

# Characterization of Powder Materials

(measurement and analyses of powder, green compact and compacted materials)  
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## Particle Size Analyzer Mastersizer 2000

- laser diffraction measurement method
- Mie and Fraunhofer scattering
- broad band particle size 0,02 – 2000  $\mu\text{m}$
- dry powder feeder
- driven by standard operation methods
- reproducibility better than 1% variation

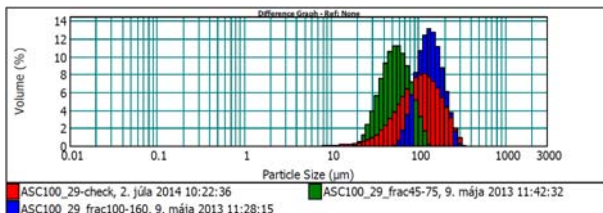


## He pycnometer AccuPyc II 1340

- gas displacement density analyser
- density measurement of solid and liquids
- sample chamber volume 10, 3.5 and 1  $\text{cm}^3$
- accuracy 0.02% of chamber volume
- fully automatic measurement

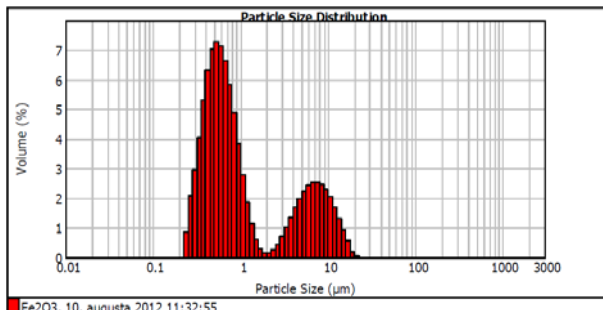
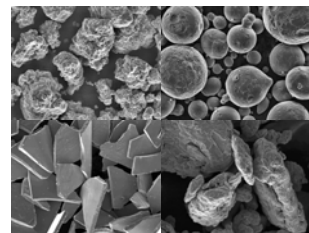
## Application:

- particle size distribution measurement of powder metal, ceramic and composites
- density measurement of powder, suspension, green compacts and bulk samples
- analysis of particle size distribution and density of powders in connection to technological procedures (milling, coating, drying, mechanical handling)
- analysis of open, close and total porosity using comparative methods (combination of archimedes method and gas pycnometry)

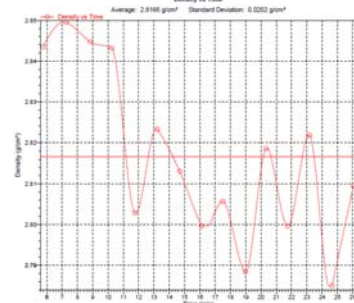


Check of sieve fractions of iron powder

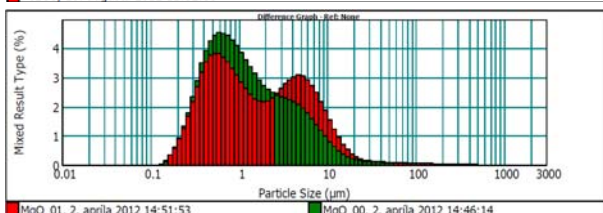
classes: A, B  
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Bimodal distribution of  $\text{Fe}_2\text{O}_3$  particle size



Automatic multiple measurement of the density of porous powder ceramics



Change of particle size distribution of MgO - effect of calcination