WPX
FIBER CERAMICS

WHIPOX® technology

WHIPOX® is a high temperature resistant, non-brittle, all oxide ceramic matrix composite (OCMC) material, ideally suited for high temperature applications in high vacuum, in oxidizing or corrosive environments.

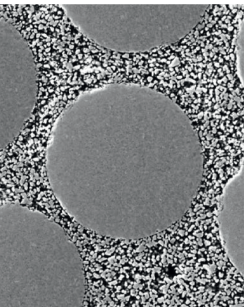
WHIPOX® properties

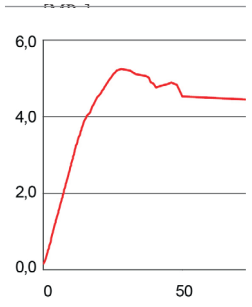
WHIPOX® uniquely combines the advantages of metals and ceramics:

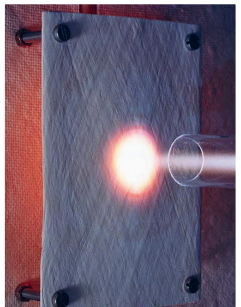
- High thermal shock resistance (> 1,000° K/sec, and > 1,000°K/cm)
- Temperature stability (beyond 1,200°C)
- Oxidation and corrosion resistance
- Chemically inert against metallic melts (e.g. aluminum, zinc)
- High tensile, bending, and torsional strength
- Light-weight
- Ductile, non-brittle fracture behaviour
- Electromagnetic transparency (for inductive heating)
- Electrical insulator
- Low thermal conductivity

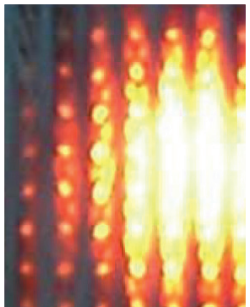
WHIPOX® A45 specs

Density	2.9 g/cm³
Porosity	26 vol%
Tensile strength	70 MPa (0/90°)
	110 MPa (± 45°)
Bending strength	190 MPa
Young's modulus	110 GPa
ILSS	12 MPa
Thermal conductivity	2.7 W/mK (at 1,000°C)
Thermal expansion	8.4 10^{-6}/K (at 1,000°C)









WHIPOX® products

We offer standardized, semi-finished parts (sheets, grids, tubes) as well as customer specific solutions (components, systems)

About WPX

WPX Faserkeramik GmbH exclusively develops, produces and markets WHIPOX® based parts used in industrial heat treatment processes and in high temperature applications.

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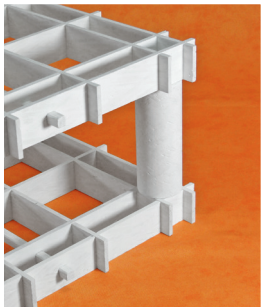

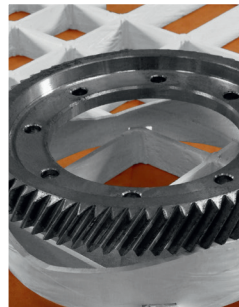

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WHIPOX®

Oxide Fiber Ceramics for industrial heat treatment and high temperature applications

lightweight, thermal shock proof, no corrosion, no warping, no sticking

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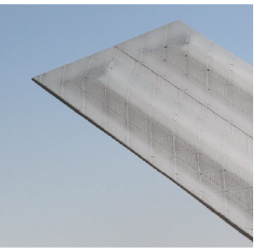
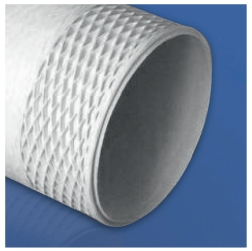
Differential hardening

Lightweight WHIPOX® structures partially shield steel surfaces from radiation, sustaining temperature gradients > 1,000 °K / cm and temperature changes > 1,000 °K / sec

Transport rollers

Kiln rollers made of (or armed with) WHIPOX® reduce creep, show no corrosion, and avoid catastrophic material failure.

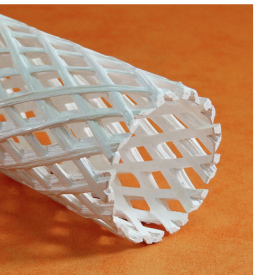



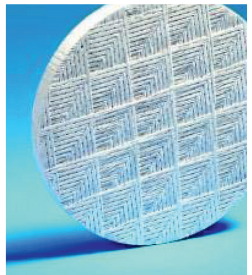

Annealing lines

WHIPOX® mesh tubes as interior lining of stress-relief annealing lines allow maximum heat transfer while protecting the bare wire from contamination.

Soldering base

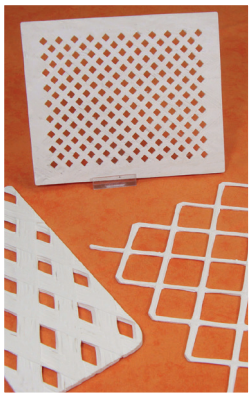
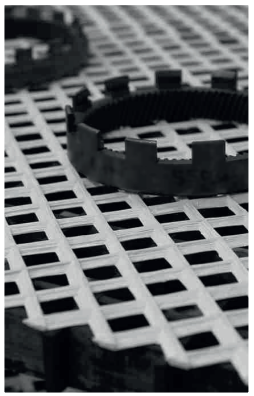
WHIPOX® soldering bases show negligible heat dissipation, yet maximum tolerance against point loading and temperature gradients.





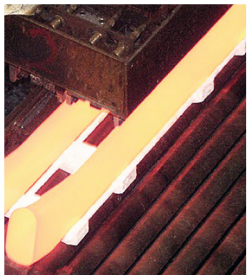
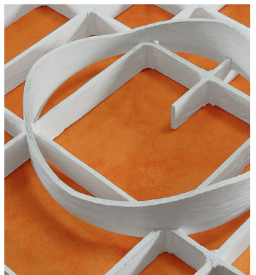
Separators for cast, CFC carriers

WHIPOX® grids and mesh structures separate the parts from cast / CFC support structures, thereby preventing them from sticking and local Carbon contamination, and avoiding tedious and faulty coating procedures. They are warp free, thermal shock proof and allow automated rack loading.

Product carriers, charging racks, forks

WHIPOX® heavy duty charging racks are very light weight and hence minimize energy loss. They are 100% oxidation resistant, and show no warping or deformation under load, or thermal shock failure under high pressure gas quenching. Their open grid structures facilitate heat flow and homogeneous temperature distribution.

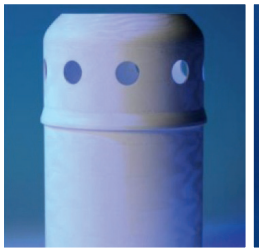




Burner nozzles, flame tubes

WHIPOX® high speed gas burner nozzles are corrosion-free, and robust during installation, run-up and in case of deflagration.

Induction heating

WHIPOX® is electromagnetically transparent, shows no inductive coupling, is electrically and thermally insulating, and tolerates extreme thermal gradients.


Chemical process engineering

Thin-walled structures made of WHIPOX® are thermal shock resistant, corrosion-free, oxidation-resistant, and can effectively shield metallic melts.

Refractory linings

WHIPOX® ceiling linings and sandwich structures protect against fibre insulation debris caused by high velocity, burners, and constitute rotary kiln interior linings.