



FAME in aviation jet fuel by GC-MS

PF710



- IP 585/10 compliant trace FAME by GC-MS
- High sensitivity SIM for low-level detection
- Fast separation of C₈-C₂₄ FAME species
- Robust precision, accuracy, and linearity

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Increasing quantities of biodiesel and aviation turbine fuel are being transported in multiproduct pipelines. Using this transportation technique, trace amounts of FAME can be found in jet fuel parcels following biodiesel parcels. Commercial aircraft OEMs gave approval of limits of 5 mg/kg total FAME in jet fuel.

Principle of operation

Following the IP 585/10 regulation, a GC/MS method was developed for determination of the total FAME content in jet fuel in the range of 0.5 mg/kg to 100 mg/kg. Due to the natural background of high end naphtha components present in some samples, complete separation is not possible and a multiple Selective Ion Monitoring (SIM) is performed. The most important FAMES to be measured are C16:0, C17:0, C18:0, C18:1, C18:2 and C18:3. Their distribution is in function of the original vegetable. The here describes method following IP 585/10 uses a single column GC/MS in full scan/SIM mode to separate, identify and quantify total FAMES in aviation jet fuel.

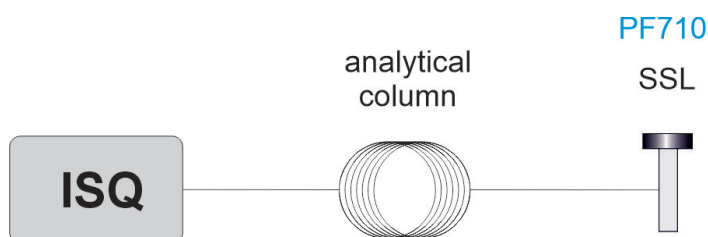


Figure 1 Diagram IP 585/10 analyser

Instrument specification

- Thermo Trace GC1600 with ISQ Mass spectrometer and Splitless injector
- Capillary column

Results

The chromatogram shown by figure 2 depicts the 0.032 mg/kg contribution of C18:0 in the total FAME standard of 1 mg/kg. Figure 3 shows the calibration curve of C18:0 between 0.5 and 100 mg/kg for total FAME.

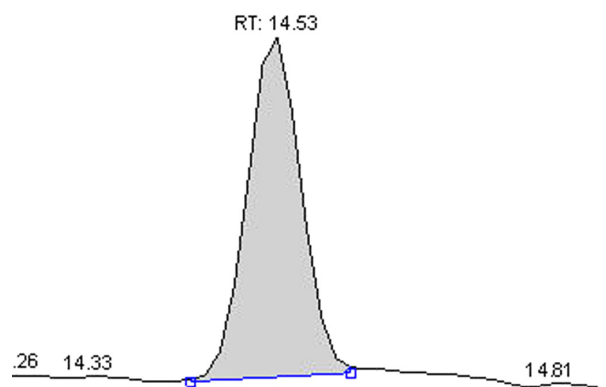


Figure 2 0.032 mg/kg contribution of C18:0 in the total FAME

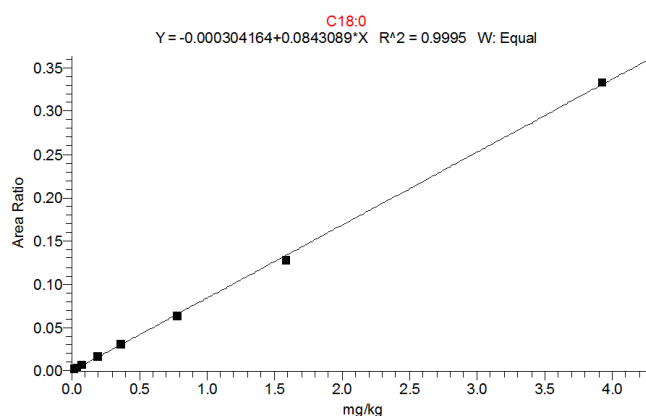


Figure 3 Fame calibration curve

Ordering information PF710				
code X	0	1	2	3
GC model, power	1600, 230V	1610, 230V	1600, 115V	1610, 115V

For the selection of options (e.g. GC oven cryo valves, Power plug type and more), [see the options table in the order guide.](#)

About GAS

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