

# FIJI FAME IN JET INSTRUMENT

IP 583 "Determination of the fatty acid methyl esters content of aviation turbine fuel with Fourier Transform Infrared spectroscopy - Rapid screening method"

- Measures the presence of all FAME types in aviation turbine fuel
- Analysis time 20 minutes (assuming instrument is at operating temperature)
- Laboratory and field instrument
- Suitable for untrained operators
- No cleaning solvents required
- 50 ml sample volume
- Certified range 20-150 mg/kg
- 110/240V operation
- USB connection to PC/Laptop
- Dimension H x W x D: 36 x 37 x 45 cm
- Test Method IP 583 (AVTUR)
- Windows-based (XP/Vista/7) control software
- Patent Pending



The analyser measures the FAME levels in AVTUR to check they are within acceptable industry limits;

## Measurement Principle

Using a unique sample preparation module (patent pending) the sample is pumped at a controlled flow rate through a proprietary disposable cartridge. The sample components are spectrally analysed by the FTIR and a result is displayed within typically 20 minutes in mg/kg and a graphical spectrum is also shown. The system is self-cleaning so no solvents are required. After each test the cartridge is simply and easily replaced and the instrument is immediately ready for the next sample.



**Analytics**

## Chemometrics Programme Update

The repeatability  $r$  and reproducibility  $R$  are from the Energy Institutes' round robin data on 7 instruments. This Round Robin took place at various locations in Europe in the 3<sup>rd</sup> quarter of 2009.  $r$  and  $R$  Chemocal are the predicted precision from the same round robin but adding chemometrics (Chemocal) processing

	<b>r original</b>	<b>r Chemocal</b>	<b>R original</b>	<b>R Chemocal</b>
<b>10 ppm</b>	<b>8.4</b>	<b>3.1</b>	<b>8.5</b>	<b>3.5</b>
<b>20 ppm</b>	<b>8.4</b>	<b>3.3</b>	<b>8.7</b>	<b>3.7</b>
<b>30 ppm</b>	<b>8.4</b>	<b>3.5</b>	<b>9.0</b>	<b>3.9</b>
<b>50 ppm</b>	<b>8.4</b>	<b>3.8</b>	<b>9.5</b>	<b>4.4</b>
<b>100 ppm</b>	<b>8.4</b>	<b>4.8</b>	<b>10.9</b>	<b>5.5</b>

## Fuel Contamination problems prompt the need for testing

- In many cases Diesel and JET use shared multi-product pipelines which can lead to Fuel Contamination.
- FAME is surface active and sticks to the pipelines which causes Fuel Contamination
- JET can release FAME from tankers and pipelines which creates cross contamination
- Whenever fuel is moved or stored there is the potential for fuel contamination
- Reliable operating procedures are necessary to prevent airports suffering from the disruption from handling contaminated fuel

## Who should use the FAME Analyser?

- Airports, Pipelines, Jetties
- Refineries and Fuel Blending Locations
- Tank Storage Terminals
- Laboratories & Cargo Inspection

## Specification

Measurement range:	Certified range 20-150 mg/kg FAME in Aviation Turbine Fuels
Principle of measurement:	Flow Analysis by FTIR Spectroscopy
Operating Temperature Range:	5 - 35°C maximum (80% RH)
Test duration:	20 minutes
Sample size:	50ml
Voltage:	100 to 250V 50/60Hz
Power:	50W max
Computer interface:	2x USB (Computer running FIJI software is required for operation)
Size (HxWxD):	36 x 37 x 45 cm
Weight:	16kg



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