

Shimadzu Atomic Absorption Spectrophotometer (AA-6200)

This instrumentation is utilized for the quantitative determination of trace chemical elements, especially metals. It is commonly used for environmental sampling (e.g., in water-quality analysis measuring mercury and lead concentrations).

<http://www.ssi.shimadzu.com/products/product.cfm?product=aa620>



Shimadzu Prominence Ultra High Performance Liquid Chromatography Liquid Chromatograph (LC-20AD XR)

This is used to separate and quantify organic compounds in a mixture. It is equipped with an auto-sampler for running multiple samples, a photodiode array and a low temperature evaporative light scattering detector for identifying a wide range of compounds. It is commonly used in the pharmaceutical industry for quality control of drugs by detecting their trace impurities.



Isotemp Vacuum Oven (282A)

This is a very high-temperature furnace suitable for carrying out processes such as brazing, sintering, and heat treatment with consistency by working under vacuum or inert atmosphere eliminating reactive gases such as oxygen.

http://www.fishersci.com/ecomm/servlet/fsproductdetail_10652_626655_-1_0#



Shimadzu UV-Vis Spectrophotometer (UV-2600) with TCC-Controller

This is routinely used in the quantitative measurements of transition metal ions and conjugated organic compounds. Some applications are measuring DNA or protein concentrations in biological samples, nitrogen content in wastewater reacted with a reagent, residual formaldehyde in children's clothing and sleepwear. Equipped with a temperature controller, this instrument can be applied for kinetic studies.

http://www.ssi.shimadzu.com/products/product.cfm?product=uv2600_2



Shimadzu Spectrofluorophotometer (RF-5301)

This is used to detect a specific compound in a complex background by measuring fluorescence of the compound. Compounds can be made fluorescent by tagging them with probes. It is a commonly used technique for quality control of pharmaceuticals such as purine and pyrimidine analogs used as cancer drugs.



Shimadzu GC-MS (GCMS-QP2010S)

This combines gas chromatography and mass spectrometry to identify different gases or volatile substances within a mixture. GC-MS is commonly used in forensic investigations, drug discovery, metabolomics, and environmental chemistry.



Thermo Scientific Centrifuge (ST16R)

This is a high-capacity centrifuge that operates at low temperatures suitable for separating active biological samples such as cells, DNA, protein precipitations, and some subcellular fractions. The centrifuge acceleration and deceleration are controllable.

<http://www.thermoscientific.com/ecom/servlet/productsdetail?productId=11962933&groupType=PRODUCT&searchType=0&storeId=11152&from=search>



Epsilon: Basi Electrochemistry Cell Stand

This is generally used to study the electrochemical properties of transition metal complexes or biosensors by cyclic voltammetry, potential electrolysis and amperometry.

Current model: [EC Epsilon Potentiostat/Galvanostat](#)

Latest model available: <https://www.basinc.com/products/ec/epsiloneclipse>



Thermo Scientific Ion Chromatography System (Dionex ICS-1600)

This is used for high throughput trace-level analyses of anions or cations in a variety of samples including drinking water, beverages and dietary supplements. It is also used to monitor trace ion contamination in fine chemicals production introduced by corrosion damage in the production facilities.

<http://www.dionex.com/en-us/products/ion-chromatography/ic-rfic-systems/ics-1600/lp-72592.html>



Applied Photophysics SX-20 Stopped-Flow Spectrometer

This is used for steady-state and kinetic experiments by rapid mixing samples and monitoring changes using visible or fluorescence spectroscopic techniques. Its applications include the kinetic studies of enzyme catalysis, protein folding, and coordination chemistry.

<http://www.photophysics.com/products/sx20-stopped-flow-spectrometer>

http://www.photophysics.com/sites/default/files/documents/application_notes/SX20_Tech_Datasheet_4140Q004C01.pdf



MBraun Solvent System (MB-SPS-800)

This is a solvent purification system, which is connected to an inert glovebox. It removes water and other impurities from the solvents under a nitrogen gas stream. It is commonly used for air- and water-sensitive reactions that need anhydrous (dry) and pure solvents.

<http://www.mbraunusa.com/products/solvent-purification/mbsps-800/>



MBraun UNilab Glove Box

This is used to run air- and water-sensitive reactions in a closed environment purged continuously with an inert gas, such as nitrogen, to obtain atmospheric purity levels of less than 1 ppm of water and oxygen. Chemicals can be transported in and out of the glovebox using a side arm vacuumed and purged by nitrogen and it is equipped with a freezer for storing temperature sensitive chemicals.

<http://www.mbraunusa.com/products/glovebox-workstations/unilab-glovebox/>



Mettler Toledo microbalance XP6

This is a very sensitive balance with an excellent typical repeatability of 0.7 micrograms. The balance can reduce cost for precious substances because solutions with minimal chemicals can be prepared without needing dilution.

http://us.mt.com/us/en/home/products/Laboratory_Weighing_Solutions/MX-UMX/XP6_Microbalance_1.html



Bruker Nuclear Magnetic Resonance (AVIII 300)

This uses an indispensable technique for solution structural determinations of simple organic molecules to much larger biological molecules. It is controlled by user friendly software that allows automatic tuning and shimming while optimizing experimental conditions of the pulse sequence. This technique is essential for undergraduate chemistry students.



Shimadzu Thermogravimetric Analyzer (TGA-50)

This is used to measure weight changes of materials placed in a precision microbalance due to chemical decomposition and/or oxidation as a function of temperature or time. The technique is frequently used in quality assurance by the thermal stability characterization of materials used and produced in industry including pharmaceutical and petrochemical. In some specific applications, the instrument can quantify the weight loss due to volatile matter (water/solvent), plasticizer, filler and pyrolysis.

<http://www.shimadzu.com/an/thermal/tga50.html>



Shimadzu Differential Scanning Calorimeter (DSC-60)

This measures the rate and degree of heat change of materials as a function of temperature against a reference material and then reports the transition temperatures and enthalpies.



IKA Bomb Calorimeter (C200si)

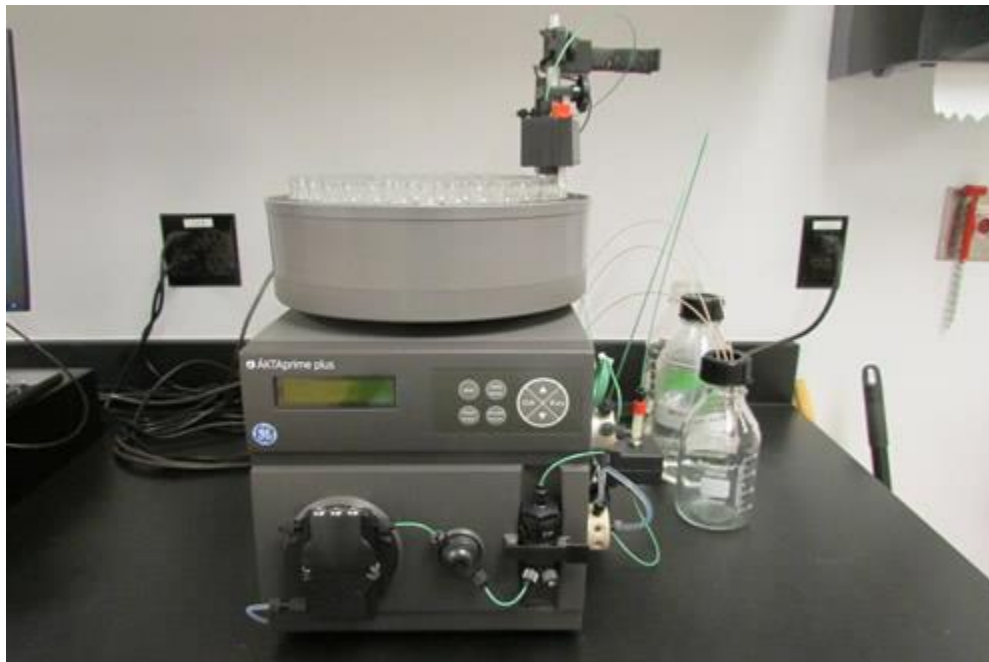
This is used to measure the heat generated by the combustion of a sample in the presence of oxygen in a closed decomposition vessel surrounded by water under controlled conditions. Examples of combustible materials that are studied by this thermodynamic technique are food, fuels, and explosives.



GE Fast Protein Liquid Chromatography (ÄKTA prime plus)

This is used to detect or purify biological materials, such as proteins in a mixture, by recording absorbance at 260 or 280 nm. The purified components of the mixture are collected in separate test tubes using a fraction collector. Many different types of chromatography, such as ion-exchange and affinity, can be performed using this system.

<http://www.gelifesciences.com/webapp/wcs/stores/servlet/productById/en/GELifeSciences/11001313>



New Brunswick Scientific Incubator Shaker (IL Exella E24)

This is a temperature-controlled shaker for growing bacteria in large size flasks. The shaker platform moves in a circular motion to provide mixing and gas exchange in the culture.

http://newbrunswick.eppendorf.com/fileadmin/nbs/data/pdf/New_Brunswick_Excella_Shakers.pdf



Beckman Coulter Allegra 64R Centrifuge (Allegra-64R)

This temperature-controlled centrifuge is used for high-speed separation of active biological materials such as cells, DNA, protein precipitations, and some subcellular fractions. The centrifuge acceleration and deceleration can also be controlled.

https://www.beckmancoulter.com/wsrportal/wsrportal.portal?_nfpb=true&_windowLabel=UCM_RENDERER&_urlType=render&wlpUCM_RENDERER_path=%2Fwsr%2Fresearch-and-discovery%2Fproducts-and-services%2Fcentrifugation%2Fallegra-64r%2Findex.htm

