Class 100 clean lab at PCIGR

Sample Preparation Services

Welcome to the Pacific Centre for Isotopic and Geochemical Research, at the University of British Columbia in Vancouver, Canada. PCIGR is an all-in-one research facility that provides analytical services to investigators from academia, government and industry, both across Canada and around the world.

Sample Preparation at PCIGR

PCIGR performs a wide range of end-to-end sample preparation techniques for elemental and isotopic analyses. Proper sample preparation is key to ensuring representative sample data.

For sample preparation that is specific to geochronology, please consult our Geochronology Services brochure.

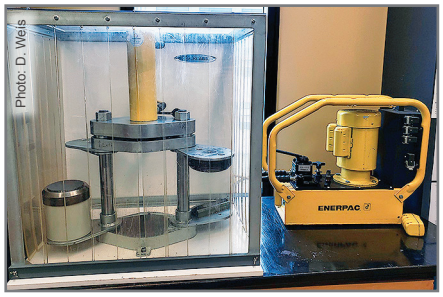
Sample Homogenization Techniques

Whole-rock samples:

- Hydraulic crusher fitted with tungsten carbide plates reduces rocks to millimetre-sized granules (crushing is by percussion, not grinding, to limit contamination)
- Planetary ball mill equipped with agate jars and milling balls reduces crushed rock to a fine powder

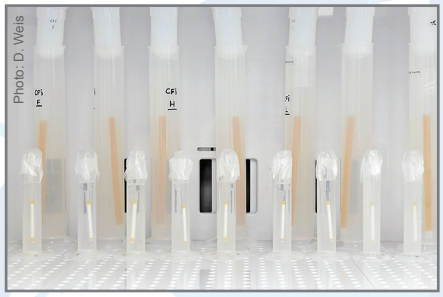
Non-rock samples:

- Sediments, plant material, animal tissue, etc.
- Samples dried by freeze dryer or oven, or air dried, to remove water content
- Crushing and powdering either by mechanical means or manually with a mortar and pestle



Rock crusher

Hot plate flux



Ion-exchange chromatography

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Ultra-clean Wet Chemistry Techniques

For analyses at low analyte concentrations, all subsequent handling of powdered sample takes place in certified Class 100 clean labs at PCIGR. Acid digestion of samples into solution can be performed by two methods: 1) hotplate "flux" inside Savillex® PFA vials, or 2) microwave digestion at high temperature and pressure inside sealed Teflon® vessels. The microwave method is used for samples containing refractory minerals.

Ion-exchange chromatography to pre-concentrate analytes of interest also takes place inside the Class 100 clean labs. Standard reference materials and procedural blanks are prepared in the same manner as the samples.

Other Sample Preparation Techniques

For elemental and isotopic analyses that do not require ultra-clean settings, all sample powdering, weighing and preparation takes place in our regular sample preparation labs prior to analysis. PCIGR is also equipped with sawing and polishing equipment to prepare samples and sample mounts for in-situ laser ablation ICP-MS analyses.

If you would like to use our facilities to prepare your samples, or if you would like to prepare samples at your own facility prior to analysis, please contact us before you begin. This will ensure that your sample preparation methods are compatible with our analytical instrumentation.

Our Capabilities

The preparation of samples by our technical team is included as part of the geochemical analysis package. PCIGR can process the following types of sample materials*:

- Rocks and minerals
- Sediments, soils and dusts
- Water (e.g., seawater, lake water, pore water)
- Plant materials
- Animal tissue (both soft and mineralized tissues)
- Food and pharmaceuticals
- Archaeological materials

* Please note that PCIGR is not equipped to accept radioactive materials.

Sample preparation inside laminar flow hood

Consult our other brochures for related capabilities, or visit our website below for more information.

- **PCIGR: All-in-One Analytical Services**
- **Trace Element Analysis Services**
- **Isotopic Analysis Services**
- **Geochronology Services**
- **In-situ and Microanalysis Services**

Our Commitment

PCIGR is committed to working with you to achieve the best outcomes for your project. Contact us with your analytical and research needs.

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