



ICP FOR BIODIESEL (B100)

ICP for Biodiesel (B100) TT-14538

ICP for Biodiesel (B100) TT-14538 complies with the EN14538 standard for Fat and Oil Derivatives - Fatty Acid Methyl Ester (FAME) - Determination of Ca, K, Mg, and Na content by optical emission spectral analysis with inductively coupled plasma (ICP OES).

The elemental composition of biodiesel is crucial for product quality control, automotive engine longevity, emissions control, and research into suitable additives. This method involves using a microwave-assisted acid digestion reaction system to prepare neat biodiesel (B100) samples in an aqueous medium for simultaneous analysis with inductively coupled plasma optical emission spectrometry (ICP-OES).

Biodiesel, obtained through transesterification reaction, underwent testing using calibration standards prepared in an aqueous medium. The results demonstrated significant correlation for the spiked B100 samples, with data on instrument detection limits, accuracy, and precision indicating that elemental concentrations can be determined within specified limits with ease. Importantly, this method eliminates the need to switch any ICP-OES accessories required for high organic loads, making it more suitable for biodiesel analysis compared to petrochemical analysis.

APPLICATIONS

The primary application of the ICP for Biodiesel (B100) TT-14538 is to determine the elemental composition of neat biodiesel (B100), also known as Fatty Acid Methyl Ester (FAME). In compliance with the EN14538 standard, it specifically measures the content of Calcium (Ca), Potassium (K), Magnesium (Mg), and Sodium (Na) using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES). This analysis is crucial for ensuring product quality, predicting effects on engine longevity, managing emissions control, and for research into fuel additives.

Key Industries

- **Biodiesel Production:** The instrument is essential for product quality control, allowing producers to certify that their biodiesel (FAME) meets the strict elemental composition limits required by international standards like EN14538.
- **Automotive and Engine Manufacturing:** This industry relies on such testing to understand the impact of biodiesel on their products, as the elemental content is critical for ensuring engine longevity and proper function of emissions control systems.
- **Research and Development (R&D):** Research facilities, including those developing fuel additives, use this instrument to study and improve biodiesel formulations and to understand the effects of various elements on fuel properties and performance.

TECHNICAL SPECIFICATIONS

High Frequency Generator	
Working Frequency	27.12MHz
Stability	± 0.05%
Output power	800W ~ 1600W
Stability	≤0.05%
Matching method	Automatic
Scanning spectrometer	
Light path	Czerny turner
Focal length	1000mm
Raster specification	Ion-etched holographic grating, engraved line density 3600L/mm or 2400L/mm; scribed area (80×110)mm
Line dispersion reciprocal	0.26nm/m
Resolution	≤0.008nm(3600 wire grating)

≤0.015nm(2400 wire grating)

Main Unit parameters

Scanning wavelength range

195nm□ 500nm□ 3600L/mm wire grating□

195nm□ 800nm□ 2400L/mm wire grating□

Repeatability

RSD≤1.5□

Stability

RSD≤2.0□



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