

SERVICES

Bioenergy & Biofuels

Laboratory for researching energy production from biomass

Free University of Bolzano-Bozen
Faculty of Engineering

Head of Laboratory:
Prof. Marco Baratieri

SERVICES: INSTRUMENTAL ANALYSIS		prices excl. VAT
Preparation	Sample preparation according to UNI EN ISO 14780:2019, necessary if the sample cannot be directly analysed as it is.	€ 40
Moisture	Moisture content measurement according to UNI EN ISO 18134-2:2017 (oven drying) - triplicate analysis.	€ 40
Ash	Measurement of ash content by muffle combustion according to UNI EN ISO 18122:2016 - triplicate analysis.	€ 40
Fixed Carbon (TGA)	Measurement of fixed carbon content by thermogravimetric analyser (STA 449 F3 Jupiter, Netzsch). Internal method based on ASTM D5142 - single analysis.	€ 70
Proximate Analysis (TGA)	Sequential determination of moisture, volatile and ash content by thermogravimetric analyser (STA 449 F3 Jupiter, Netzsch). Internal method based on ASTM D5142 - single analysis.	€ 90
Thermal analysis (TG-FTIR)	Characterisation of sample thermal degradation by coupling thermogravimetric analysis (STA 449F3, Netzsch) and released gas analysis (FT-IR Tensor 27, Bruker) - single analysis.	€ 170
Ultimate analysis (CHNS)	Sequential quantification of carbon, hydrogen, nitrogen, and sulphur content by elemental analyser (vario MACRO cube, Elementar) according to UNI EN ISO 16948:2015 - triplicate analysis.	€ 80
Elementar analysis O	Oxygen content measurement by elemental analyser (vario MACRO cube, Elementar, O-mode) - triplicate analysis.	€ 100
Elementar analysis Cl	Chlorine content measurement by elemental analyser (vario MACRO cube, Elementar, Cl-mode) - triplicate analysis.	€ 150
Calorific value	Measurement of the higher heating value by isoperibolic method through a calorimeter (C200, IKA) according to UNI EN ISO 18125:2018 - triplicate analysis.	€ 60
Physisorption analysis	Surface area measurement by BET method and evaluation of pore volume and size by nitrogen physisorption (3Flex, Micromeritics) - triplicate analysis including sample degassing.	€ 250
DSC (high pressure)	Thermal analysis by differential scanning calorimetry (DSC) using high-pressure crucibles - single analysis.	€ 130
DSC (low pressure)	Thermal analysis by differential scanning calorimetry (DSC) using standard crucibles - single analysis.	€ 100

LAB DESK

NOI TECHPARK
SÜDTIROL / ALTO ADIGE
A.-VOLTA-STR. 13/A
VIA A. VOLTA, 13/A
I-39100 BOZEN / BOLZANO

T +39 0471 066 643
LABS@NOI.BZ.IT
NOI.BZ.IT

ON-SITE MONITORING		prices excl. VAT
Plant monitoring	On-site monitoring for the characterisation of the energy performances of plants in operation. The monitoring is carried out using recommendation n. 13 of CTI as reference and foresees:	€ 2.700
	<ul style="list-style-type: none"> - tar sampling according to UNI CEN/TS 15439:2008, - tar quantification by gravimetric method, - continuous analysis of syngas by microGC, - characterisation and quantification of biomass fed to the plant and char produced, - assessment of all the mass and energy flows and consequent balance of the plant. 	+ € 600 pro half day + € 0,5 per km

TESTS IN UNIBZ EXPERIMENTAL SETUPS		prices excl. VAT
Gasification	Gasification test in open-top gasifier including gas analysis, characterisation of biomass input and char output, mass, and energy balance. Gravimetric Tar on request.	€ 2.200
Hydrothermal liquefaction	Hydrothermal liquefaction test in high pressure reactor. The cost does not include the characterisation of the substrate and the products, to be quantified according to the type of material to be tested.	€ 2.200
Fischer-Tropsch synthesis	Fischer-Tropsch synthesis test in high pressure reactor for a duration of 24 h. The cost does not include the characterisation of the catalyst and the products, to be quantified according to the type of material to be tested.	€ 1.800
Pyrolysis	Pyrolysis test in small scale allothermal batch reactors including gas analysis, characterisation of biomass input and ash output, mass, and energy balance. Gravimetric Tar on request.	€ 1.600
Test in allothermic reactor	Test in allothermal pilot reactor, customisable to simulate various process conditions (air or steam gasification, pyrolysis, reforming). The cost does not include the characterisation of the substrate (or catalyst) and the products, to be quantified according to the type of material to be tested.	€ 1.600

PROTOTYPE TESTING		prices excl. VAT
Biomass generator (combustion)	Testing of biomass combustion generators using the laboratory infrastructure and instrumentation. The cost does not include gas and particulate analysis, biomass input and ash output characterisation, mass, and energy balance.	€ 2.300