



Battery swelling gas analyser

ES415

- Instant insight in battery conditions
- Only 1-2 ml total sample required
- Direct sampling from battery or via syringe
- Syringe autosampler optional



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Battery swelling gas analyser

The GAS battery swelling gas analyser measures a variety of gases produced during charge/discharge processes in lithium batteries. The gas composition provides important information about battery performance and safety risks.

Principle of operation

The GAS battery swelling gas analyser comprises three analytical channels. Two thermal conductivity detectors (TCDs) provide rapid measurement of permanent gases, while hydrocarbons are analysed using a flame ionisation detector (FID) combined with a temperature-programmed column oven. This setup enables detailed isomer analysis from C_1 to C_6 (extendable to C_{10}). Figure 1 shows the schematic diagram, and Figures 3 and 4 show representative chromatograms (the upper channel chromatogram is not shown).

Only 1-2 ml of sample needed

Since available sample volumes are often limited, a vacuum sampling option ensures minimal requirements. Samples may be taken directly from the battery or via syringe. In both cases, the sample loop is evacuated before sampling, reducing the required volume and preventing cross-contamination.



Figure 2
Vacuum sampling from a single syringe (above) and autosampler for multiple syringe injection (right).

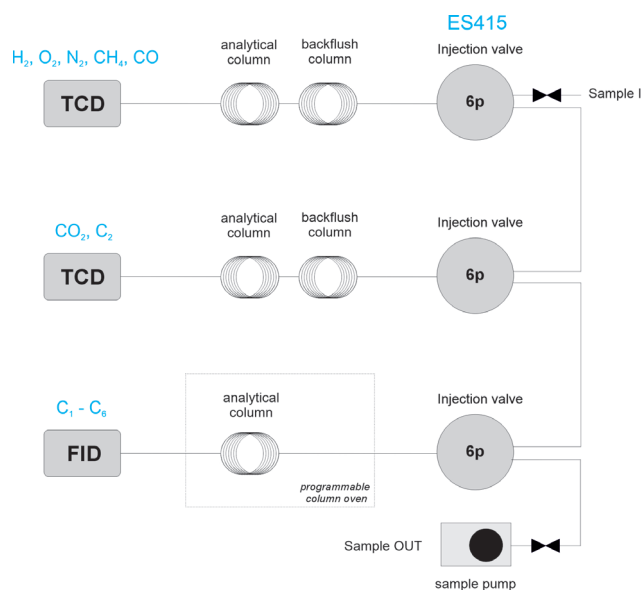


Figure 1 Diagram ES415 analyser

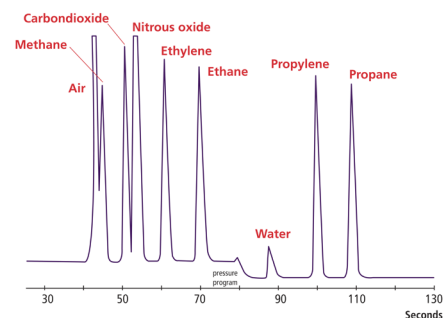


Figure 3 Chromatogram middle channel (figure 1)

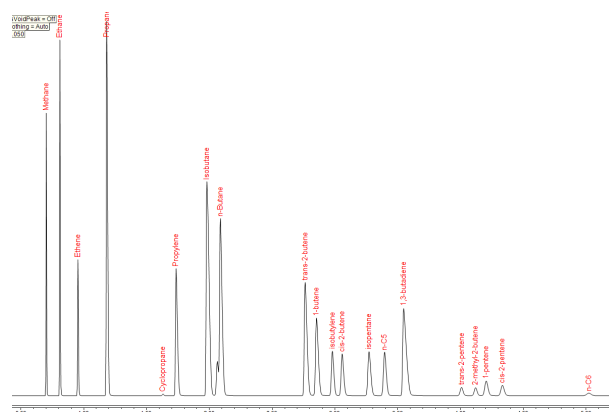


Figure 4 Chromatogram FID channel (C_1 - C_6 hydrocarbons)

Ordering information: ES415

Key benefits

- Instant insight in battery condition
- Only 1-2 ml sample required
- Direct sampling from battery possible
- Autosampler for syringes available