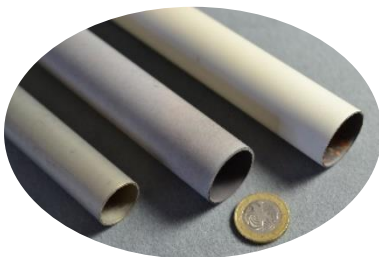


# OUR MATERIAL AND PROCESS EXPERTISE YOUR COMPETITIVE ADVANTAGE

Contact us



## Ceramic Coatings on Metal Parts

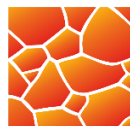
Metal Components  
with Ceramic  
Properties

Battery technology  
and electromobility -  
use cases for our  
coatings

We start  
at the very beginning



LinkedIn



**WZR**  
ceramic solutions

ELECTRICAL INSULATION  
DIP COATING  
SURFACE  
CERAMIC COATING  
METAL COMPONENTS  
COATING THICKNESS  
SPRAY COATING ANALYSIS WETTING PROPERTIES

## Metal Components with ceramic properties

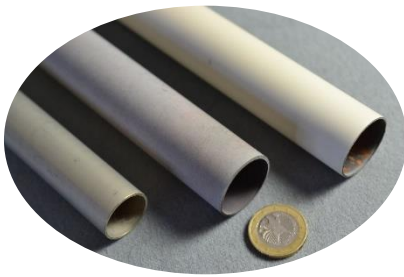


Many ceramics are **electrically insulating** or significantly more **temperature resistant** than metals. It is often sufficient to **equip only the surface** of components with improved properties.

With our coatings, you can achieve exactly that: ceramic properties on functional surfaces of metal components.



**Tatiana Wiens**  
project manager ceramic coatings



## Battery technology and electromobility - use cases for our coatings

Electrical insulation and thermal insulation are hot topics in battery technology and electromobility.

Copper materials are a fundamental in electric motors, which will play an increasingly important role in the future. We have made good experiences with our coatings on copper and its alloys, here we could even achieve electrical insulations of over 800V.

The energy storage systems of the future must be able to store large amounts of energy in the smallest possible volume. In addition to electrical insulation, thermal insulation is also required here to prevent overheating of storage units. For such application scenarios, our thermally insulating coatings have immense advantages, as they ensure very high thermal insulation with low coating thickness and do not fail even at temperatures of 700°C.

Electrical Insulation



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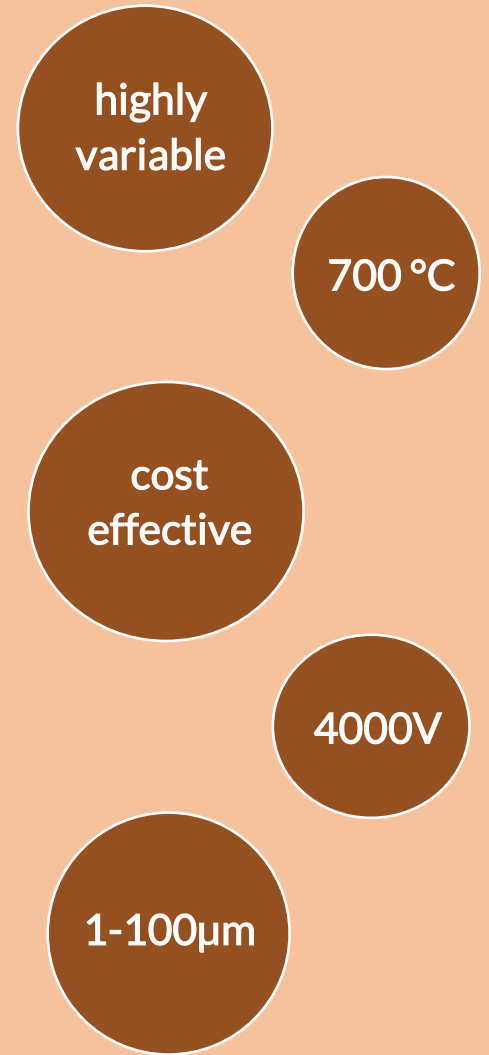
## We start at the very beginning

We use liquid ceramic precursors, which are turned into ceramic coatings by a temperature treatment of at least 180°C. As coating processes we use **dip coating** and **spray coating**. Depending on the requirements each of these processes has special advantages. Such coatings have a thickness of approx. 1µm and can change the wetting properties towards liquids or polymer melts.

By adding ceramic particles to our coating liquids, we receive coating thicknesses of 10 to 100µm. We can vary the properties of the coatings within wide

limits. By adding **electrically insulating** particles, we obtain insulating coatings with which we can **insulate 4000 V** and more. By adding thermally insulating particles, we can create coatings that protect metal components from overheating up to a temperature of approx. **700°C**. The type of particle determines the property of the coating.

Compared to other ceramic coatings, our coatings are fast and cost-effective to apply. We can tailor our coatings for your application to ensure the best possible performance.



## How to improve your products with our coatings:



By using our coatings:

Extend the operating conditions of your metal components



By using our experience:

Accelerated development progress through our know-how



By economical coating processes:

More cost-effective compared to other ceramic coatings




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CERAMIC COATING  
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## STRENGTHS

Why you will benefit from us:


 Many years of experience in the field of coatings


 Fast processing time


 Observation of coated parts with advanced analytical equipment

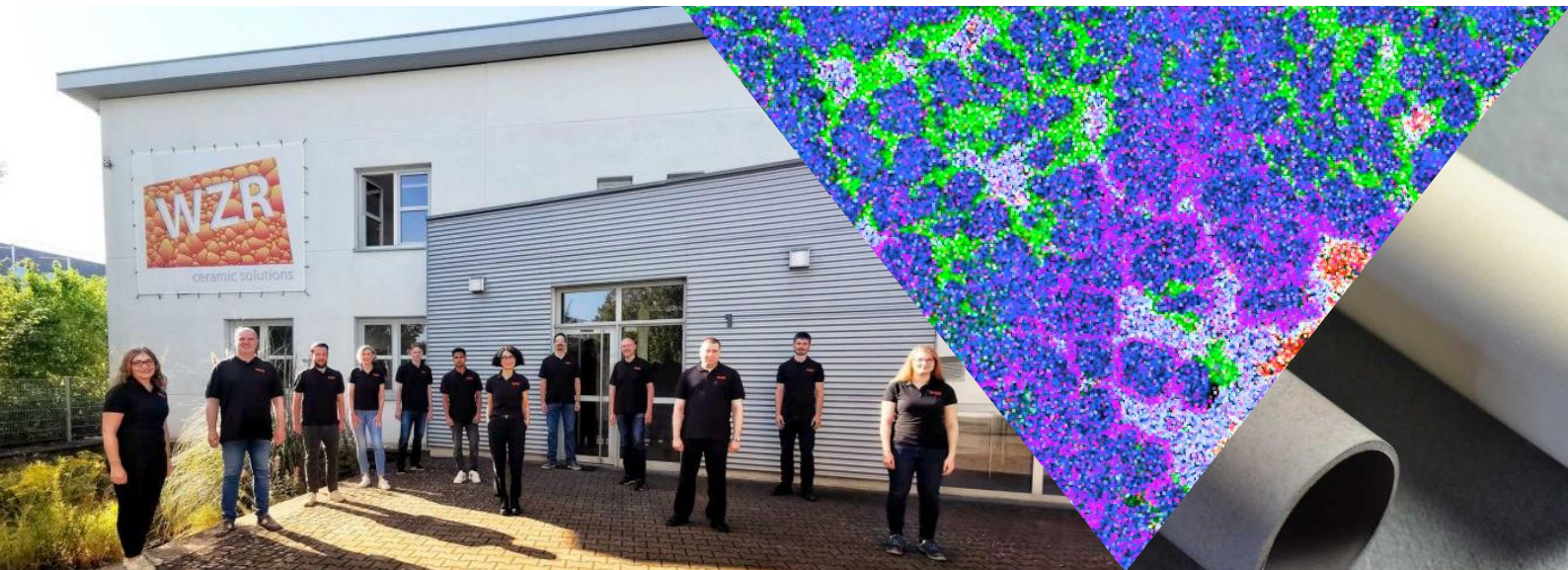
## PERFORMANCES

Our services:

 Development of customized coatings

 Optimisation of component performance by ceramic coatings

 Coating of first parts in the pre-series stage



## 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 printing. We literally "shape" the future by the use of ceramics also for coatings. 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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