



## Battery swelling gas analyser

ER400



- Instant insight in battery conditions
- Less than 0.5 mL total sample required
- Sampling from battery via gas syringe

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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 two analytical channels. Channel 1, equipped with TCD detection, measures permanent gases and light hydrocarbons, while Channel 2, with FID detection, analyses hydrocarbons. This configuration enables detailed isomer analysis from C<sub>1</sub> to C<sub>5</sub> and C<sub>6</sub>+ (using backflush to detector), or alternatively from C<sub>1</sub> to C<sub>10</sub>. Figure 1 shows the schematic diagram of the system, while Figures 2 and 3 present representative chromatograms. The sample is injected simultaneously into both channels, using a gas syringe.

## Less than 0.5 ml of sample needed

Since the available sample volume is often limited, the sample is taken directly from the battery via a gas syringe and injected into the carrier-gas stream using the injector.

## Instrument configuration

- Thermo GC1600 with InstantConnect TCD, FID and SSL (liquid/head-space injector)
- Four capillary columns (0.53mm ID)
- Heated valve oven with three 10-port diaphragm valves (rotary valves optional)
- Chromeleon CDS data system
- Runtime: 5 minutes
- Carrier gas: Argon

## Results

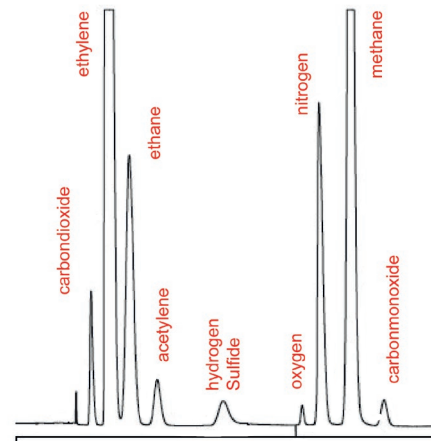


Figure 2 Chromatogram TCD. Runtime 5 minutes.

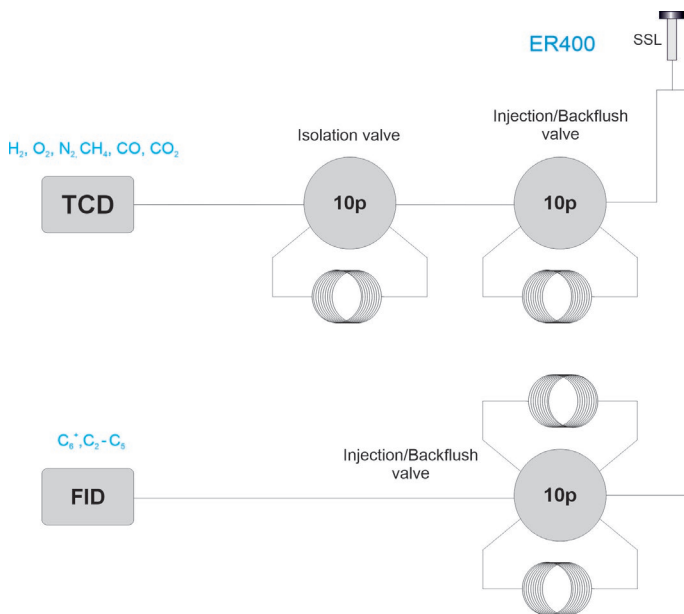


Figure 1 Diagram ER400 analyser

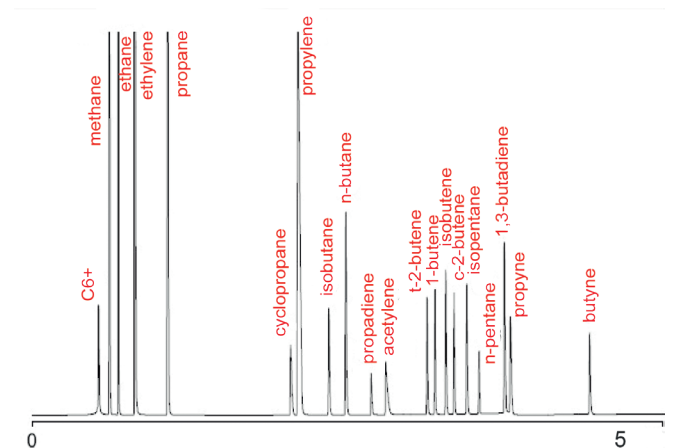


Figure 3 Chromatogram FID (C<sub>6</sub>+ backflush to detector)

## Ordering information ER415 - ABCDE

For the selection of options (e.g. valve type and passivation, pump and vacuum sampling, rotameter and sample connections, pressure and moisture sensors, hydrogen sensor for safety shut-off, 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. [www.gassite.com](http://www.gassite.com)