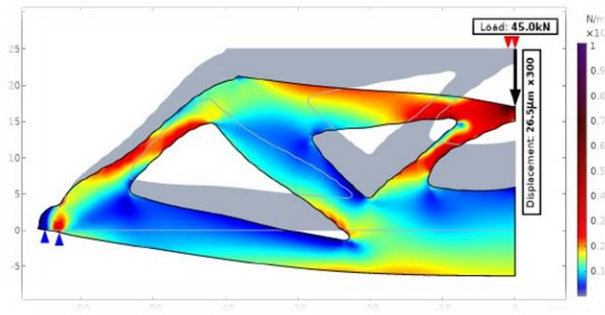
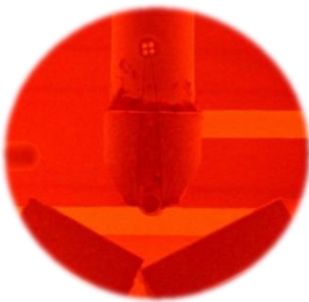


OUR MATERIAL AND PROCESS EXPERTISE YOUR COMPETITIVE ADVANTAGE

Contact us



ANALYTICAL SUPPORT

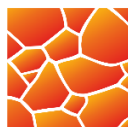
Simulation of
AM parts

Quality control
and
damage analysis

Microstructural
analysis



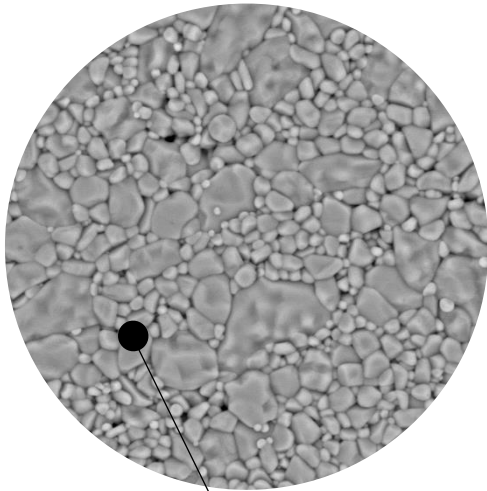
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WZR
ceramic solutions

SCANNING ELECTRON MICROSCOPY
SIMULATION
DILATOMETRY
STRENGTH TESTING
CHECKING CERAMIC
METAL
MICROSTRUCTURE

Chemical and physical testing of materials



Simulations



Martin Witscher
Lab Manager CerCheck®
WZR ceramic solutions

Due to specific applications of materials such as metals, ceramics and their combination, there are **special requirements** for support on the scientific-analytical side in order to successfully cope with the **development and optimization of the materials**. These standards are reflected in the range of methods and their informative value at **WZR ceramic solutions**.

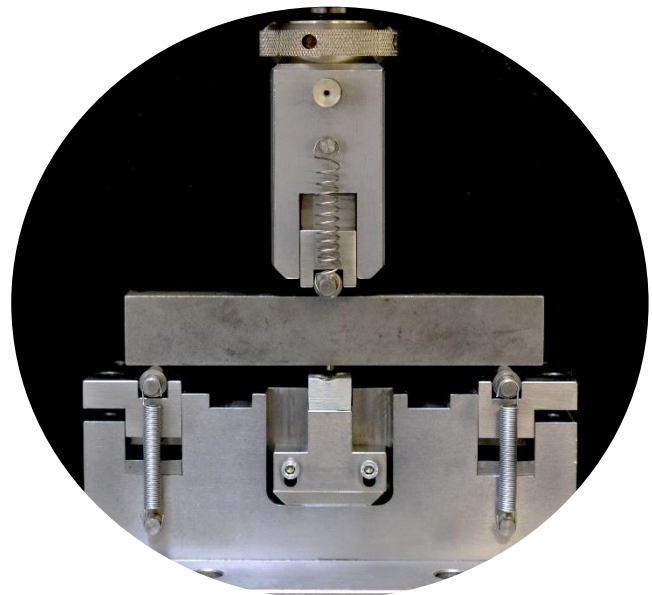


Quality Control

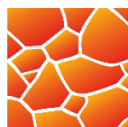
Flexural strength, chemistry, microstructure – these characteristics only describe a small part of qualities that are important for **application-specific selection of materials**.

It results in a portfolio of many analytical methods that takes important factors into account for **evaluation and development**.

Due to **extensive knowledge** in development and testing of ceramic and metal materials we can advise you during the **selection process**, carry out the development and production inhouse and provide testing to assure the quality of your material in order to gain scientifically **solid, reproducible results**.



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Failure Analysis and Simulation

Our **failure analysis** focuses on the recording of the damage that has already occurred and examines the **possible causes**. The goal is to get you back to your normal production cycle as **quickly** as possible.

Our approach is strictly based on **scientific criteria** that allow an independent and **objective evaluation**. For the investigation, we use **methods** such as scanning electron microscopy (SEM) with element determination (EDS), XRD and XRF analysis, as well as **physical testing methods** for thermal expansion, hardness and strength tests up to 1500 °C.

At the end of the investigation, the facts are presented right through to the cause. These findings can now be used for **problem solving** and **process optimization**.

We also offer **simulations**, especially of **3D printed ceramic parts**. This allows thermal and mechanical loads to be calculated in advance in order to achieve **material savings** while maintaining functionality. Another use case is the **change of the design**: Here we can predict the shape in the green state in order to get the optimized component precisely after the treatment.

simulation

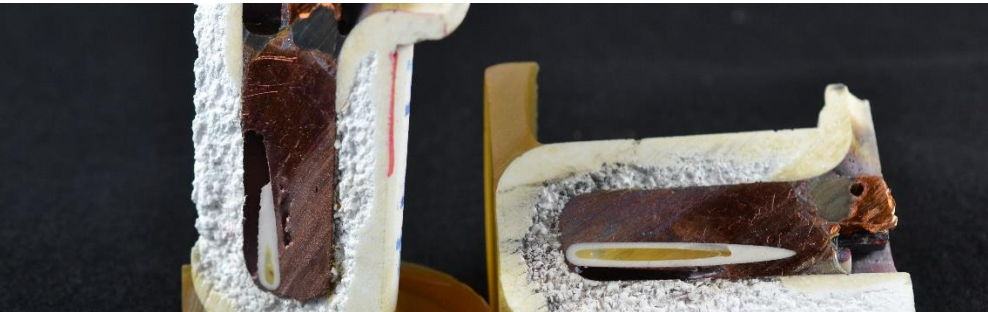
1500 °C

phase transitions

50 kN

thermal expansion

strength



How to improve your products with our analysis:



Determination of the characteristics:

Knowledge of the relevant parameters gives the freedom to change them



Knowledge gain:

Interpret the results in context instead of producing numbers



Quality control accompanying the process:

Monitoring enables compliance with given framework conditions



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MICROSTRUCTURE

STRENGTHS

Why you will benefit from us:



Many years of experience in the field of analytics



Gain of knowledge through simulations



Observation of material properties with advanced analytical equipment

PERFORMANCES

Our services:



Optimisation of component properties by simulation and 3D printing



Development and assessment of novel materials



Quality assurance and failure analysis



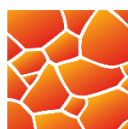
CERAMICS and METALS

„We shape the future of ceramics“. The key motivation of WZR ceramic solutions. This principle extends to all areas of the company. WZR is not only concerned with the development, but also the optimization of 3D printed parts. We literally "shape" the future through our improvements and simulations. The use of new material combination, material savings and design adjustments and their real application behaviour are our daily tasks. We stepped out of the field of ceramics and now offer an even larger selection: metals, ceramics and their combinations.

Talk to us and discover the possibilities to shape the future of your products.



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