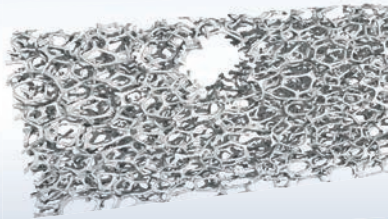
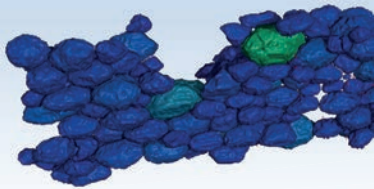
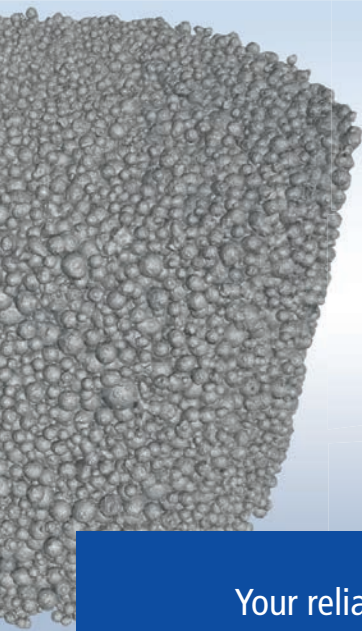


# TPW Prüfzentrum



Your reliable partner

## Analysis of powders and foams

Statistical grain size distribution

Particle morphology

Pores and inclusions

Material thickness analysis

[www.werkstoffpruefung.de](http://www.werkstoffpruefung.de)



# CT analysis of powder samples

Inspection by high resolution CT.

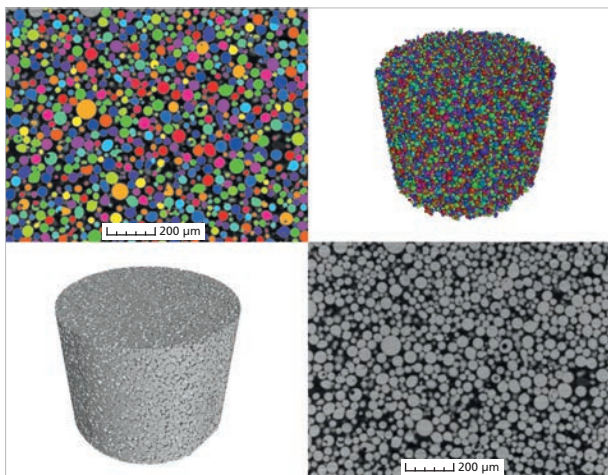
For the field of additive manufacturing:

- Materials: e.g. AlSi10Mg, Inconel, 1.2709, 1.4404
- Spatial resolution < 1 $\mu$ m
- Sample size app.  $\varnothing$  2 x 2 mm



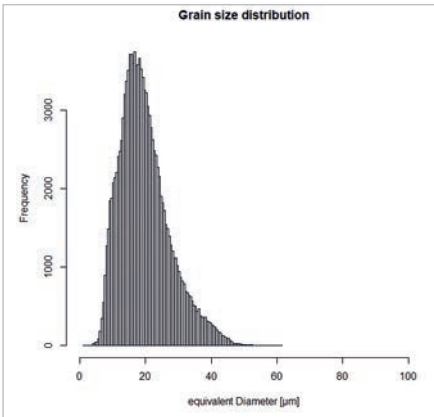
## Automatic recognition of grains within the sample volume

Depending on the grain size  
up to 100.000 particles per sample.

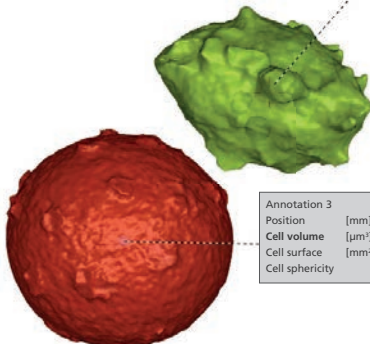
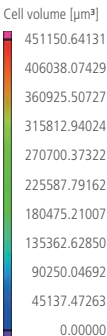


# Statistical size distribution

- Statistical analysis: e.g. determination of volume, surface area, sphericity, size distribution.
- Examination of individual grains respectively the full sample volume.



# Morphology of grains

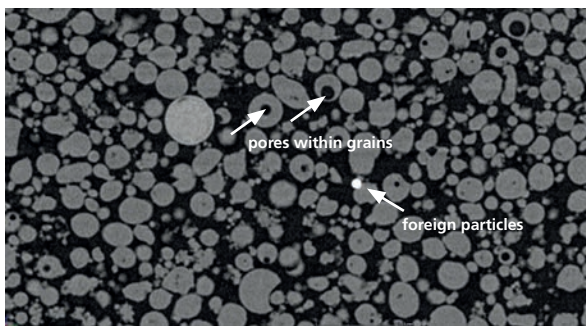


Annotation 1			
Position	[mm]	0.19	-0.22 0.25
Cell volume	[µm <sup>3</sup> ]		94308.88
Cell surface	[mm <sup>2</sup> ]		0.02
Cell sphericity			0.48

Annotation 3			
Position	[mm]	-0.02	0.05 -0.02
Cell volume	[µm <sup>3</sup> ]		428470.25907
Cell surface	[mm <sup>2</sup> ]		0.05
Cell sphericity			0.59

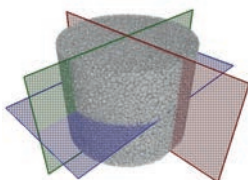
## Pores and inclusions

- Analysis of the powder sample e.g. to recognize pores within grains or contaminations by foreign particles.

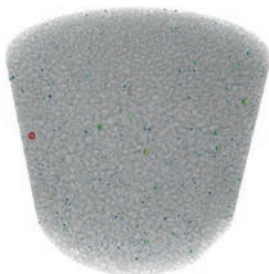
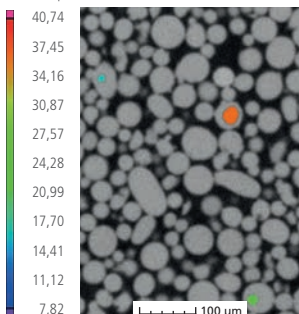


## Statistical porosity evaluation

Automated 3D analysis applied to the full sample volume, e.g. relative porosity of the sample, pore volume, overall porosity.



diameter  $\mu\text{m}$

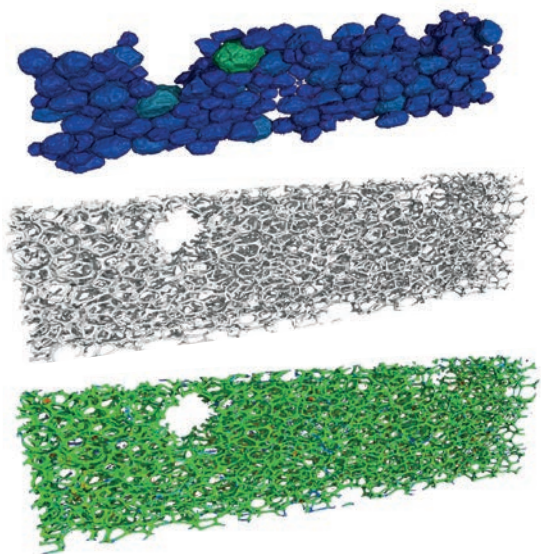


# Foam structure analysis

3D analysis of foam materials,  
open pore spaces, and loose particles.

Quantitative analysis of

- Material thickness
- Porous spaces
- Pores vs. material ratio



**Your personal contact:**

**Dr. Thomas Kleinteich**

X-ray inspections and Computed Tomography  
Level III RT according to DIN EN ISO 9712

Tel.: +49 2131 6655 266

Email: [ct@werkstoffpruefung.de](mailto:ct@werkstoffpruefung.de)

# TPW Prüfzentrum

## Your reliable partner for...

### Non-destructive testing

- Mobile metallographic examinations
- 3D computed tomography
- Radiographic testing
- Digital radiography
- Dye penetrant testing
- Magnetic particle testing
- Ultrasonic testing
- Visual inspections
  
- **Welding engineering**
- **Failure analysis**

### Destructive testing

incl. in house sample preparation

- Chemical analyses
- Hardness testing
- Impact testing (temperatures from -196°C)
- Corrosion testing
- Metallographic testing
- Heat treatments
- Technological testing
- Hot tensile testing up to 900°C
- Tensile testing



Deutsche  
Akkreditierungsstelle  
D-PL-11209-01-00

Accredited testing laboratory  
D-PL-11209-01-00  
DIN EN ISO/IEC 17025

Environmental Management  
ISO 14001

Health & Safety Management  
BS OHSAS 18001

## Contact us!

+49 2131 6655 100

[info@werkstoffpruefung.de](mailto:info@werkstoffpruefung.de)