EXAMPLE 1 INFORMATION INFORMATICA INFORM

PRINT YOUR FUTURE

2025, February 24th

MAT3D SCIENCE AND DELIVERY

MAT3D aims to become a benchmark for innovative resins for industrial applications

- MAT3D: a small enterprise specialized in designing and manufacturing high performance and functional resins mainly devoted to Stereolithography (SLA, DLP printers) and Material Jetting
- Our core competence is the formulation of customized materials for industrial applications
- In addition, MAT3D's small size assures fast decision making, ad hoc development, accurate customer caring







MAT3D LIQUID RESINS ENABLE FORMULATION

- The resins' chemical compositions can be tailored with **uncountable building blocks** accomplishing need-specific formulations, and ensuring **performance under severe conditions and different functionalities** as:
 - High temperature
 - Pressure resistance
 - Electrical/thermal insulation/transmittance
 - Resistance to aggressive agents
 - Flame retardancy
 - Biocompatibility
 - Sustainability and recyclability
 - and so on

GIVE US THE APPLICATION, GET YOUR SOLUTION





MAT3D ADDITIVE MANUFACTURING



SPECIAL COMPETENCE: 3D PRINTING

There is a huge undeserved demand of advanced materials

- 3D printing industry will reach **350 USD bn** in **2035** (a)
- with an Average annual increase of 22% (a)
- Only 4% of AM market potential for Molds/Tools (b)
- and only **1%** for **End-parts** applications are today served (b)
- An important gap to close with innovative solutions

(a) source: BCG, Gartner from amventures.com – 2022 (b) source: ARK – 2020





MAT3D TEAM



Zanon, Michael – CEO Ph.D. in Materials Science & Technology Master degree in Materials Engineering



Messori, Massimo – Founder Full Professor at Polytechnic of Turin

Moirano, Maurizio – Business Development Master in Business Administration Master Degree in Electrical Engineering



Salas, Alejandra – Technology Specialist Ph.D. in Materials Science & Technology Master Degree in Polymer Science **Costabile, Michele – Chairman** Full Professor at Luiss University in Rome



Bondioli, Federica – **Founder** Full Professor at Polytechnic of Turin



Di Rubba, Antonio – **CFO** Chartered accountant and Auditor



Ferrante, Marco – Technology Specialist Master Degree in Biomedical Engineering





degli Studi di Ferrara

Bachelor in Mechanical Engineering



Master in Materials Engineering



PhD in Material Science and Technology



CEO





MAT3D PORTFOLIO OF RESINS

Name	Key Features	Applications	Status	Printing Equipment
PEAKER	High Mechanical Performances – High Dimensional Precisions High Temperature/Pressure Resistance	Industrial Parts (PEEK-like material)	Patent Filed Marketable	SLA,DLP
STAMPER MT-3D	Flexibility - High Pressure Resistance	Ceramic Tiles/Paper Machineries	Patent Assigned Marketable	SLA,DLP
RELAYER	Low Viscosity - High Pressure Resistance – High Flexibility	Ceramic Tiles/Paper Machineries	Patent Filed Marketable	Material Jetting
FLEXER and FLEXER BIO	Flexibility - Biocompatibility	O-rings – Biological Applications – Antivibration – Sealant	Test stage Delivery in 2025	SLA,DLP
PEAKER PLUS	Very High Mechanical Performances (10 GPa) – flame retardancy	Autoclave moulds/Injection- Blow moulding applications- Structural parts	Test stage Delivery in 2025	SLA,DLP
THERMO	Thermal conductivity – Electrical conductivity – High Mechanical Performances	Autoclave moulds/Injection- Blow moulding applications	Test stage Delivery in 2025	SLA,DLP
VITRER	Self-Healing Properties – Sustainability Recyclability - Reshapability	Dielectric Parts - Prepreg	Investigation stage Delivery in 2026	





MAT3D VITRIMERS - TERMOSET POLYMERS ABLE TO RECONFIGURE THEIR-SELVES WITHOUT LOOSING THEIR FUNCTIONAL PROPERTIES (E.G., MECHANICAL, ELECTRICAL, ETC.)



MAT3D DYNAMIC BONDS



MAT3D VITRIMERS: SOME PROPERTIES .



Thermoset

Vitrimers



Once damaged, need to be replaced



Once formed, just mechanical shaping is possible



Only quaternary recycle (incinerator)

SAME MECHANICAL PROPERTIES

> Primary/Secondary recycle

Self-healing properties

Once formed, shaping

is still possible





[1] Rossegger E, Höller R, Reisinger D, Fleisch M, Strasser J, Wieser V, et al. High resolution additive manufacturing with acrylate based vitrimers using organic phosphates as transesterification catalyst. Polymer. 2021;221:123631.



MAT3D RESIN: VITRER

VITRER is a recyclable, re-shapable, self healing, sustainable and eventually 3D-Printable resins. The mechanical properties can be tailored based on the applications. EXPECTED POC IN 2026

IDEAL APPLICATIONS

- Prepreg
- Recyclable thermosets
- Self healing materials
- Green and sustainable material



DM630: Activation of a Ph.D. PNRR – Missione 4 ("Istruzione e ricerca") Componente 2 ("Dalla ricerca all'impresa")

APPROVED



Safdar, Arslan Reza – PhD

Master degree in Physics Started in November 2024





Innovative materials

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