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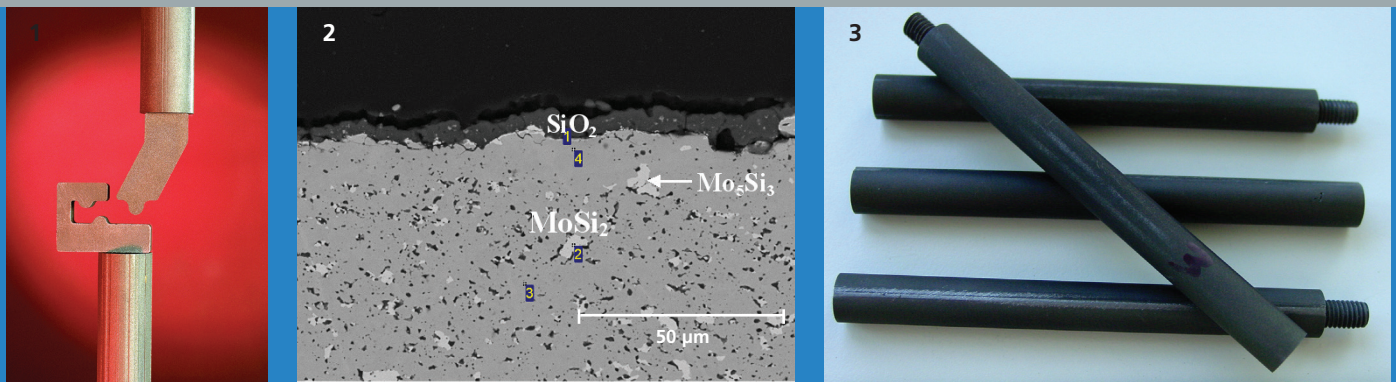
FRAUNHOFER INSTITUTE FOR MANUFACTURING TECHNOLOGY
AND ADVANCED MATERIALS IFAM, BRANCH LAB DRESDEN



1 *Assembly for high-temperature bending test*
2 *SEM image $MoSi_2$*
3 *Heating element*

$MoSi_2$ COMPOSITES FOR HIGH-TEMPERATURE APPLICATIONS

Production of structural parts by pressureless sintering

Advantages

- Production of $MoSi_2$-X-composites (X = SiC, TiB_2, ZrO_2, ...)
- Improvement of strength (σ_{4PB}) and fracture toughness (K_{IC})
- Lower sintering temperatures due to powders with high sintering activity
- application temperatures up to 1700 °C in oxidative and corrosive atmospheres

Products

- prototypical parts :
  Dimensions:
  Diameter: 5 - 165 mm
  Length: up to 250 mm
- Powder:
  sinter-active powders for silicide alloys

Applications

- Heating elements (bar, pipe, susceptor)
- Components for heat exchangers in corrosive environments
- Heat shields
- Reaction vessels
- Protective covering of thermocouples
- Crucibles, hot gas filtration
- Radiant plate
- High-temperature isolation components
- Parts for high-temperature mechanical testing

Services

- Component development and production
- Starting powders for further PM processes (pressing, sintering, MIM, ...)
- Alloy development (e.g. with respect to dispersion hardening and gradient structures)

Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM Branch Lab Dresden

Winterbergstrasse 28
01277 Dresden I Germany

Contact

Dr.-Ing. Uwe Gaitzsch
Telefon +49 351 2537 430
Fax +49 351 2537 399
E-Mail: Uwe.Gaitzsch
@ifam-dd.fraunhofer.de

www.ifam-dd.fraunhofer.de