



Chemical species in Marine Fuel Oil

PD220

- ASTM D7845
- GC-MS method
- For bunker oil / marine fuel oil
- Highly robust & sensitive



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Chemical species in Marine Fuel Oil

Burning of marine fuel oil (or bunker fuel) in ships results in emissions that contribute to air pollution levels in many port cities. Analysing marine bunker fuel helps owners meet marine fuel environmental regulatory compliance.

ASTM D7845-13

ASTM D7845-13 is the standard test for determination of chemical species in marine fuel oil by multidimensional gas chromatography/Mass spectrometry. This product note describes configuration B, which uses FID for setting the correct column switching time. SIM (Selected Ion Monitoring) acquisition mode is used for quantification. Six calibration standards, ranging from 10 to 500 mg/kg are used to obtain the calibration curves. Figure 2 shows the TIC chromatogram of a calibration standard, while a fuel sample is shown in figure 3. Chromeleon and TraceFinder software are used for identification, quantitation and reporting. The analyser meets the following specifications according to ASTM D7845:

- Correlation r^2 value >0.90, using at least 5 calibration points.
- Demonstration of repeatability limits. The obtained results meet the requirements easily.
- Sensitivity of 1 mg/kg styrene at mass 104 > 5:1. For the analyser here described a ratio of > 1000:1 is reported.

Specifications

- Thermo Trace GC1600 with iConnect PTV-backflush, FID and ISQ Mass spectrometer, and 3 capillary columns
- Deans column switching option
- Correlation: $r^2 > 0.99$
- S/N ratio styrene > 1:1000

Chemical species

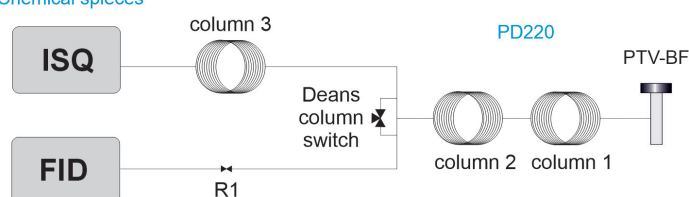


Figure 1 Analyser diagram

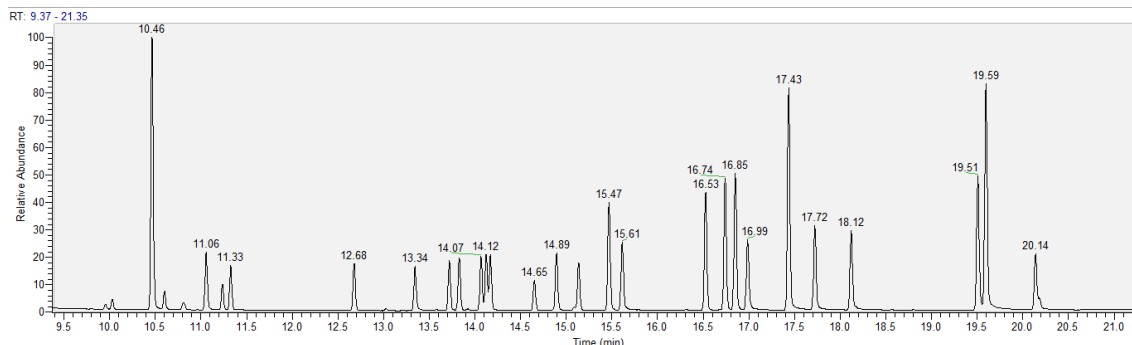


Figure 2
TIC chromatogram
calibration standard

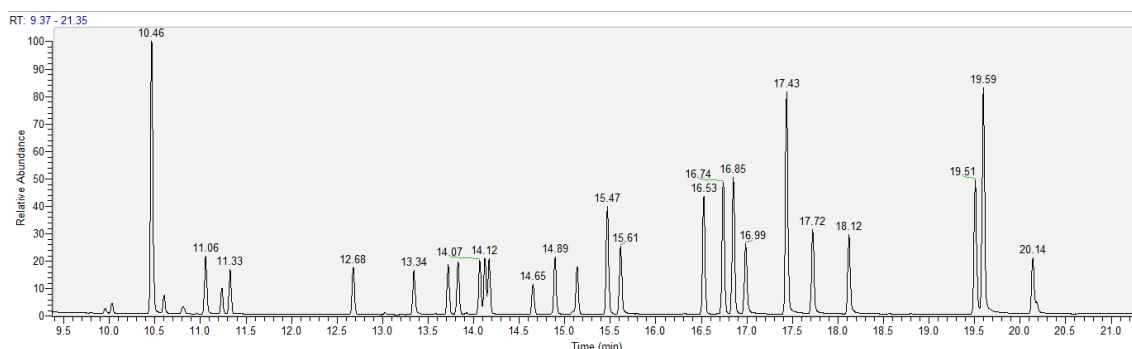


Figure 3
TIC chromatogram oil sample

Ordering information PD22X - ABCDE

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

Global Analyser Solutions provides GC & GC-MS solutions for Energy, Refinery, Chemical and Environmental markets. Our analysers address a broad spectrum of measuring requirements with high precision and reliability. Please reach out for more information on our website.

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