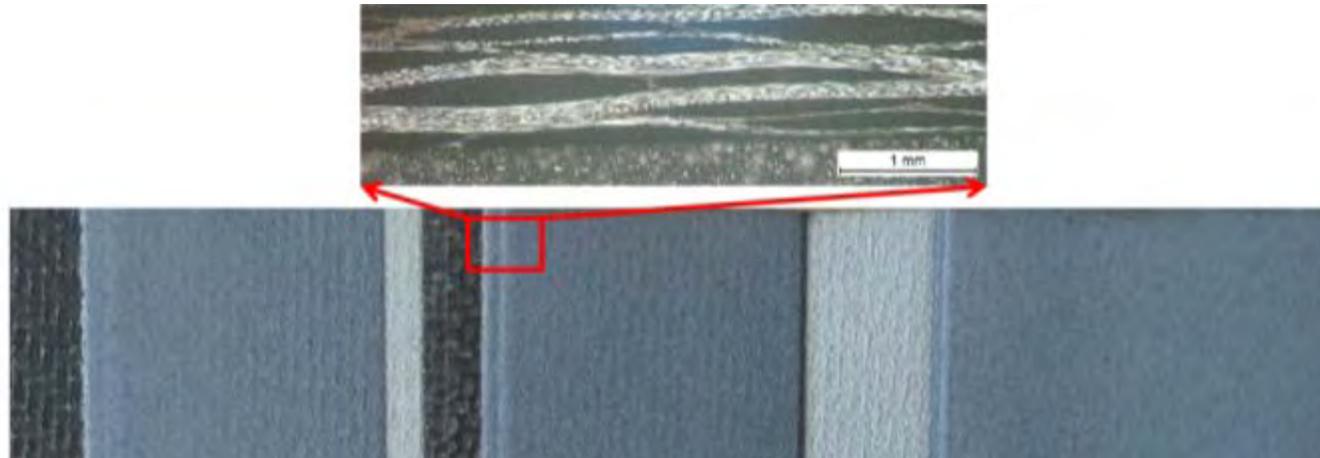


CFK-Verbundwerkstoffe mit thermischen Schutzschichten und Reflexionsschichten



Reinhard Kaindl
Stakeholderdialog “kritische Rohstoffe & innovative Materialien”
Montanuniversität, Leoben, 10.06.2015

CFK in der Großserie



(Foto: Airbus)

CFK als Zukunftswerkstoff

- Temperaturbeständiges CFK
 - CFK-Optimierung
 - Thermische Barrierschichten
 - Oxidationsbeständige PVD IR-Reflexionsschichten
 - Thermische Eigenschaften und Temperaturbeständigkeit
- Flexibler, adaptiver Fertigungsprozess





FE-Modell

Annahmen und Vereinfachungen



Abgas (CO₂)
600°C

0.1 m/s
50 m/s



Luft
20°C
0.1 m/s
50 m/s

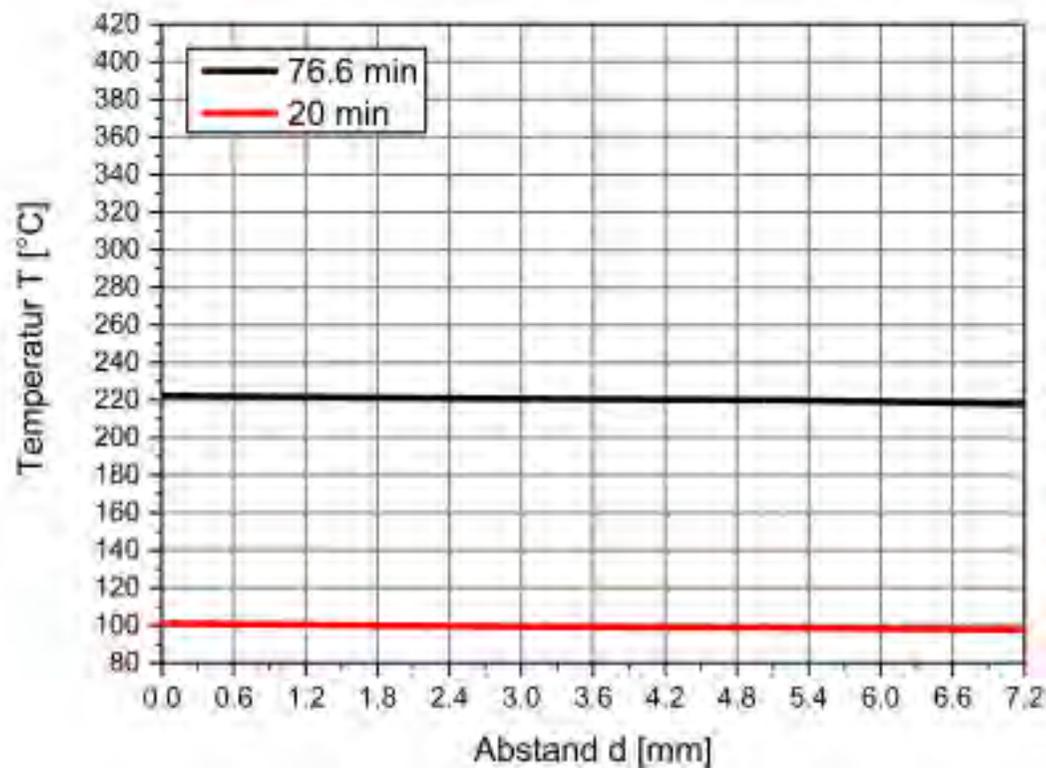
Spritzschicht

0.1 / 2 / 5 mm

Haftvermittler

0.2 mm

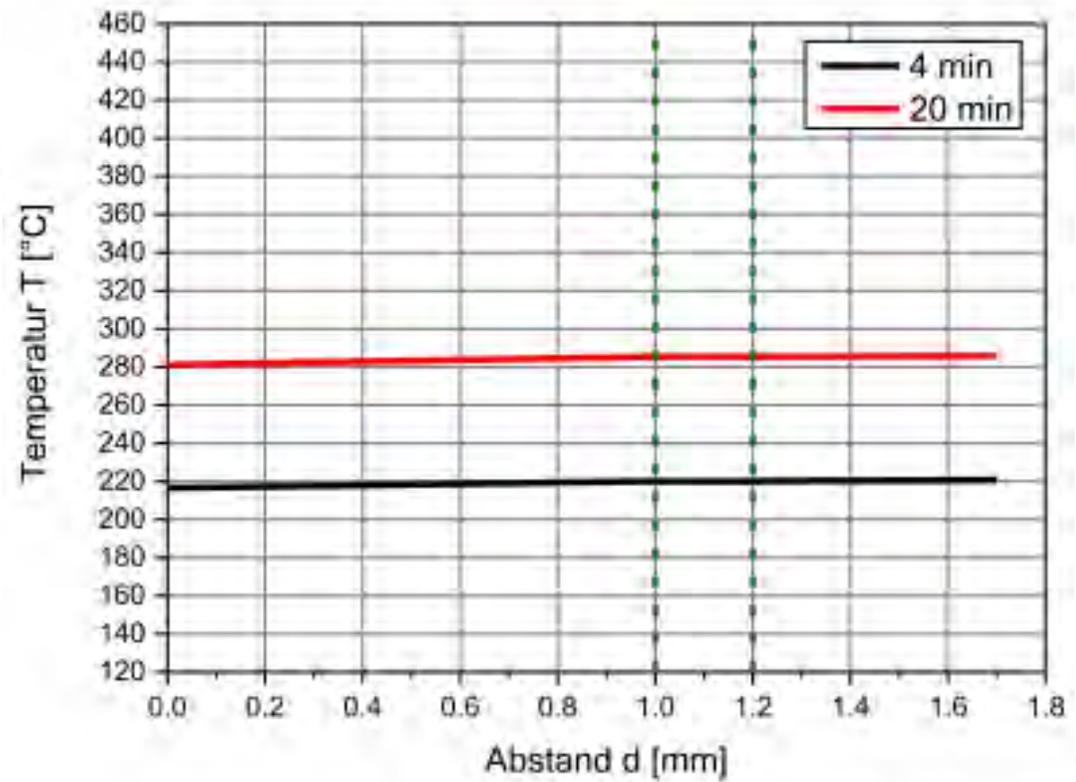
CFK
2 mm





FE-Modell

Annahmen und Vereinfachungen

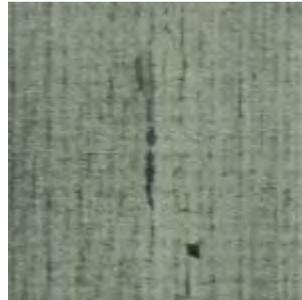


6 CFK-Optimierung

St. 2x2 Twill



UD



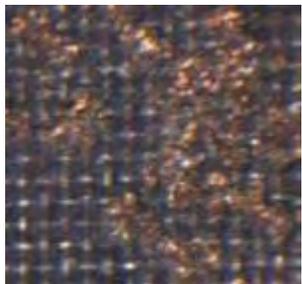
Abrissgewebe



Nanotubes



Metallgitter



Zr-Y Oberfl.



Zr-Y Oberfl.



Zr-Y durchg.



Airpreg



SMC



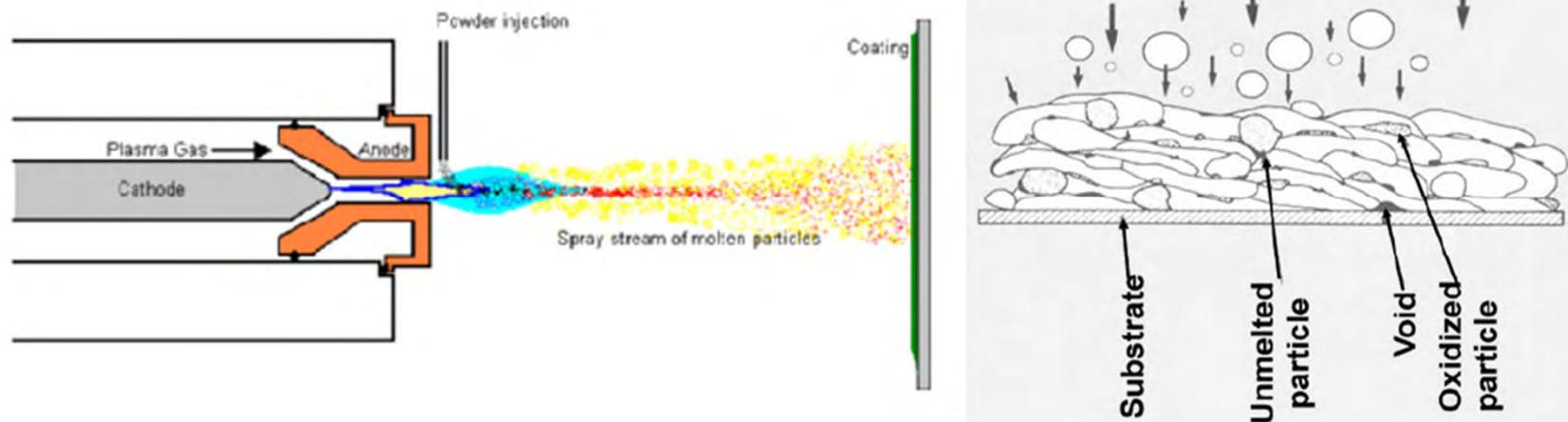
H6K

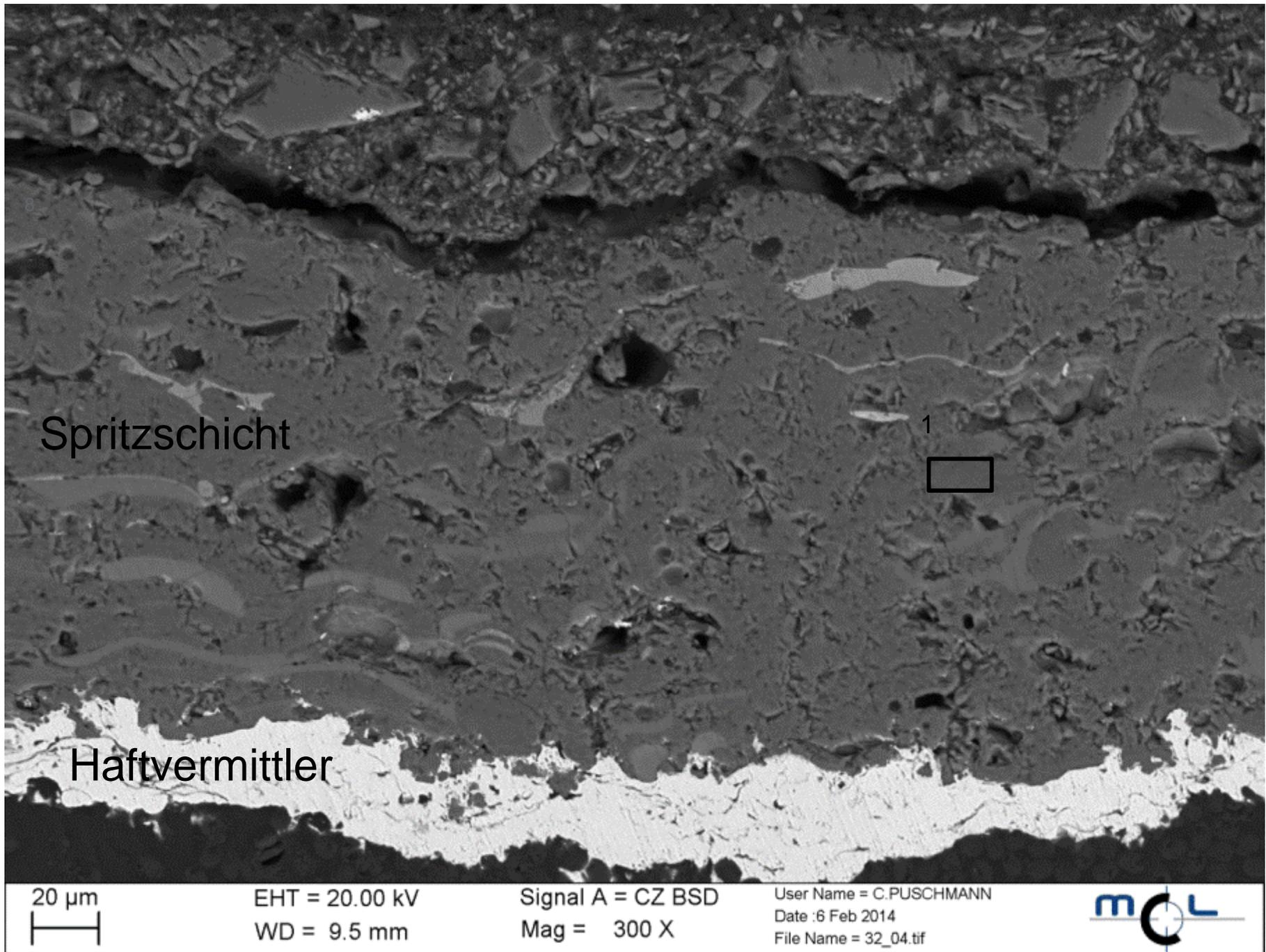


B132



Plasma-Spritzschicht





Spritzschicht

1

Haftvermittler

20 µm

EHT = 20.00 kV
WD = 9.5 mm

Signal A = CZ BSD
Mag = 300 X

User Name = C.PUSCHMANN
Date :6 Feb 2014
File Name = 32_04.tif

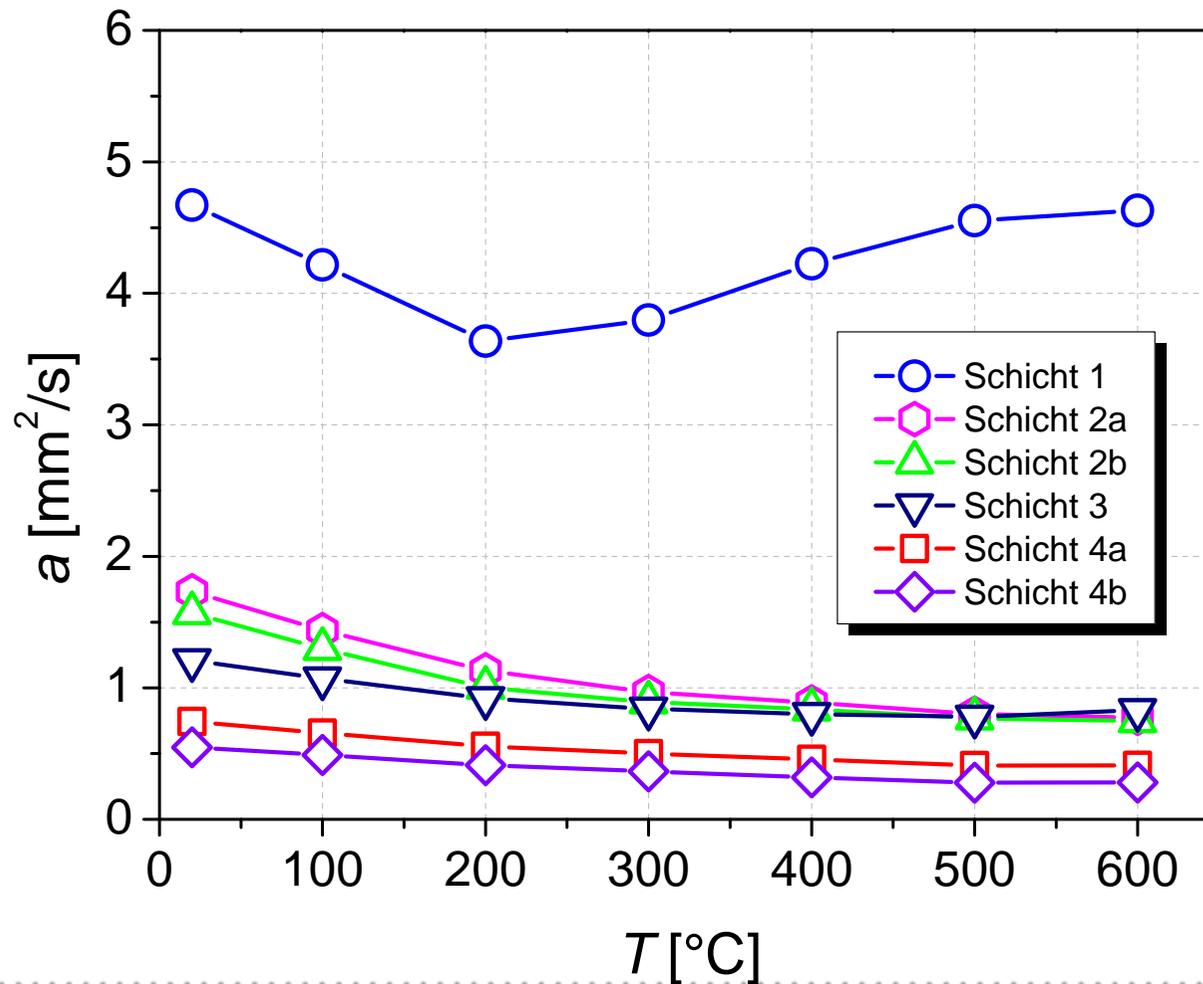


Haftvermittler/Spritzschicht

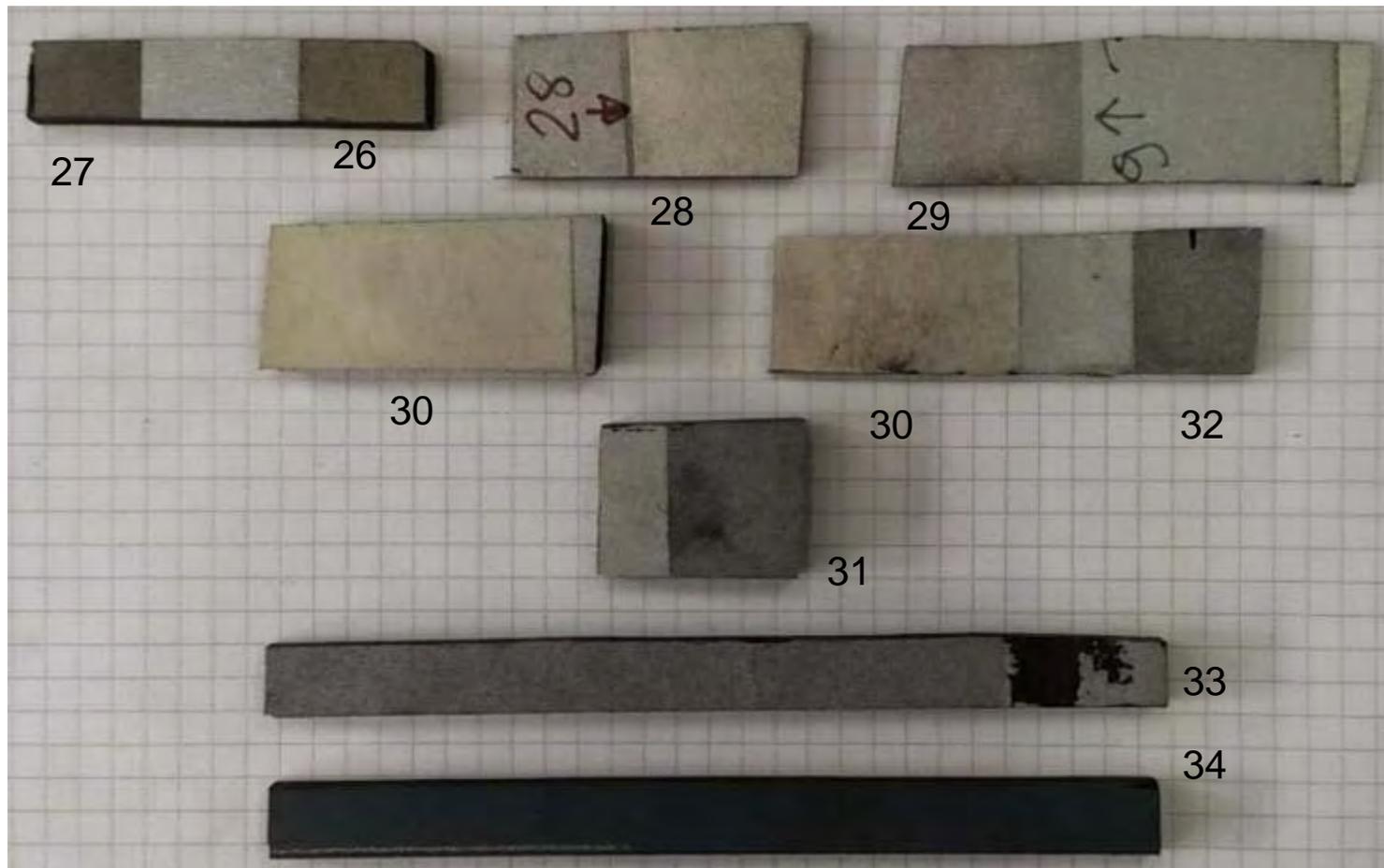


Temperaturleitfähigkeiten Spritzschichten auf Cu-Scheiben

10

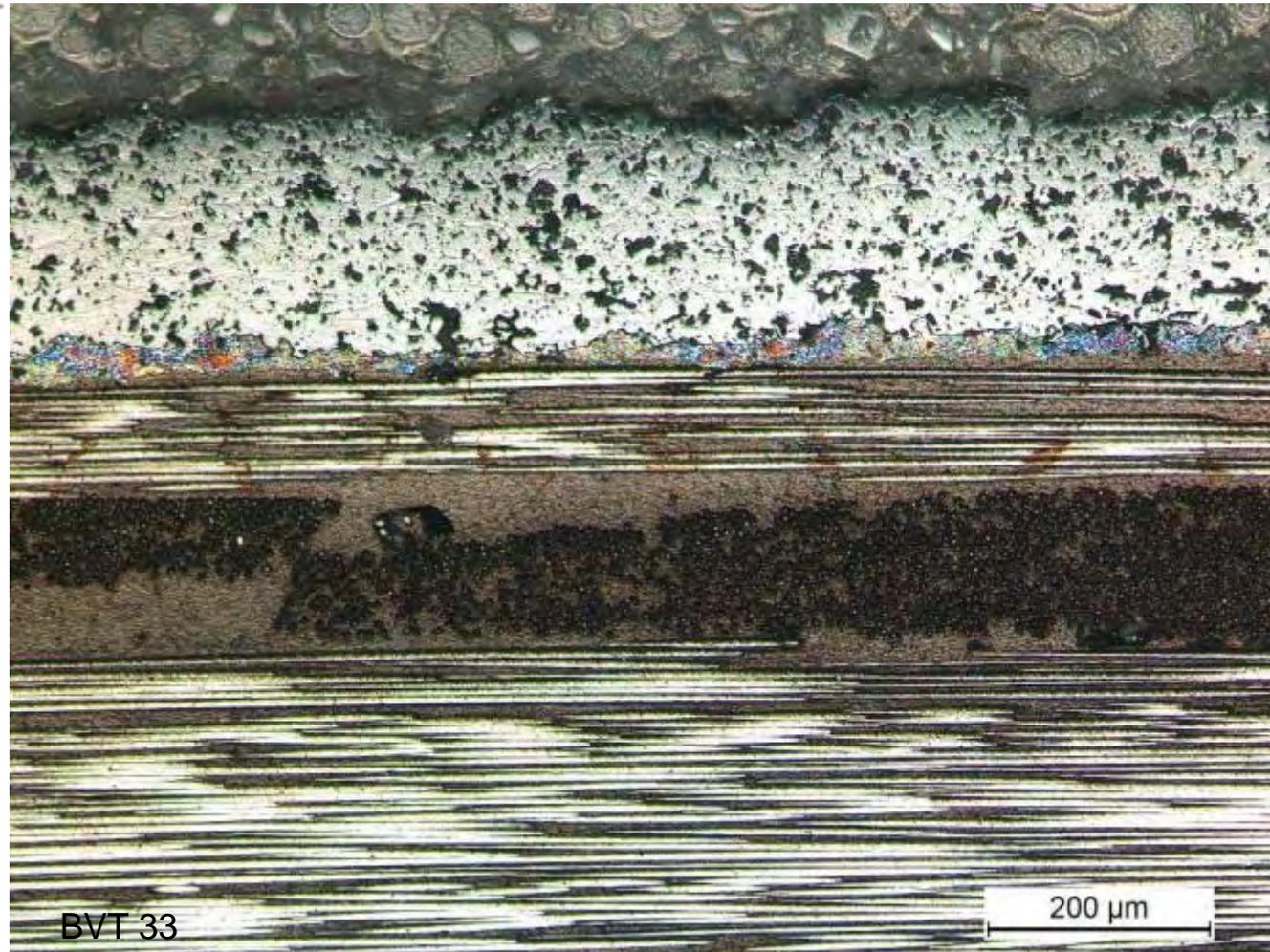


30' @ 200°C + H₂O

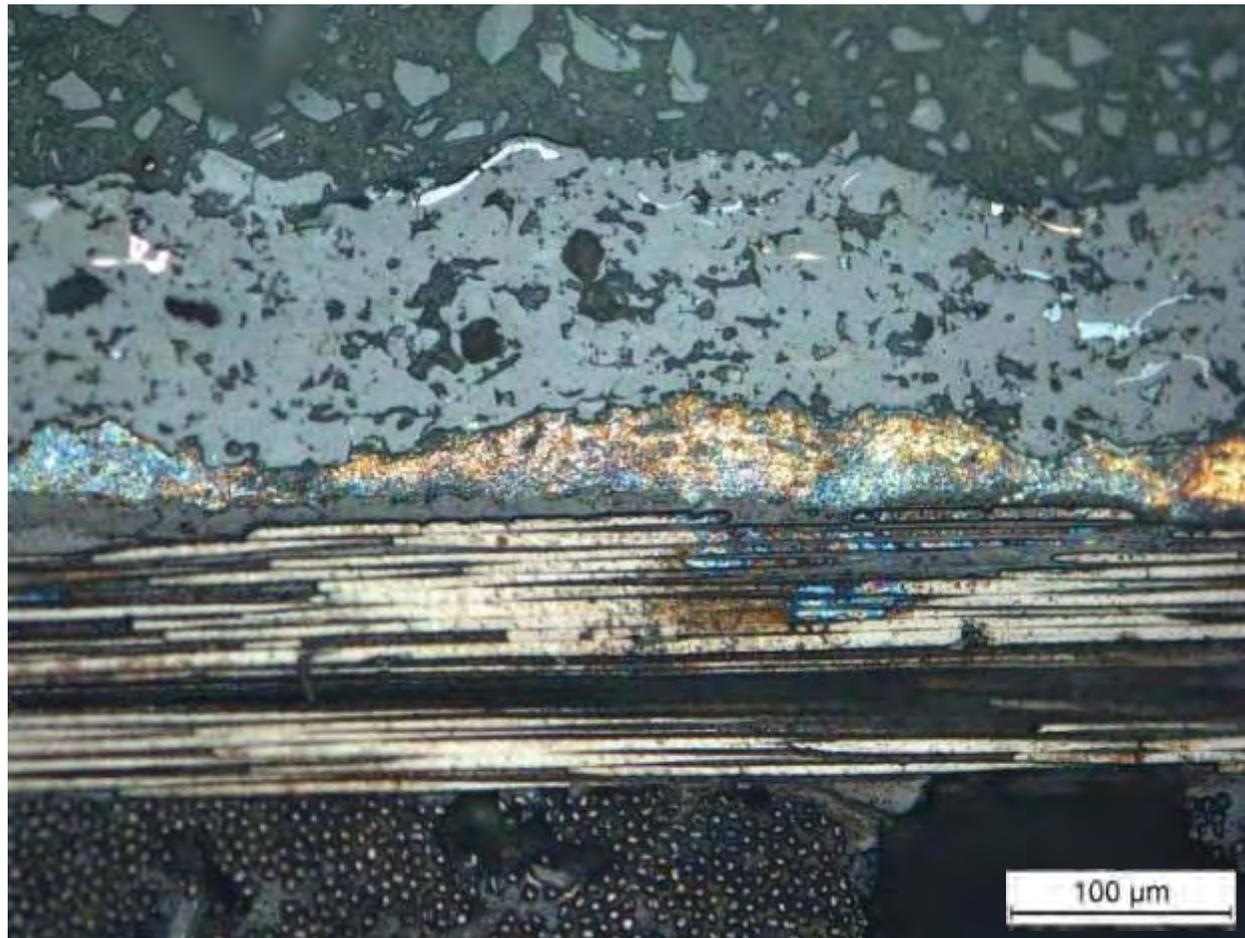


30' @ 200°C+H₂O
keine Ablösung

12

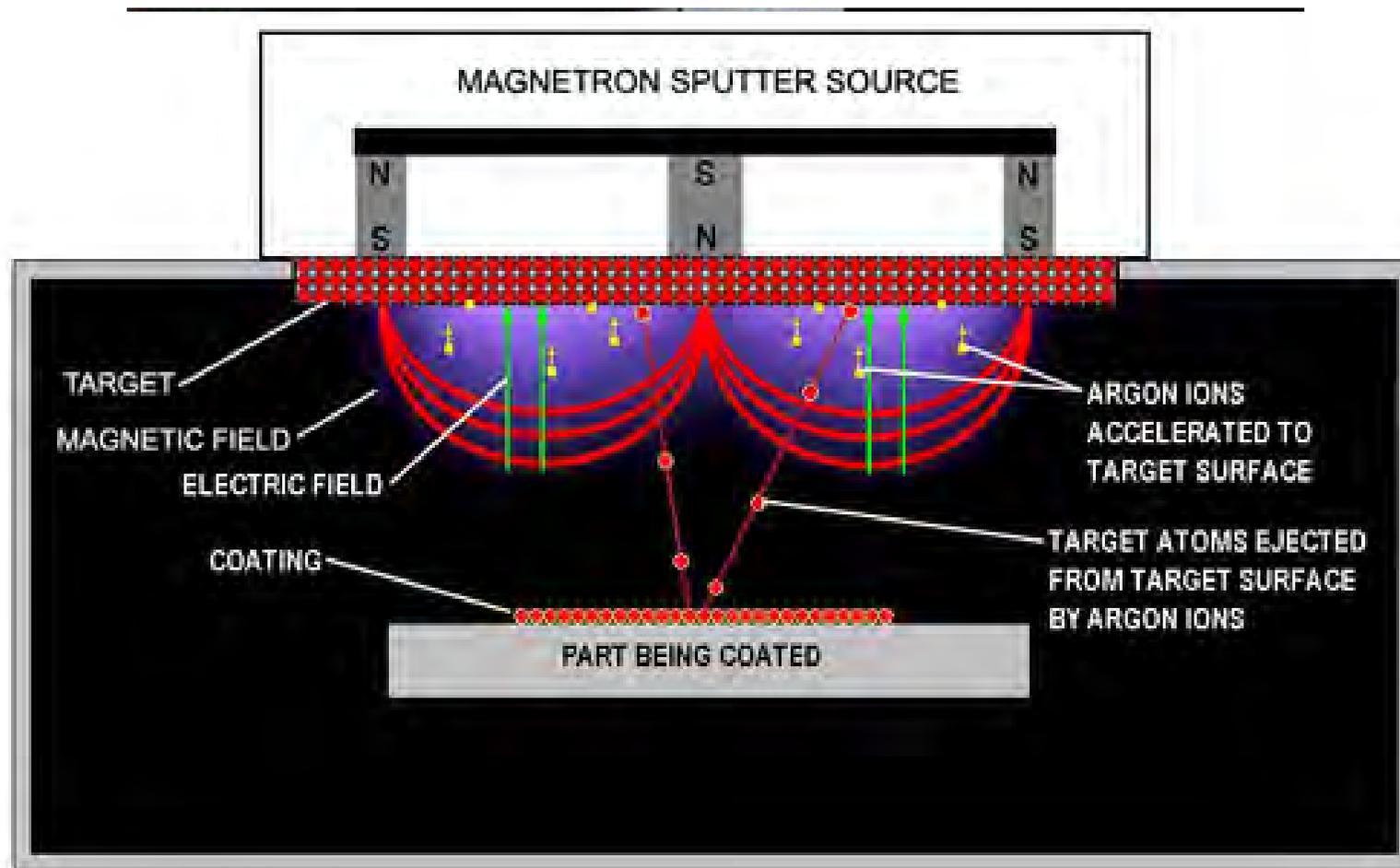


7 h @ 350°C



BVT32

THE INNOVATION COMPANY



OTTI-Seminar Kathodenzerstäubung 2015

