Applied Petrographic Services, Inc. (APS) is a full-service petrographic and sample preparation laboratory equipped with various state-of-the-art optical and scanning electron microscopes, x-ray diffractometer, sample preparation (thin sectioning and polishing) equipments, and, facilities for chemical analysis. Our primary goal is to provide complete customer satisfaction through consistent quality services and rapid turnaround — all at a competitive price.

Petrographic Sample Preparation stays at the heart of our services, where we provide quality thin and polished sections of rocks, minerals, soil, cement, clinker, masonry, concrete, ceramic, glass, fossils, and various other geological, archeological, and building materials. The sample preparation laboratory houses an impressive array of basic to advanced thin sectioning and polishing equipments for simultaneous and rapid production of consistently high quality thin sections of multiple samples. Aided with advanced equipments are a group of well-trained, hard-working, dedicated and motivated technicians and experienced petrographers, whose diligent work help us to build a unique position and reputation in the industry.

Petrographic Services provide detailed microscopical examinations of rocks, concrete, and other materials. Comprehensive report includes mineralogy, texture, and classification of rocks, detailed microstructure, composition, and evaluation of concrete and other materials, and an impressive display of photomicrographs. In addition, we also provide SEM, XRD, and various chemical analyses (XRF, ICP, AA) services, as needed, for comprehensive examination and characterization of a material.
Sectioning

APS sample preparation laboratory houses a variety of slab and trim saws from Covington, MK Diamond, and others to slab and trim a large-size sample to a small rectangular block to fit in a regular (27 x 46 mm) or large-size (50 x 75 mm) glass slide. Either coolant-mixed water or oil (for water-sensitive samples) is used as a coolant. Various (from 6-in. to 18-in. diameter) continuous rim diamond blades are used for sectioning.

Grinding & Polishing

Various horizontal rotary grinding wheels (from 8-in. to 18-in. diameter) are used in Buehler, Leco, Allied High Tech, Logitech, Larmarkter, Struers, and other machines for precision flattening, grinding, and polishing operations. Diamond, alumina, or silicon carbide based fixed (metal or resin-bonded) or loose abrasives (from >50 µm to 0.25 µm size) are used in water or glycol medium for grinding and polishing operations.

Grain Mounts, Multi-Depth Sections

Thin sections of loose, powdery samples, or grains are often prepared after epoxy encapsulation. Standard or large-size, thin or polished sections can be prepared.

Multi-depth sections are also possible from a single or multiple samples on a single standard or large-size glass slide. Water-sensitive samples (e.g., clay, sulfate, halide) are prepared with oil or glycol.

Optical (Reflected & Transmitted-light) Microscopy and Fluorescent Microscopy

Optical microscopy is the most powerful tool in petrography, which provides a detailed characterization (mineralogy and texture) of a material. APS houses more than thirty petrographic and metallurgical microscopes with reflected, transmitted, and fluorescent light facilities, and each with photomicrographic attachments for digital photography and image analysis.

SEM & XRD

In addition to optical microscopy, scanning electron microscopy (backscatter and secondary electron imaging) with ancillary x-ray microanalysis (EDS), and x-ray diffraction (XRD) are powerful tools for detailed compositional, morphological, mineralogical, and microstructural evaluation of materials. These two instruments are routinely used in materials characterization. High quality polished sections or pulverized samples are used.

Chemical Analysis

Conventional petrographic classification of rocks often depends not only on mineralogy and texture, but also on chemical composition. Therefore, a variety of major element oxide or elemental analysis are done by XRF, ICP, or AA. In addition to optical microscopy, SEM, XRD, and XRF/ICP analyses are often done for comprehensive examination. SEM-EDS is used for elemental analysis of a small area of interest in a thin or polished section.
We also provide detailed petrographic examinations of aggregates, cement, clinker, concrete, mortar, masonry units, stucco, cast stone, and other building materials, as well as various ceramic materials, terracotta, glass, and metals. Construction Materials Consultants, Inc. (CMC, www.cmc-concrete.com), the sister company of APS provides petrographic services to civil, structural, and architectural engineering firms in the construction industry.

From Moon To Meteorite To Planet Earth

From Ancient To Modern Marvels in Construction

APS Seeks To prepare samples from all!

Our journey continues with you....

Quality Service - Rapid Turnaround - Competitive Price

Call us at 800-899-0522

Henry Clifton Sorby (1826-1908)
The father of thin section petrography and metallurgy
We try to follow his legacy!

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