# ADVANCED SOLUTIONS FOR BIOFUELS

## Maximize Your Laboratory's Prospects in Biofuels Development and Testing

We understand the challenges with meeting diverse global regulatory requirements and ASTM standards for renewable energy products. From evaluating incoming raw materials to processing byproducts such as glycerin to compliance testing of finished fuels such as ethanol and biodiesel, you'll find everything your scientists need to work with fatty acid methyl esters (FAMEs) – and for your lab to lead in this exciting research area – with our comprehensive, application-specific biofuels development and testing solutions.

### With Our Instruments and Expertise, We Can Help You:

- **Save money and ensure effective quality control**
- **Streamline your processes for outstanding operational efficiency**
- **Quality control and compliance with regulations**

Trace Elements Detection

EN/ASTM Compliance

Mineral Content

Blend Testing

Fuel Purity

**Contact Us for a Quote Today**

**More About Biofuels**

PerkinElmer®
*Science with Purpose*

## Testing Requirements of the Biofuels Industry

### Biodiesel Testing

- ICP-OES: trace elements
- AA: mineral contents
- Range of solutions for compliance with ASTM D6751 Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels (D6751)
- FTIR and GC: fuel characterization
- FTIR: fuel blend analysis to comply to ASTM D7371 and EN14078
- Quality Control
- GC: methanol EN 14110 and glycerin ASTM D6584 testing
- FTIR and GC: FAME purity and contaminant screening

### Bioethanol Testing

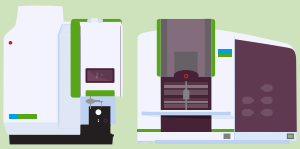
- ICP-OES: trace elements
- AA: mineral contents
- Range of solutions for compliance with ASTM D4806 Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel
- IR and GC: fuel characterization and blend testing
- Quality Control
- LC: fermentation monitoring
- FTIR and GC: blend ratio analysis

## Recommended Analytical Solutions

### ATOMIC SPECTROSCOPY

**Avio® Max ICP-OES/PinAAcle™AA**

- Trace elemental analysis to ensure conformance to standard specification for oil feedstock and final product
- Trace elemental analysis in waste streams
- AA mineral content determination in feed-stocks and by-products



### CHROMATOGRAPHY

**GC 2400™ Platform**

- Gas Chromatograph for Glycerin and FAME analysis of biodiesel in process and final product
- Determination of contaminants
- Standard specifications of final products
- Quality control of glycerin by-products
- Fuel characterization
- Feedstock characterization such as Corn Oil analysis
- Purity determination of final ethanol, denatured ethanol content and impurities analysis

**LC 300 HPLC & UHPLC**

- Liquid Chromatograph for quality control of fermentation broth during processing
- Vitamin and Mycotoxin analysis in by-products and feedstock

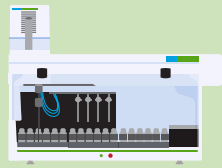
### MOLECULAR SPECTROSCOPY

**Spectrum Two™ FTIR**

- Rapid on-site quantification of biodiesel (FAME) in process in final blend
- Identification of glycerides and contaminants
- Characterization of feedstock oil. Final fuel parameters (cetane index etc)
- Purity determination of final ethanol, denatured ethanol content and impurity analysis

**OilExpress**

- Use with FTIR for fully automated analysis and high throughput workflows



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**More About Biofuels**

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