

Characterization of moulded and cast materials

Determining surface roughness values to characterize the surface quality

*Pictures: © Fraunhofer IGCV /
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The Fraunhofer IGCV focuses on application-oriented research in foundry technology with priority on sand casting and gravity die casting. Here, the characterization of conventional and alternative mold and casting materials plays an important role since both materials have a significant influence on the properties and quality of castings.

In addition, a comprehensive characterization of mold and casting materials enables a better understanding of the relevant influencing variables between material input and casting process in the production of cast components. This understanding is the basis for innovations in the sand casting and gravity die casting process.

Characterization of cast materials

- Qualitative and quantitative structural characterization
- Incident light microscopy with phase analysis, particle analysis, phase classification, particle counting

- Scanning Electron Microscopy (SEM), X-Ray Microanalysis (EDX)
- Tensile, pressure testing
- Micro-, macrohardness test

Characterization of moulded materials

- Surface roughness
- Particle image analysis
- Flexural strength
- Gas permeability test
- Hot deformation test



*Microscopic analysis of the
microstructure of casting materials*

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