laminated
Object **M**anufacturing

- Modulus up to 12.500 MPa
- Strength up to 130 MPa
- High dimensional stability
- High printing accuracy
- High design freedom
- Faster cycles

II.

Overview Tables

We want to give you a quick comprehension what our materials can offer in terms of mechanical properties or chemical resistance, certificates and processing possibilities.



Material Properties

Typical values and description. TDS are available upon request

	HPP (Series 370)	TPP (Series 371)	PPP (Series 371)
Tensile Modulus (N/mm²)	3300	3000-3300	2800-3200
Tensile Strength (N/mm²)	52	45-50	40
Strain at Break [%]	2,5	2,4-6	2,1-5,5
HDT-A [°C]	65	65	80
Colors	Black	Black	Black and beige
Specific properties	High rigidity	Outdoor stability	FR-protected parts

Available Product Statements

Typical values and description. TDS are available upon request

	HPP (Series 370)	TPP (Series 371)	PPP (Series 371)
REACH	●	●	●
Artificial weathering		●	
UL-94 compliant			●
Halogen-free FR			●
Design guide	●	●	●
VOC-free	●	●	●

Material-/Processing Possibilities

Typical values and description. TDS are available upon request

	HPP (Series 370)	TPP (Series 371)	PPP (Series 371)
SLS-Printing	●	●	●
LOM-Process			● (Series 375)

FARSOON TECHNOLOGIES

PRODWAYS THE NEW WAY OF PRODUCING

WEIRATHER MASCHINENBAU UND ZERSPANUNGSTECHNIK GmbH

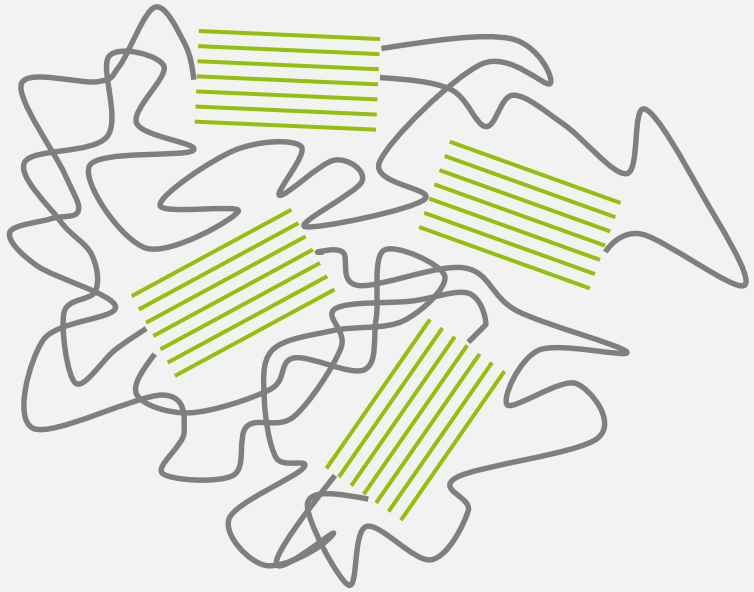
Impossible Objects

Our Materials

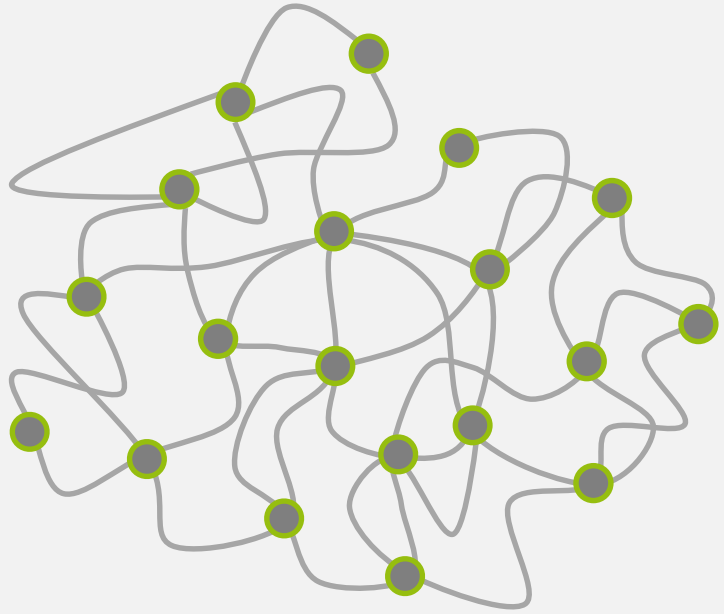
III.

The material portfolio represents TIGER‘s 90 years of expertise in thermosets and targets various applications which require specific properties like flame retardancy, powder coating or superior insulation properties.

TIGITAL® - 3D Set - Thermoplastics vs. Thermosets



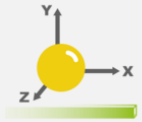
Thermoplastics: linear or branched structure



TIGITAL® 3D Set: interconnected cross-linked thermoset structure

TIGITAL® - 3D Set
Basic advantages

Core Features



Isotropic behaviour properties

Superior insulation capabilities

High chemical stability

Post Finishing

Customized coating color

Machine Compatibility

All license-free SLS Printing Machines like

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Additional Benefits

Cost Advantage

Short unpacking time

TIGITAL® - 3D Set – **H**igh **P**erformance **P**olymers

Typical values and description. TDS are available upon request

	HPP 370/80003	-	-
Tensile Modulus (N/mm²)	3300	-	-
Tensile Strength (N/mm²)	52	-	-
Strain at Break [%]	2,5	-	-
HDT-A [°C]	65	-	-
Colors	Black	-	-
Specific Properties	 High rigidity	-	-

TIGITAL® - 3D Set – **T**op **P**erformance **P**olymers

Typical values and description. TDS are available upon request

	TPP 371/80001	TPP 371/80005	TPP 371/80006
Tensile Modulus (N/mm²)	3300	3000	3200
Tensile Strength (N/mm²)	45	45	50
Strain at Break [%]	2,4	6	6
HDT-A [°C]	-	-	65
Colors	Black	Black	Black
Specific Properties	 Heavy duty	 UV-resistance	 High flexibility

TIGITAL® - 3D Set – **P**remium **P**erformance **P**olymers

Typical values and description. TDS are available upon request

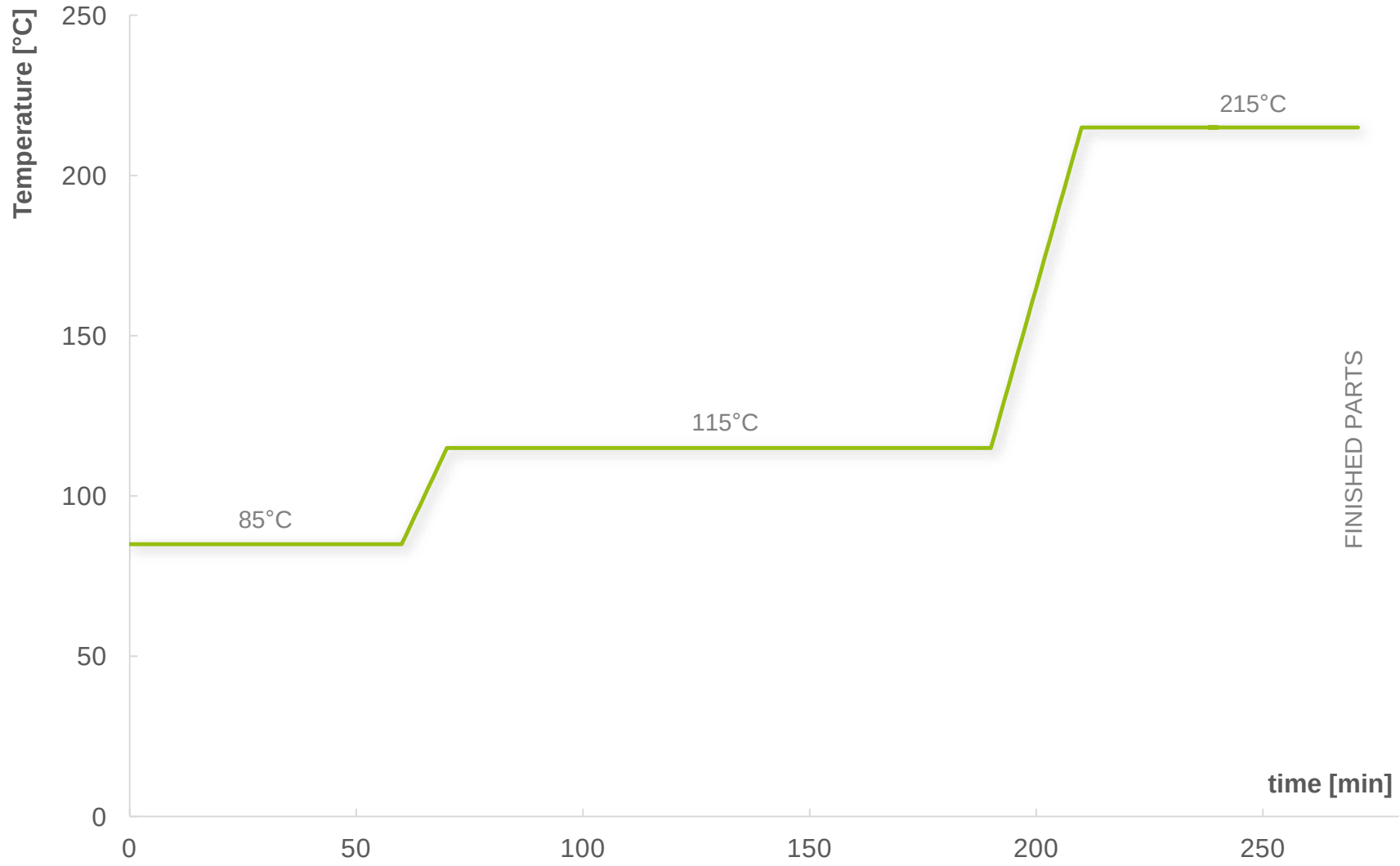
	PPP 371/80004	PPP 371/15007	PPP 371/80002
Tensile Modulus (N/mm²)	3200	2800	2100
Tensile Strength (N/mm²)	40	40	40
Strain at Break [%]	2,1	2,5	5,5
HDT-A [°C]	80	80	-
Colors	Black	Black	Black
Specific Properties	UL 94 V-0 (3,5mm)	UL 94 V-0 (3,5mm)	UN-ECE R.118.03 Annex 6, 7 & 8

Post Curing

III.1.

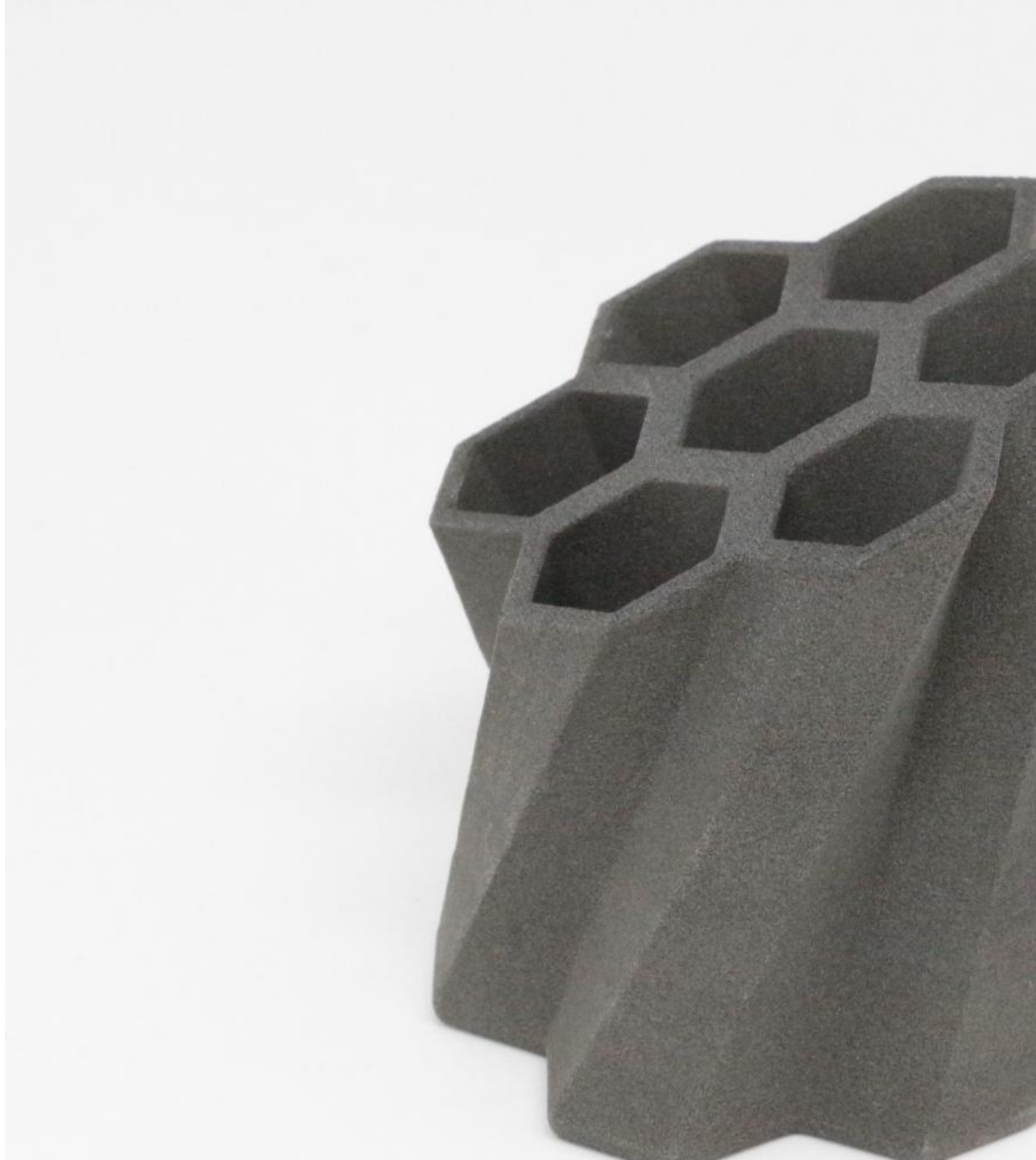
To fully reach the end use properties, our materials need specific thermal treatment after printing which leads to an interconnected cross-linked thermoset structure.

TIGITAL® - 3D Set – Example Curing Parameters



IV. Chematronix® Network

Our Chematronix® Network offers complete solutions in the fields of chemistry and mechatronics. TIGITAL® 3D Set collaborate with machine manufacturers and service providers to achieve best possible print results.



TIGITAL® - 3D Set – Value Chain

Design **Material** **Print** **Deliver**

From Design to Print – (y)our Partners will help to deliver the whole solution

TIGITAL® - 3D Set - Chematronix® Network

Our Partners

Our growing network with partners from different industries such as printer manufacturers, service providers, Designers and Enthusiasts enables us to provide unchallenged flexiblity and up to speed production.

Powder Coating

V.

All our TIGITAL® 3D Set materials have a very high dimensional stability and low warpage. Additionally every part made with our thermosets can be painted with our TIGER powder coatings, TIGITAL® inks and TIGITAL® tatoos.

TIGITAL® - 3D Set - Powder Coating Advantages

Advantages

- Higher UV-stability
- Additional boost in continuous operation temperature
- Better chemical resistance
- Superior surface finish in every imaginable color
- Higher scratch resistance

Please contact our experienced professional Team

Do you have a question?

With our technical experts we can give you full support from processing to finish your printed parts.

Get in touch. We are looking forward hearing from you soon.

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THERMOSET Materials

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