



New Applications for Thermal Spray Coatings



**Fraunhofer Institute for Materials and
Beam Technology Fh-IWS**

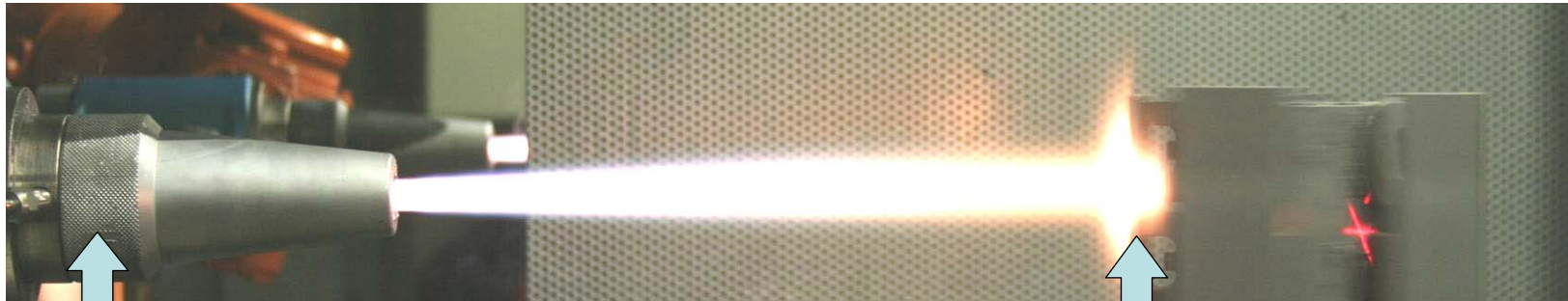


Dresden, Germany

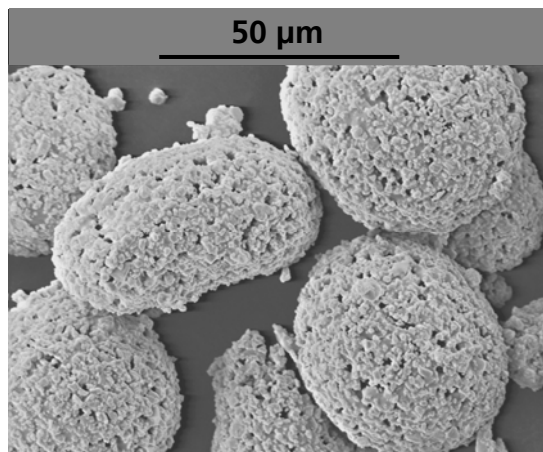
Project Details

Project coordinator	To be determined
Other applicants	Thermal Spray SME, powder suppliers for advisory board
Sector	Surface Engineering
Call of Interest	<input type="checkbox"/> CORNET <input type="checkbox"/> EraSME
Proposal summary:	
Advantages for SMEs, trade or industry:	Tailoring of functionality of parts and Improved performance
Profile of partners sought:	Applicants in different fields of industry (energy, aerospace, automotive, mechanical engineering, chemical, medicine....), consumer products Coating characterisation

The Typical Spray Process

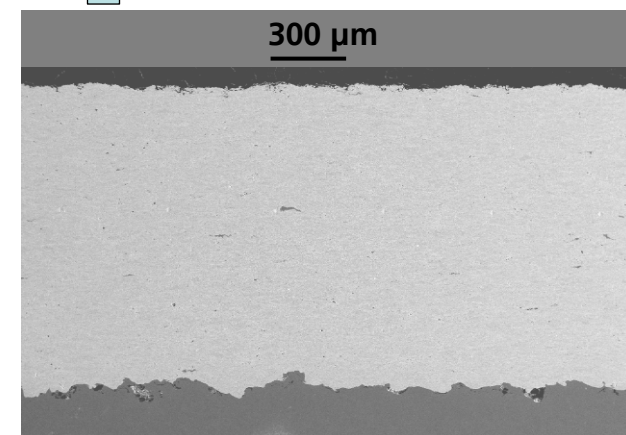


Material + Process = Coating Solution



Coating:

- Mechanical bonding to the substrate
- Typical coating thickness 100-500 μm



Typical Materials for Thermal Spraying

Metals and Alloys

metals (Mo, Zn, Ti, Al, Cu), alloys (Co-, Ni-, Fe- Al- Fe- Based, z.B. MCrAlY, NiCrBSi, Tribaloy, Hastelloy, NiCr, NiAl), nickel-graphite, mechanical mixtures (z.B. Mo-NiCrBSi),

Hardmetals ("Carbides")

WC-Co, WC-CoCr, Cr₃C₂-NiCr, (Ti,Mo)(C,N)-Co(Ni),

Ceramic Materials

Al₂O₃, Al₂O₃-TiO₂, Cr₂O₃, ZrO₂, TiO₂, hydroxyle apatite,

Polymers

polyethylene, polypropylene, polyimide



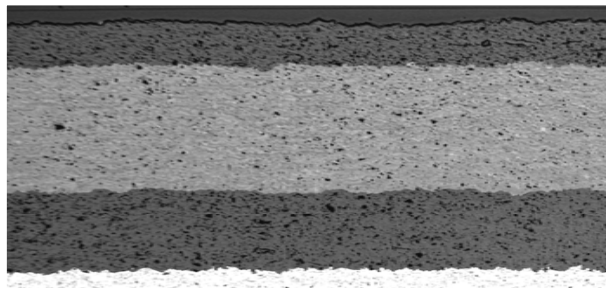
Classical Applications



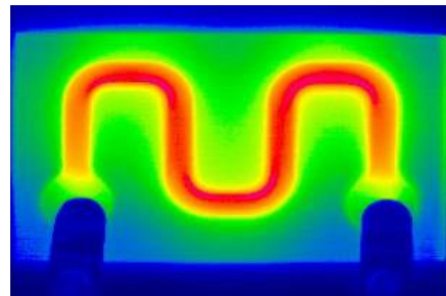
Ceramic Heating Elements

TiO_x- heating layer on Al₂O₃-isolation layer

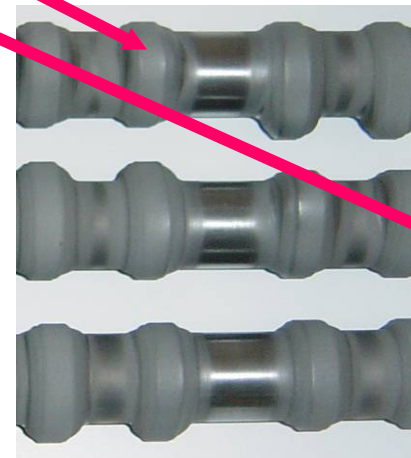
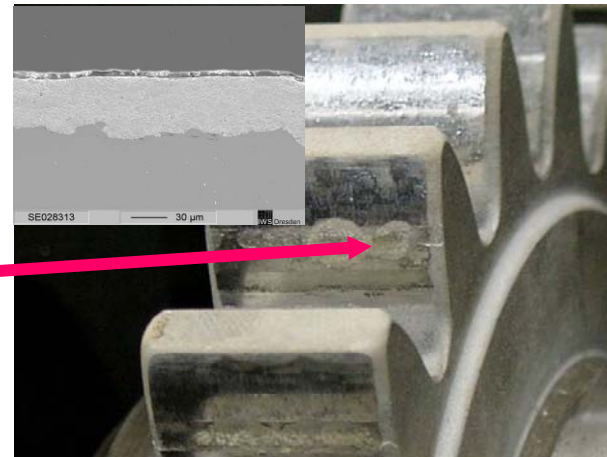
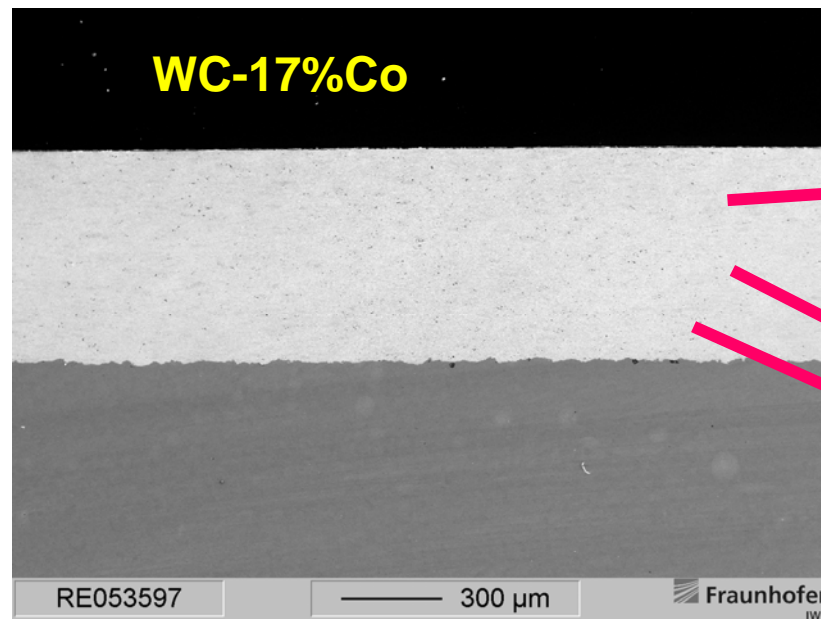
in Kooperation mit



500
µm



Hardmetal Coatings for coatings under fatigue load



in Kooperation mit



innovation for SME



transnational funding opportunities for European SME



**Thank you for your
attention!**

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