



InnoRenew CoE

Template for presentation of new research equipment



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IKA Magnetic Stirrer and Heater

Stirring of liquid samples and heating



Magnetic stirrer with built-in heater is used to stir liquid samples via magnetic stirring bar, which is placed in the sample. The device also heats the sample to desired temperature measured by an external temperature sensor.

Owner institution: Slovenian National Building and Civil Engineering Institute

Location: Dimičeva ul. 12, Ljubljana

Contact: peter.nadrah@zag.si



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Specac Atlas Manual 15 Ton Hydraulic Press

Pellet preparation



Hydraulic press is used for solid KBr pellet preparation for FTIR spectroscopic analysis. Maximum tonnage load is 15. The equipment includes evacuable pellet die for production of 13 mm pellets.

Owner institution: Slovenian National Building and Civil Engineering Institute

Location: Dimičeva ul. 12, Ljubljana

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Büchi Vacuum Oven with Vacuum Pumps

Heating of samples up to 300 °C in high vacuum



Vacuum oven enables samples to dry in either low vacuum range with a membrane pump or in high vacuum range with rotary vane pump.

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Agilent Gas Chromatograph with Mass Detector (GC-MS)

Detection and quantification of organic compounds from mixtures



GC-MS is a powerful technique to separate compounds from samples with a large number of components identify each compound with mass analyzer, and quantify them using external reference compounds.

Owner institution: Slovenian National Building and Civil Engineering Institute

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JEOL JSM-IT500 Scanning Electron Microscope

Electronic imaging and EDS elemental analysis



- Electronic imaging up to 300.000x magnification
- Low vacuum mode for non-conducting and high-vacuum sensitive samples
- Secondary electron detector for morphological and backscattered for compositional imaging
- Point, area, line and mapping EDS elemental analysis

Owner institution: Slovenian National Building and Civil Engineering Institute

Location: Dimičeva ul. 12, Ljubljana

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Freeze Dryer Christ Alpha 1-4 LSCplus

Freeze drying



Freeze drying uses sublimation under reduced pressure, therefore prevents collapsing of material structure during drying.

Internal freezer down to $-55\text{ }^{\circ}\text{C}$,
vacuum pump down to 0.01 mbar,
maximum ice capacity 4 kg, diameter
 $\Phi = 265\text{ mm}$, volume = 0.1 m^3 .

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Vertical Furnace (nominal 8 m)

Testing of fire resistance of high (wooden) structure



The vertical furnace enables testing of fire resistance to structures of 8 m (two stories) height. In combination with combi furnace, it forms a set for testing of large structures (nominally 8x4 / 4x8 vertical and 4x8 horizontal)

Owner institution: Slovenian National Building and Civil Engineering Institute

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Room Corner Test

Large scale reaction to fire standardized test



The equipment measures reaction to fire of the materials in the test room. The room can be fully equipped or simply cladded. Thermal power is measured and RtF parameters are derived.

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Open Calorimeter and Façade Testing Equipment

Studying fire processes at model scale / full scale



The device controls smoke extraction and analyzes oxygen, CO, and CO₂ concentration and also time-dependent thermal power released. Additionally, fire effluents are sampled for FTIR analysis and for analysis using GC/MS.

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Cleaning Plant

Cleaning of exhaust gases



- Cleaning particles and acids and other harmful substances, if any
- Cleaning effluents generated by the furnaces, room corner test, SBI test, smaller tests and lower mode calorimeter runs

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