ZANTEX™

Advanced Polymer Network Suprastructure

Metal-Free Dental Restorative Material

BIOFUNCTIONAL MATERIALS

ZANTEX™ Metal-Free

Advanced Polymer Network Suprastructure

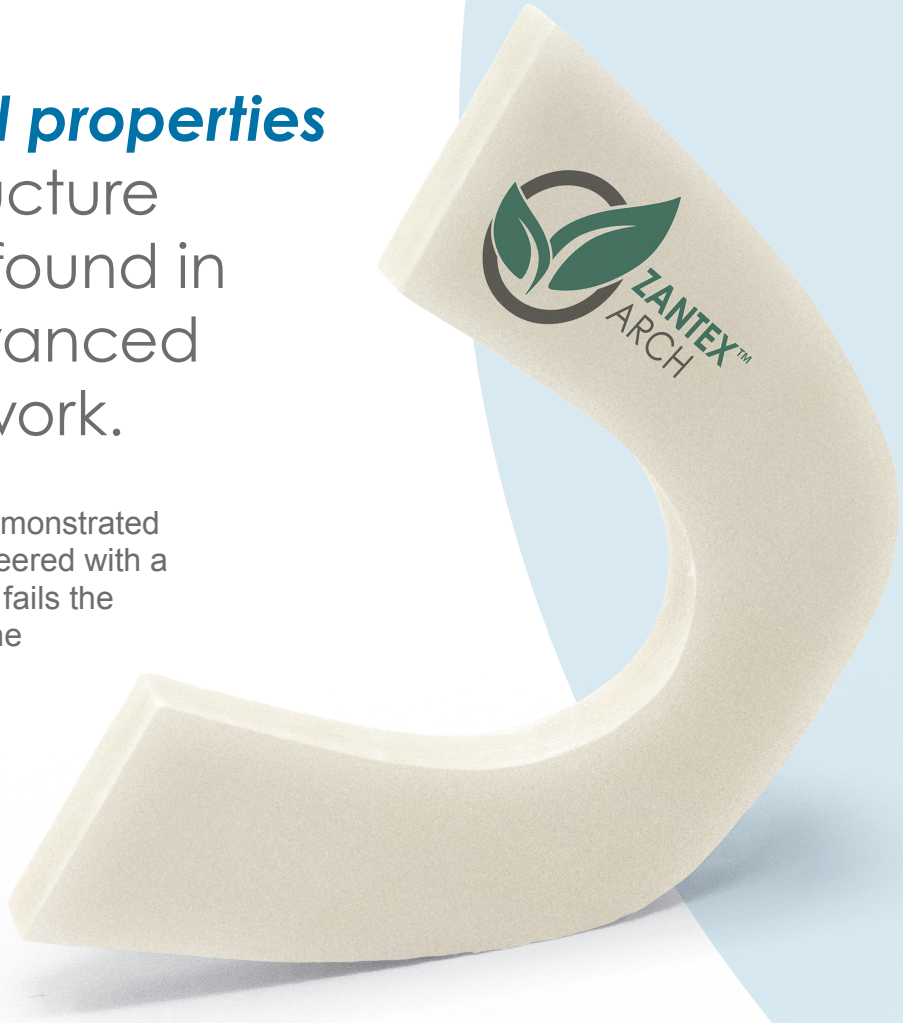
ZANTEX™ is made of a high-performance polymer matrix reinforced with a very dense network of glass fibers arranged in a three dimensional manner. It is intended to be used by dental technicians and dentists in the fabrication of substructures or frameworks that provide additional mechanical resistance for partially or totally edentulous restorations. Although at a low density of 1.9g/cm3, **ZANTEX**™ exhibits both high tensile strength and high flexural and compressive properties. Additionally, it is biocompatible, easily adjustable, requires no firing and provides an extraordinary level of design and fabrication freedom.

Due to **ZANTEX's** polymeric structure, it bonds extremely well to most materials used in restorative dentistry.

- **Lightweight**
- **Metal free solution**
- **No exchange of ions in the mouth**
- **DISK Form for CAD/CAM**
- **High level of design freedom**
- **Durable and resilient**
- **High tensile strength**
- **No firing required**
- **High flexural and compressive characteristics**
- **Biocompatible**
- **ARCH Form Precut for Ease of Adjustability**

The ***most vital properties*** of a suprastructure material are found in **ZANTEX's** advanced polymer network.

Furthermore a study has demonstrated that when **ZANTEX**™ is veneered with a composite; if the composite fails the **ZANTEX**™ remains in pristine condition so the repair is simplified.*



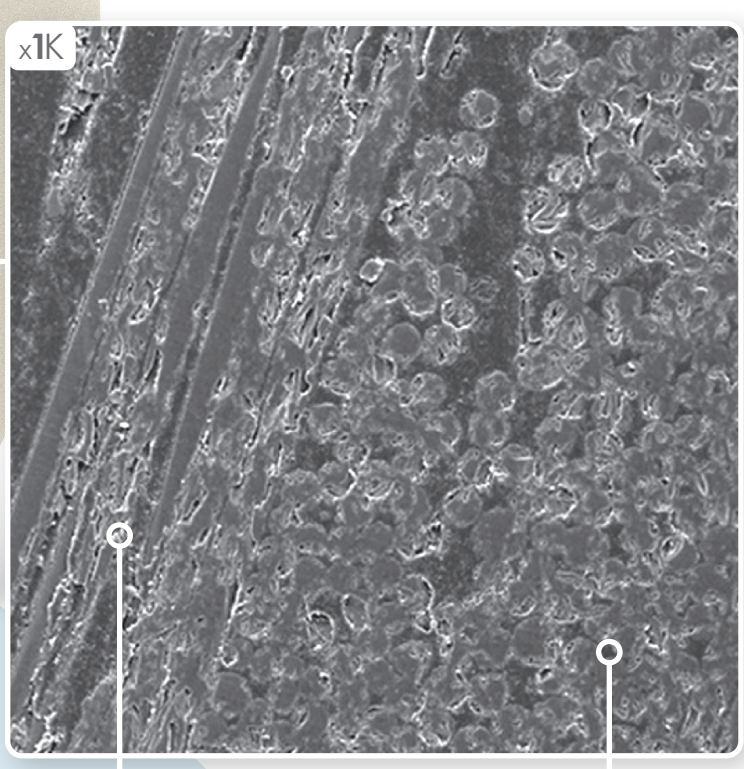
Comparison of elasticity and strength of framework materials:

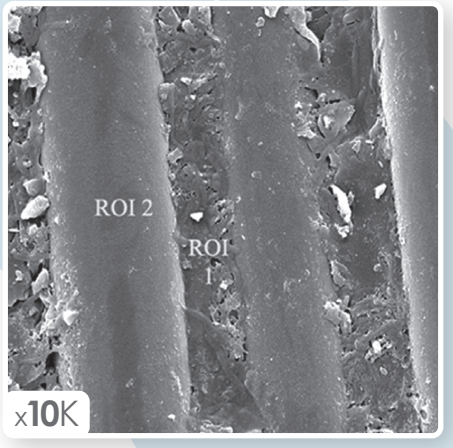
	ZANTEX™	ZIRCONIA	CrCo	PEKKTON™	PEEK	Cortical Bone
Tensile Strength	530 MPa	348 MPa	695 MPa	115 MPa	100 MPa	130 MPa
Flexural Strength	650 MPa	1200 MPa	600 MPa	200 MPa	170 MPa	90 MPa
Elastic Modulus	35 GPa	210 GPa	275 GPa	4 GPa	4 GPa	15 GPa
Compressive Strength	920 MPa	2000 MPa	448 MPa	246 MPa	118 MPa	180 MPa
Density	2.1 g/cm3	7 g/cm3	8.3 g/cm3	1.3 g/cm3	1.3 g/cm3	1.8 g/cm3

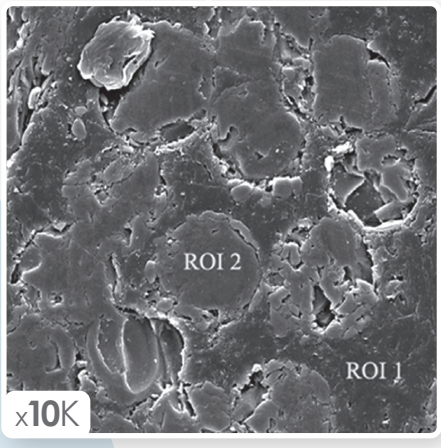
** Bergamo ETP, et al. Physicochemical and mechanical characterization of a fiber-reinforced composite used as frameworks of implant-supported prostheses. Dent Mater (2021)*

Advanced
Polymer Network

The thousand times magnification S.E.M., below, highlights the fiber polymer network that provides Zantex's exceptional strength and durability.







These S.E.M,'s (ten thousand times magnification), provide a clearer visualization and emphasize the cross pattern orientation of the fibers.

Proven Strength, Durability & Biocompatibility

ZANTEX™ Material (either in ARCH or DISK Forms) exhibit a degree of, strength, elasticity and hardness advantages that make it an excellent nonmetallic choice for frameworks in fixed implant restorations (fixed or removable).

Material Properties:

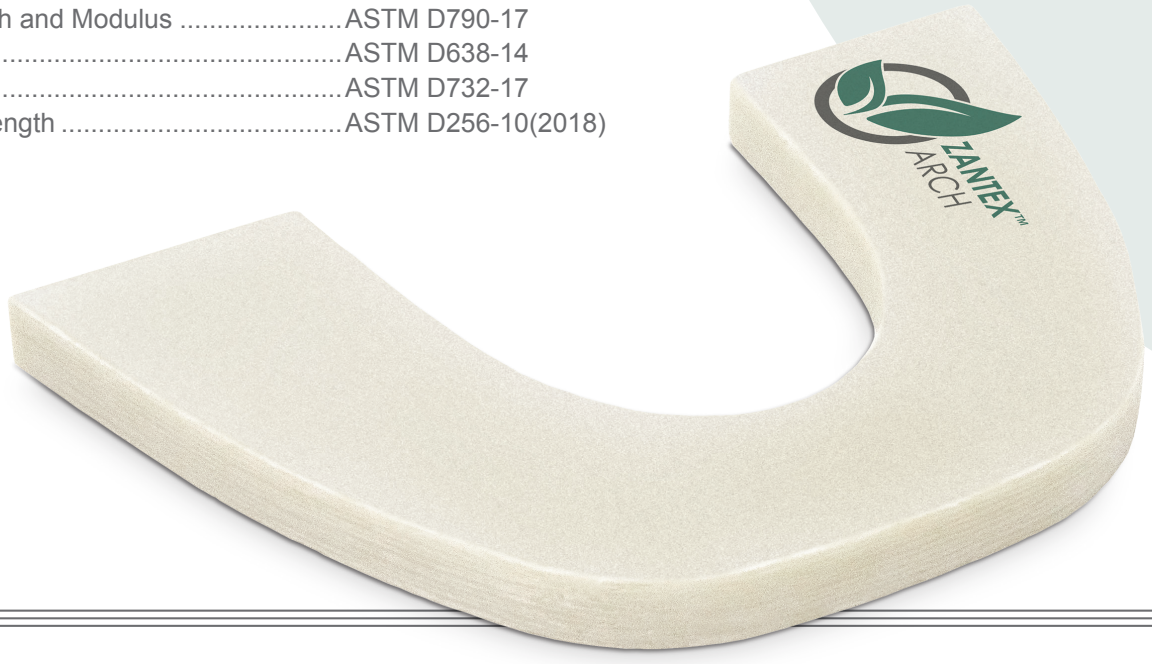
Tensile Strength	530 MPa
Shear Strength	148 MPa
Flexural Strength	650 MPa
Flexural Modulus	20/18 GPa
Compressive Strength	920 MPa
Izod Impact Strength	4.2/3.9 J/cm
Rockwell Hardness (M Scale)	98
Specific Gravity	1.9

Biocompatibility Testing:

In Vitro Cytotoxicity	ISO 10993-5:2009
Irritation and Skin Sensitization	ISO 10993-10:2010
Systemic toxicity	ISO 10993-11:2017
Chemical Characterization of Materials	ISO 10993-18;2005

Mechanical Testing:

Flexural Strength and Modulus	ASTM D790-17
Tensile Strength	ASTM D638-14
Shear Strength	ASTM D732-17
Izod Impact Strength	ASTM D256-10(2018)



C.A.D. to C.A.M.

Milling Modifications

The **ARCH Form** of **ZANTEX**™ can be modified using a laboratory hand-piece, equipped with Carborundum, Carbide or Diamond burs. The **DISK** (Puck) **Form** of **ZANTEX**™ (98mm ø x 17mm), is compatible with most four or five-axis dental CNC machines. Follow the CNC manufacturers pre-set milling parameters and guidelines. Both Wet Milling or Dry Milling may be employed with **ZANTEX**™ material in accordance with the cutting speed and drilling pressure. Diamond drills are usually preferred for optimal milling.

C.A.D.
Design

Milled
Framework

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Bonding

After cutting and/or milling **ZANTEX**™ material, the cosmetic & restorative abutments are bonded and cemented the final **ZANTEX**™ reinforcement frame. **ZANTEX**™ Forms are compatible with various bonding agents and materials. Bonding procedures may vary.

Zirconia Bonding

Sandblast the surface with Alumina Powder between 80-130 microns under a pressure of 2 bars, (29 psi). Thoroughly clean the surface with a gentle flow of pressurized steam. Dry completely with Ethanol. Use the manufacture's bonding recommendations for Zirconia: Silane, Primer and Dual Cure Cement. All **ZANTEX**™ exposed areas that could come in contact with the gingiva should be sealed (use GC OptiGlaze® or equivalent).

Lithium Disilicate Bonding

Sandblast the **ZANTEX**™ surface with Alumina Powder between 80-130 microns under a pressure of 2 bars, (29 psi). Thoroughly clean surface with a gentle flow of pressurized steam. Dry completely with Ethanol. Etch, clean, silane and bond the Lithium Disilicate restoration in according to the manufacture's recommendations. All **ZANTEX**™ exposed areas that could come in contact with the gingiva should be sealed (use GC OptiGlaze® or equivalent).

Composite / PMMA Obtained from Milling

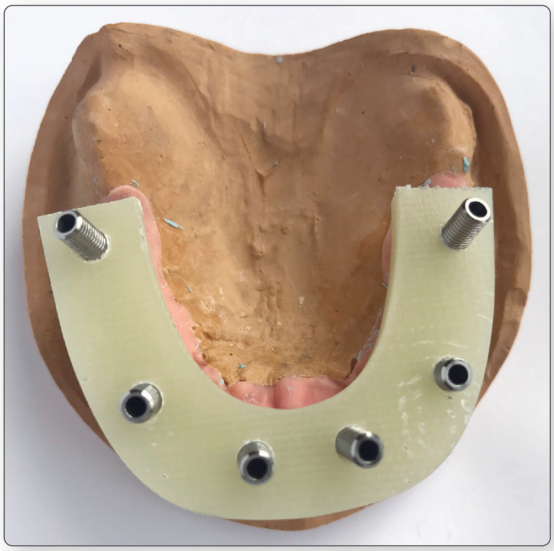
Sandblast the **ZANTEX**™ surface with Alumina Powder between 80-130 microns under a pressure of 2 bars, (29 psi). Thoroughly clean surface with a gentle flow of pressurized steam. Dry completely with Ethanol. Apply Primer and Bond with Dual Cure Cement according to manufacturer's recommendations. All **ZANTEX**™ exposed areas that could come in contact with gingiva should be sealed (use GC OptiGlaze® or equivalent).

Composite / PMMA may be Applied Directly to the ZANTEX™ Reinforcement Material.

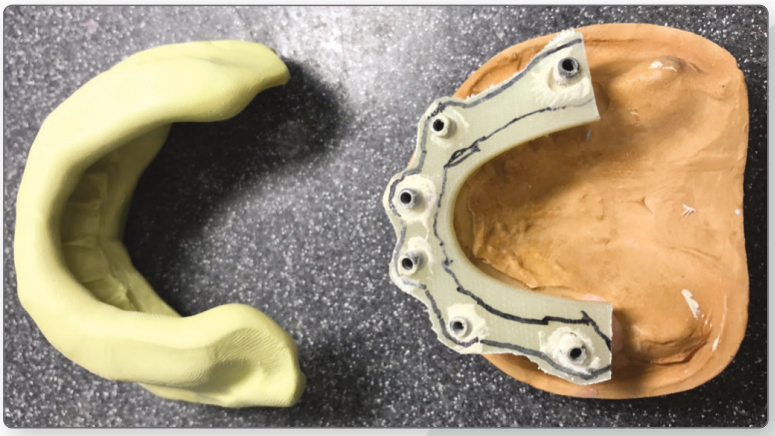
Sandblast the **ZANTEX**™ surface with Alumina Powder between 80-130 microns under a pressure of 2 bars, (29 psi). Thoroughly clean surface gently with a gentle flow of pressurized steam. Dry completely with Ethanol. Apply Bonding Adhesive recommended by the composite or PMMA manufacture. Apply the composite and cure onto the **ZANTEX**™ piece. All **ZANTEX**™ exposed areas that could come in contact with the gingiva should be sealed (use GC OptiGlaze® or equivalent).

ZANTEX™ ARCH

ZANTEX™ ARCH provides a strong, rigid framework for composite, stock teeth or veneer bridges with simplified fabrication without the need for CAD/CAM.



ZANTEX™ ARCH is accurately pierced to fit the Titanium Cylinders (to be bonded) per diagnostic stage.



A Jig allows for controlling the ARCH's reduction.

The **ZANTEX**™ ARCH is easily reduced to conform to required parameters.

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Two techniques may be employed to finish the **ZANTEX**™ supported bridge.

Classic Flask

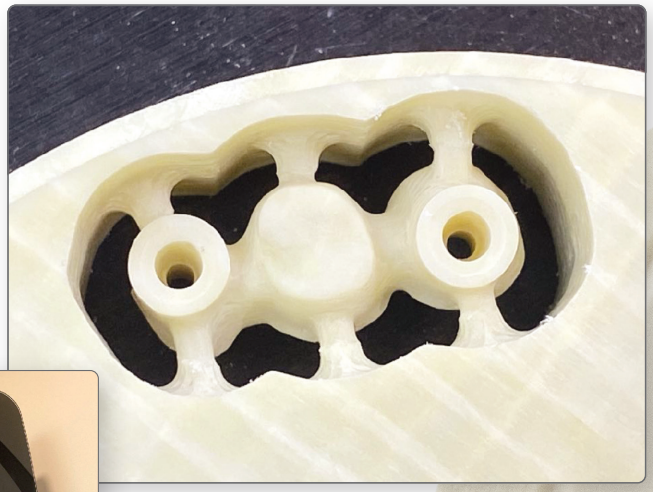
Transitional Bridge using the **ZANTEX**™ Flask technique.

100% Composite Injection

Finished Bridge using the **ZANTEX**™ Injected Composite Technique.

ZANTEX™ DISK

The **ZANTEX**™ DISK can be milled into an extremely strong but incredibly light framework that facilities an aesthetic material without risk of de-lamination.



This example is milled from an Exocad™ project on a Ceramill Motion 2 PEEK Program' with carbide drills.

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A multitude of laboratory **ZANTEX**™ DISK options accommodate your treatment selections:

"All on 4" (or "6") with Stock Teeth, utilizing a flask.

Laboratory: Allegre
Dr A. Peivandi
Lyon, France

Milled PMMA structure on a milled **ZANTEX**™ Framework.

Laboratory: Imperium
Nocera, Italy

Injected composite in a transparent Flask on milled **ZANTEX**™ Framework.

Laboratory: Fedele
Naples, Italy

Laboratory: Shatkin First
Amherst, NY, USA

Individual ceramic teeth bonded on a milled **ZANTEX**™ Framework.

ZANTEX™ Advanced Polymer Network Suprastructure

Disk Form
REF: DC01

Arch Form Reinforcement
REF: AR01

Distribuito in Italia da

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ZTX-21-06