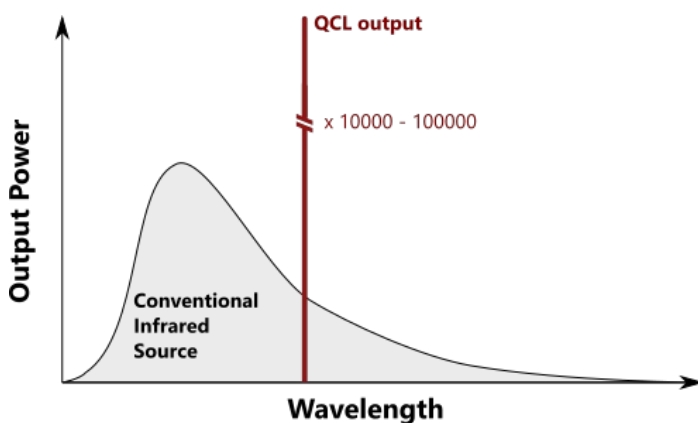# QUANTARED
TECHNOLOGIES

FAMESPEC®

The increased use of biodiesel (FAME) led to the issue of cross - contamination of jet fuel during transportation or storage in multiproduct facilities, like pipelines and ships or road tankers.

FAME is known to negatively influence the thermal stability of jet fuel and to lead to a performance deterioration of aircraft engines, e.g. by forming coke deposits.

Therefore, a maximum FAME content of 50 mg/kg has been included in international jet fuel specifications DEF STAN 91-091 and ASTM D1655.

Quantum Cascade Laser (QCL) offer a significantly higher power output at specific wavelengths than conventional infrared sources used employed in infrared spectrometers.

This enables sensing of trace contaminations in liquids with the highest accuracy. QuantaRed Technologies GmbH has a track record of developing cutting-edge liquid sensing technology based on QCLs.

The FAMESPEC® is a compact stand - alone analyzer that comes in a modern, portable and rugged design. It provides a fully automatic and rapid measurement with a high sample throughput. All types of FAME, including short chain methyl ester, are detected in a short measurement time.

Key features
- Based on QCL-IR technology
- Detects all types of FAME
- High precision (± 0.8 mg/kg at 5 mg/kg)
- Wide measurement range (10 - 400 mg/kg)
- Fast measurement (<25 min)
- Automated sample preparation
- 10-port autosampler
- Fully portable compact design

Quantum Cascade Lasers can have up to 100000 times the output power of conventional infrared sources. This results in measurements with the highest precision.

Principles of operation
The FAMESPEC® FAME in jet fuel analyzer combines the increased sensitivity of QCLs with an automated sample preparation technique (patent pending). FAME is removed from the sample by a selective chemical reaction facilitated by a catalyst. The catalyst is encapsulated in a multi-use column completely avoiding the necessity for single-use consumables.
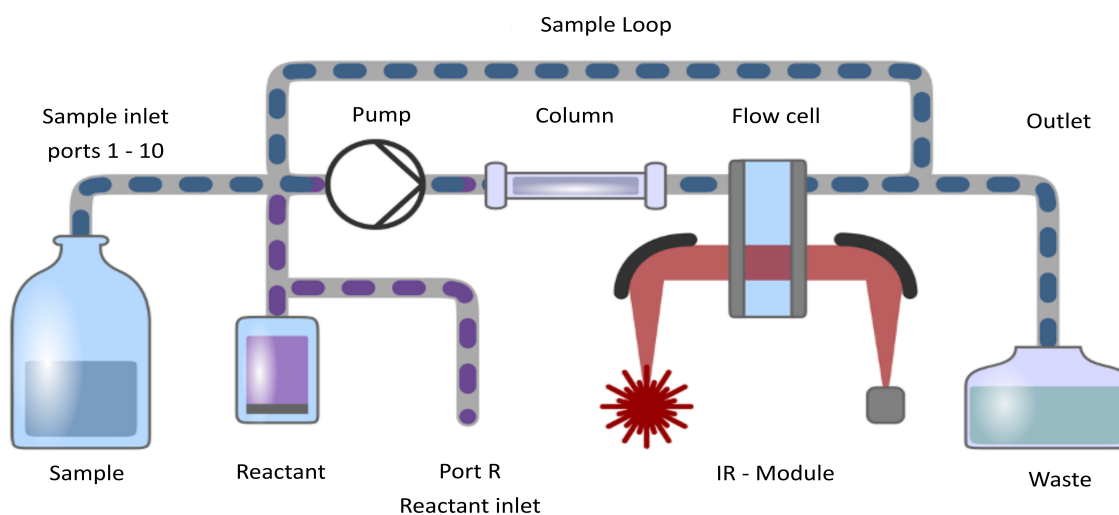
Applications
- Airport
- Pipelines terminal
- Refinery
- Military

Your quantum leap for measuring

Technical specifications
FAMESPEC®

Fuel Types	Aviation turbine fuel: Jet A, Jet A-1, JP5, JP8
FAME Types	All types of FAME with C8 – C22 molecules: Coconut-, Palm-, Rapeseed-, Sunflower-, Soy-, Tallow- and Used Cooking Oil Methyl Esters
Method	ASTM Method approval pending (WK63178)
Certified Range	10 – 400 mg/kg
Measurement Range	0 – 500 mg/kg
Repeatability	• 0.8 mg/kg at 5 mg/kg • 1.3 mg/kg at 50 mg/kg • 1.5 mg/kg at 100 mg/kg • 2.0 mg/kg at 400 mg/kg
Sample Preparation	Automated, no manual sample preparation required
Sample Volume	~50 mL
Number of Samples	10-port autosampler (single port option)
Analysis Time	• < 25 minutes per sample • Rapid measurement capability, early estimation (after 10 minutes)
Consumables	No single-use consumables required: • Column, 1 per 80 measurements • Reactant, internal reservoir for ~100 measurements
Technology	Quantum Cascade Laser Infrared Absorbance Spectroscopy
System	Embedded computer
User Interface	9" color touchscreen
Data Interface	• USB (2 front ports) • LAN – LIMS compatibility
Voltage / Power	85-264V AC, 47-63Hz, 50W (typ.) built-in multi voltage power supply
Operating Temperature	10 – 35 °C / 50 – 95 °F
Size	33 x 36 x 36 cm / 13.00 x 14.17 x 14.17 inch (10-port) 25 x 36 x 36 cm / 9.84 x 14.17 x 14.17 inch (single port)
Weight	16 kg / 35 lbs

Sample Loop

Sample inlet ports 1 - 10 — Pump — Column — Flow cell — Outlet

Sample — Reactant — Port R / Reactant inlet — IR - Module — Waste

Request a Demo!

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