

## Customized Analyses

**A** *analytical methods and instruments can be modified and customized to fit the specialized needs of clients. This service addresses production and environmental problems, either as a short-term diagnostic tool or a long-term quality assurance program.*

*CETC's expertise is based on 20 years of experience in characterizing fuels and related materials.*



*GC/MS Determination*

The Characterization Laboratory's service is offered to:

- producers and users of hydrocarbon products;
- engineering companies;
- analytical laboratories; and
- R&D organizations.

CETC has modified analytical instrumentation and developed methodologies for in-house and commercial pilot plant operations.

*For example:*

- CETC quickly screened and evaluated a catalyst modifying the laboratory's FTIR/TGA system to use various gas mixtures at temperatures similar to processing conditions. This real-time, data acquisition system currently used in CETC's catalyst program, can monitor changes in gaseous streams and coking behaviour of catalysts.

### **Applications**

- controlling quality of incoming raw materials and finished products;
- controlling quality of production processes;
- identifying source of pollutants;
- monitoring pollutants; and
- special R&D investigations.

- CETC developed a technique to monitor the sulphur components in commercial fuels (such as Bunker C) as a fingerprint of the oil. It was published as a Standard Technical Procedure. The U.S. Coast Guard used the technique to monitor sources of oil spills from commercial carriers off the Atlantic coast.
- A commercial fireplace-starter leaked waxes on the retailer's shelves and attained unsafe temperatures when used. CETC developed a method for determining the quantity and type of hydrocarbons present in the product. Consequently, the manufacturer reformulated the product and eliminated the hazard.
- Anodes made from pitch emit organic vapours containing polyaromatic hydrocarbons when used in the electrolytic production of aluminum. CETC developed a procedure for rapidly characterizing and quantifying the volatile components in pitch. This procedure enabled the company to meet provincial emissions standards.
- high resolution, gas chromatography-mass spectroscopy;
- liquid chromatography - UV and fluorescence detection;
- supercritical fluid chromatography;
- FTIR/TGA;
- gasoline, diesel and jet fuel analysis;
- middle distillates characterization;
- gas oil analysis; and
- environmental analysis, e.g. trace elements, organics, etc.

### **Methodologies and Techniques**

- gas chromatography with flame ionization, thermoconductivity, nitrogen-specific, sulphur-specific and mass-selective detectors;

***For further information, please contact:***

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