PAC | solid partners proven solutions

FAME in AVTUR Analyzer

Accurate Analysis of FAME traces in Jet Fuel using Gas Chromatography

- Superior Analysis Scope, Precision and Accuracy
- Extremely Easy to Use, Straightforward Operation
- Best Return on Investment with Highest Annual Cost Savings
- In Compliance with IP 599

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FAME in AVTUR Analyzer

ACCURATE, RELIABLE AND EASY TO USE FAME ANALYSIS FOR SAFER FLIGHTS

FAME (Fatty Acid Methyl Esters) are used as blend stock for diesel in a refinery process. Jet fuel/AVTUR (Aviation Turbine Fuel) is often produced, transported and stored using the same infrastructure as FAME feedstocks. The jet fuel might be contaminated with FAME traces leading to risks of coke/soot deposits in the fuel system, gelling of the fuel, microbial growth, interaction with jet engine's rubber materials, and increased corrosion: all issues can lead to signficant jet fuel engine operability problems, and possible jet fuel engine flameouts. PAC offers accurate and reliable measurement of FAME contamination in jet fuel: the FAME in AVTUR analyzer can significantly contribute to improving aviation safety.

KEY ADVANTAGES

BEST RETURN ON INVESTMENT

Lowest cost per sample

- Superior unattended productivity through automation
- Minimal operator time, involvement, and expertise required: minimal training required
- Lowest cost of ownership: no sample preparation, no consumables

SUPERIOR SCOPE, PRECISION AND ACCURACY

More confidence in Aviation Safety

- Handles wide range of jet fuels, including e.g. Diesel contaminated
- Broad analysis range, including C14:0 for detecting 'Coconut Type' feedstocks
- Covers 5-150 ppm FAME , Speciated and Total FAME data
- Excellent performance with far best overall precision
- Interference-free method contributes to excellent stability and repeatable results

EXTREMELY EASY TO USE

Lowest preparation cost and materials requirements

- Straightforward operation requires minimal user training and minimal operator involvement Pre-programmed methods and reporting templates
- Easy, linear calibration with dedicated calibrations & QC Samples
- No fragile parts ensure robust system with minimal maintenance requirements

PROVEN COMPLIANCY

The PAC AC FAME in AVTUR application is standardized as IP-599: GC using Deans Heart Cut and non-cryogenic focussing

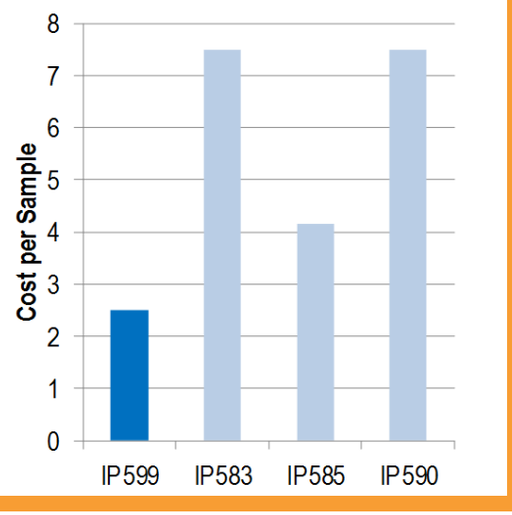
- IP 599 will be added to:
  - DEFSTAN 91-91, with key specification: 5 ppm for Total Fame in Jet Fuel, Fame = C16:0-C18:3
  - ASTM D1655 with key specification: 5 ppm for Total Fame in Jet Fuel, Fame = C16:0-C18:3 (maximum specification for FAME in AVTUR is expected to change to 50 ppm in the near future)

ROI STUDY

COST PER SAMPLE

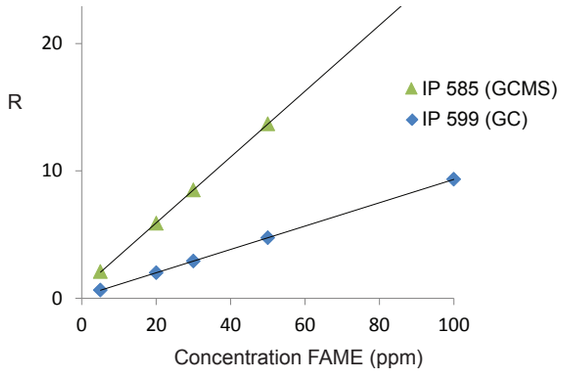
The FAME in AVTUR Analyzer (IP599) offers lowest cost per sample with minimal consumable cost (versus IP 583) and lowest investment cost (versus IP585). The instrument gives best return on investment through superior and unattended productivity, minimal operator time, minimal training required and low cost of ownership due to no consumables.

Relative Expected Cost per Sample



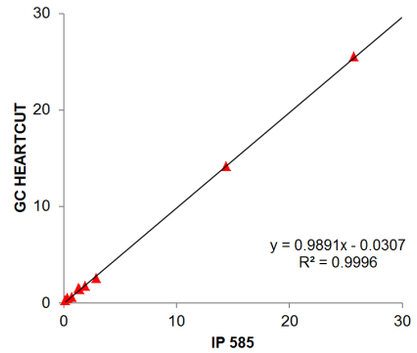
ANALYSIS

PRECISION



ACCURACY OF IP599

- BIAS IP599 vs. IP585



EASE OF OPERATION

Ease of operation and maintenance for FAME analysis	IP 599 (GC)	IP 583 (FTIR)	IP 585 (GCMS)	IP 590 (LC)
No Sample preparation	+	-	+	-
No Dillution	+	+	+	+
No hands-on	+	-	+	+
No need for consumables specific to samples	+	-	+	+
No internal standard required	+	+	-	+
Low maintenance	+	+	-	+
Minimal Operator attendance	+	-	+	+
Minimal operator expertise and training	+	+	-	+

SPECIFICATIONS

Ordering Information	
CCG4800A	TRACE FAME IN AVTUR SYSTEM ON 120V 7890 GC
CCG4800C	TRACE FAME IN AVTUR SYSTEM ON 230V 7890 GC
CCG4800.100	KIT, SPARE PARTS TRACE FAME IN AVTUR
CCG4800.200	KIT, CONSUMABLE PARTS TRACE FAME IN AVTUR
Analysis Scope	
Sample Matrix	Aviation Tubine Fuel (AVTUR)
Analysis Range	C14:0, C16:0, C18:0, C18:1, C18:2, C18:3
Range of Quantification Individual FAME	0.5 – 50 mg/kg
Range of Quantification Total FAME	2 – 150 ppm
Standard Method	• Complies to IP599 • Meets specifications in DEFSTAN 91-91 and ASTM D1655 (IP599 is expected to be added to DEFSTAN 91-91 and ASTM D1655)
Performance	
Retention Time Repeatability	< 0.02% RSD
Precision Values	Repeatability: r = 0,00980 (x+40) mg/kg Reproducibility: R = 0,09163 (x+2) mg/kg (3.5-116 ppm w/w)
Utilities Requirements	
Carrier gas	Hydrogen (99.999%)
FID fuel	Hydrogen (99.999%) and Air
Cooling	Compressed dry Air
System Power	110 - 230 Volts
Accessories Included	Operating manual Calibration samples Reference samples Startup Kit Carrier Gas Filters Oven Exhaust deflector Factory plumbing for quick installation

Continuing research and development may result in specifications or appearance changes at any time

ABOUT PAC

PAC develops advanced instrumentation for lab and process applications based on strong **Analytical Expertise** that ensures **Optimal Performance** for our clients. Our analyzers help our clients meet complex industry challenges by providing a low cost of ownership, safe operation, high performance with fast, accurate, and actionable results, high uptime through reliable instrumentation, and compliance with standard methods.

Our solutions are from industry-leading brands: AC Analytical Controls, Advanced Sensors, Alcor, Antek, Herzog, ISL, Cambridge Viscosity, PSPI, and PetroSpec. We are committed to delivering superior and local customer service worldwide with 16 office locations and a network of over 50 distributors. PAC operates as a unit of Roper Technologies, Inc., a diversified technology company and a constituent of S&P 500, Fortune 1000, and Russell 1000 indices.

HEADQUARTERS

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