Special facilities

- Alkali silicate lab for glass fiber
- Natural frequency measurement to determine structural deterioration
- Determination of particle size distribution of fine-grained material
- Pressurized water saturation of natural stone
- Facility for determination of air void characteristics of hardened concrete
- Electro-chemical test lab
- Frost, frost de-icing salt resistance
- Water permeability testing of concrete
- Force-controlled, strain-controlled and deformation controlled testing machines
- Creep test devices for concrete, masonry and thermal insulation materials
- Measurement of dynamic stiffness of footfall sound insulation material
- Test labs for mechanical and technical tests on binders/cements and mortar
- Testing of concrete constructions
- Mercury intrusion porosimetry measurement
- X-ray diffraction and X-ray fluorescence analysis of building material
- Shearing strength test bench for masonry
- Flow resistance meter for thermal insulating material
- Low-temperature nitrogen adsorption analysis (BET) to determine pore structure
- Environment simulation chambers to examine concretes with regard to alkali-silicate reaction
- Wear testing machine
- Thermal conductivity test benches

Department:
Mineral Building Materials

https://www.mpa.uni-stuttgart.de/en/institute/departments/mineral-building-materials/

Determination of compressive strength and deformation behavior of masonry

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MPA STUTTGART
Materials Testing Institute
University of Stuttgart

Department Mineral Building Materials

Units

- Concrete Technology, Concrete Constituents
- Material Behavior and Modelling
- Building Envelope, Energy Efficiency, Floor Constructions

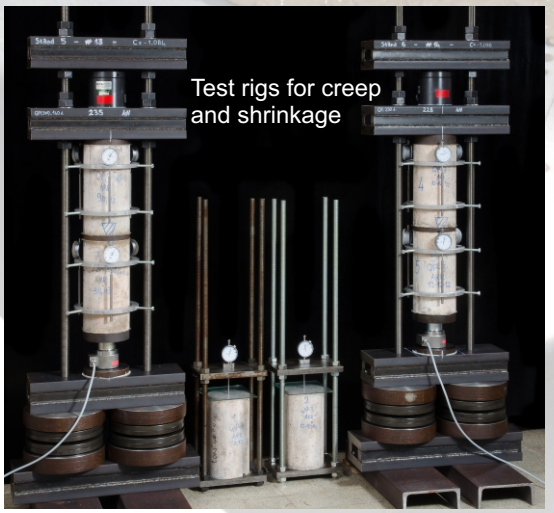
University of Stuttgart
Germany

The Department of Mineral Building materials is available to support and assist you in issues in the field of testing and examining building materials and construction, chemical analytical examinations as well as determining parameters with regard to their mechanical, elasto-mechanical and rheological properties and their durability, including thermal insulating properties.

Our staff will advise and support you in solving technical issues, and in developing and optimizing your products and processes. We will advise you with regard to process analyses and optimizations. We provide extensive building material examinations with regard to strength and deformation behavior as well as durability of building materials.

The Department of Mineral Building Materials has several labs with state of the art equipment:

- Mortar lab
- Chemistry lab for building materials incl. XRF
- Structural-morphological lab with XRD and microscopy (also ESEM)
- Concrete lab for testing of fresh and hardened concrete
- Test lab for processing all mechanical-technological issues
- Test lab for sports floors, impact walls and to determine ball throwing resistance



Test rigs for creep and shrinkage

Approval / Inspection / Certification

Approved PÜZ center (certification body) in accordance with LBO and CPR. Approved by DIBt for the execution of approval tests. Certified by CEN. Member in numerous standard committees (DIN/CEN) and expert committees of DIBt, BASt and FGSV. Accreditation with DAkkS as certification body and test lab.
Tests in the lab and at the building site:

- Mortar and concrete
- Shrinkage and creep behavior
- Frost deicing exchange stress
- Weathering / ageing
- ASR performance tests
- Structural examinations (XRD, ESEM)
- Mercury intrusion porosimetry
- Residual flexural strength of fiber-reinforced concrete
- Non-destructive test and examination methods
- Shear-strength test-rig for masonry
- Thermal conductivity test-rigs
- Bearing capacity tests for floor constructions
- Determination of resistance against ball-throwing/ testing of impact walls and sports floorings

ASR-Reactor

Examinations / Analyses / Evaluations

Chemical, physical and mechanical-technological examinations of mineral building materials such as, for example, binders, fly ash, silica fume, filler aggregates, aggregate, mortar, concrete, natural stone, building products for masonry constructions, insulating materials i.a.
Testing of sports hall flooring, athletic tracks, impact walls and determination of determination of ball throwing resistance.

Research and Development

Research with national and international funding agencies on the following issues:

- Ageing processes of mineral resources
- Alkali-silica reaction (ASR)
- New insulating materials
- Energy-optimized building
- Internal curing of concrete
- Economic feasibility study of concrete roads
- Bond of steel/concrete at high temperatures
- Deformation behaviour of concrete

Measurement of the dynamic Young's modulus