Laboratory of Metallography

Principal goals and activities

- Research and material analysis of metals for casting, welding and forming.
- Research in the phases of metallic sets of alloys based on iron, aluminium, zinc, copper.
- Research of hardness and micro hardness of metallic materials in the field of forming, welding and founding.

Offer of technology and expertise

- Identification of the macro structure and dimension of weld, including the heat-affected zone.
- Identification of microstructure of welds.
- Identification of structure of steels.
- Determination of grain size in steels as per ČSN 42 0462 and ISO 643.
- Determination of structure of steels after heat treatment (annealing and hardening).
- Identification of inclusion quantity in steels.
- Determination of cast iron structure as per ČSN 420461.
- Determination of the inoculation and modification effect in cast irons and aluminium alloys.
- Determination of inclusion and gas bubbles in aluminium alloys.
- Determination of crystallization processes in castings.
- Training/seminars in the field of metallography of steels, cast irons and non-ferrous metals.

General focus of laboratory

- Analysis of properties of metals and their alloys.
- Assessment of the micro and macro structure of formed parts, weldments and castings.
- Assessment of structure of metals and their alloys.
- Assessment of structure in castings delivered in the high-pressure method, or the gravitation method in metal or sand moulds.
- Assessment of hardness and micro hardness of welds, castings and pressed pieces.

Specific instruments and outcomes

- Qness Q 30 A hardness tester and micro hardness tester (Vickers, Knopp, Brinell).
- HPO 250 hardness tester (Vickers and Brinell).
- Neophot 21 Carl Zeiss Jena light microscope with a Nikon camera.
- NIS Elements software for optical image analysis.
- LectroPol 5 unit for electrolytic etching and metallographic preparation of specimens.
- BUEHLER Siplimet 1000 for preparation of metallographic specimens.
- PHOENIX 4000 for grinding and polishing of metallographic specimens.