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Academic clients

SCS service facilities

- **Location:**
47 Noyes Laboratory
- **Hours:**
8:30 a.m. — 5:00 p.m.
Monday through Friday
- **Telephone:**
217/333-3095
- **E-mail:**
micro@scs.illinois.edu
- **Web:**
<http://scs.illinois.edu/microanalysis/>



University of Illinois at Urbana-Champaign

SCS School of Chemical Sciences

Microanalysis
Laboratory

Chemical & Biomolecular Engineering

Chemistry

College of Liberal Arts & Sciences

Contact



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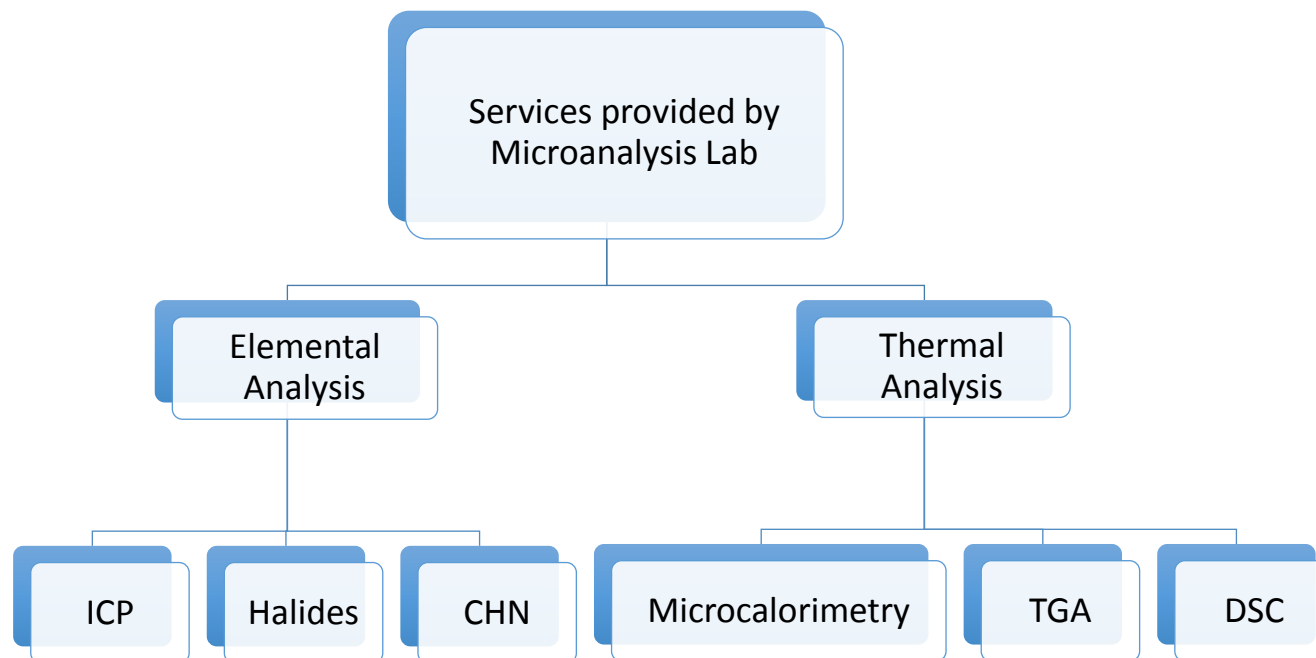
Crislyn Lu
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Empowering Research

❖ Provides quality elemental and thermal analysis services to researchers, faculty and students associated with the University of Illinois as well as to the scientific community outside the university.

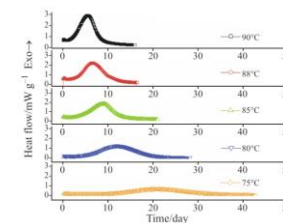
❖ Assists, facilitates and trains students to use instruments like DSC, TGA and micro-calorimeter for their research.



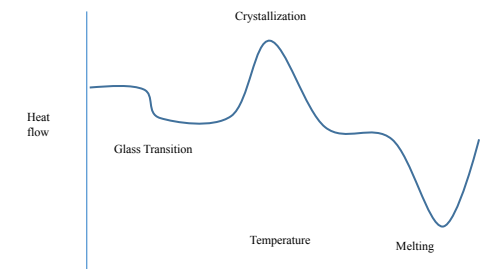
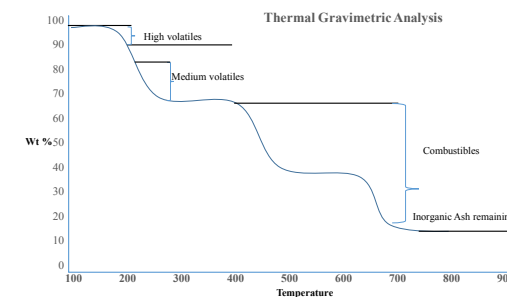


Thermal Analysis

1. **Microcalorimeter** - The measurement of heat generated or absorbed in liquid samples as a result of mixing two or more reactants. **NOTE: Only liquids can be used in this instrument.**
2. **Thermogravimetric Analyzer (TGA)** - The TGA analyzer measures weight changes of sample over a given temperature and pressure range under specific environmental conditions. **NOTE: No corrosive gas can be used so far.**
3. **Differential Scanning Calorimeter (DSC-Diamond)** - The DSC is used for the calorimetric measurement, characterization, and analysis of thermal properties of materials. This instrument is best used for studies at temperatures of 400° C and lower.



Chen *et al.* 2008





Instruments And Techniques

CHN Analysis: Exeter Analytical CE 440



Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac															
		Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		
		Th	Pa	U													

<http://www.sigmaldrich.com/analytical-chromatography/analytical-standard/>

ICP Analysis:

1) Perkin Elmer DRCE- ICP-MS

2) Perkin Elmer 200DV ICP-OES



Halide Analysis: ISE



Sample Submissions

The sample submission forms can be created on computers in your lab. Checking in your sample(s), which assigns a Work Order Number and creates a line in our In Progress system, can only be done at the Check In computer in room 47. If you wish to have multiple techniques run on your sample, **please** submit multiple vials of your sample. (Ex. Both CHN and ICP - two vials submitted.)

Routine samples:

SOLIDS: Preferably in small pieces/ground up fine/homogeneous

Flat-bottomed ½ dram or 1-dram vial

LIQUID, NON-SOLID TYPE MATERIALS, or EXTREMELY SMALL AMOUNTS OF SAMPLE:

V-vial 0.3 ml

Flat-bottomed ½ dram or 1-dram vial

PRE-DISSOLVED, AQUEOUS ICP SAMPLES:

Any non-leaking container is acceptable.

Non-routine samples: Air-sensitive, extremely moisture sensitive or unstable samples:

Jars containing pre-weighed capsules are located in the upper right drawer of the check-in bench. Make sure that the filled capsules are free from any debris on the outside of the capsule and are completely crimped/sealed, as holes or gaps can affect your sample and your result.

For **CHN** or **AI ICP**-analysis, please use the **RED** jars with the appropriate amount of material in each sealed tin capsule. (CHN - 2 - 2.5mg of sample; ICP - at least 10mg of sample)

For non-AI **ICP** analysis and **Halide** analysis, please use the **BLUE** jars with the appropriate amount of material in each sealed aluminum capsule. (Both techniques - at least 10mg of sample.)



Estimated Turnaround Times

CHN –

- a. for SCS samples, 24 hours (not including weekends and holidays), providing analyst has the sample in hand by 10:00 a.m. on the day the sample is submitted
- b. All samples cannot be returned. Inside customers can request the samples be retained by staff , providing it is documented on the customer's request

ICP – for SCS samples, 3-10 working days

Halides – for SCS samples, 3-5 working days

These times will be longer if there are instrumental problems or maintenance or if the staff is reduced due to sickness, vacation or meetings. When your sample is finished, the results will be sent to you via auto generated e-mail, possibly as PDF attachments.

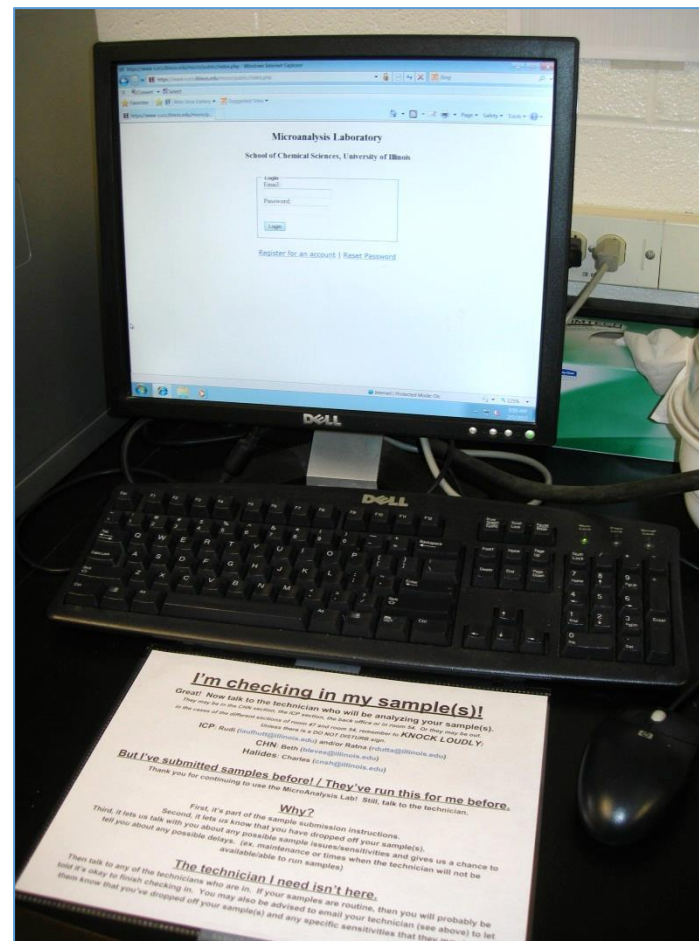
For users outside of University of Illinois, UC, the samples will not be returned unless you make a comment in the comment box of the online submission form telling us to return the samples. You will be billed for shipment.



University of Illinois at Urbana-Champaign

SCS School of Chemical Sciences

Microanalysis Laboratory





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**Any
Questions?**