

CASE STUDY

Customer trial of innovation in hydrogen purity measurement



Partnership with Protium, a leading green hydrogen producer

PORTABLE, SPEED OF SOUND ANALYZER

Protium is a leading producer of green hydrogen through electrolysis, supporting the drive to decarbonize industry.

Protium's first hydrogen production facility, Pioneer 1, has been producing green hydrogen for commercial use since March 2023. As well as powering a variety of customer projects, including for off-grid power generation and static power applications, Pioneer 1 has powered fleet and transport trials in South Wales and across the UK.

As a long term customer and partner of SGS, Protium has received expert analytical and testing services for their fuel grade hydrogen over many years.

PROTIUM

INTRODUCING NEW TECHNOLOGY

SGS has introduced a new solution for measuring gas purity based on an acoustic speed of sound response. Protium agreed to SGS to use their facility for extensive field trials of the new portable instrument.

INNOVATION IN GAS PURITY TESTING

The ASTG 500 is designed for customers to be able to make quick and accurate gas purity measurements in the field.

This portable system can measure gas purity (99.99%) for over 500 different gases plus single digit parts per millions (ppms) for oxygen and water vapor.

The fast set up, ease of use and reliable data, as well as the data logging function, allows customers to transform the way they manage and verify the quality of their product.



Case study

A HAPPY CUSTOMER

Shaun James, Senior Engineering Technician at Protium said: "The quick set up, ease of use and stable readings allow us to quickly and effectively check the quality of the hydrogen we produce. It ensures that we and our customers have confidence in the final product.

"The portability of the instrument and long battery life opens up additional possibilities for us to use the analyzer for checking of our product prior to laboratory tests, new vessels coming into service, and trailers and trucks post fill for accuracy and quality. The addition of the binary gas feature allows us also to verify any impurities in our hydrogen, such as nitrogen"

BUILDING TRUST, DELIVERING QUALITY

SGS's James Clark, Regional Business Manager, said: "We're delighted with the field trial performance of the ASTG analyzer, particularly the quick set up and accurate and stable readings.

"Being able to trial the analyzer allowed the customer to see first-hand the benefits, building trust that it will do what they need it to do.

"For SGS, the ASTG brand inspires quality and trust, and so we were confident that conducting a trial would lead to successful results for our customer."

Precision & multi-gas coverage

- Measures gas purity up to 99.99% ($\approx \pm 0.1\%$ accuracy)
- Resonant acoustic speed-of-sound technology
- Library of ~500 gases (CO₂, H₂, SF₆, N₂, Ar, He, O₂, etc.) + user-addable gases
- Built-in electrochemical sensors: H₂O & O₂ to single-digit ppm
- Continuous measurement for reliable purity verification

Smart interface & data integration

- 7" touchscreen local control
- Remote digital interface for off-device access
- Data logging and control software included
- Analog outputs and Modbus communications for easy integration

Field-ready portability & low upkeep

- Rugged Pelican case with handle for tough environments
- Long-lasting battery for true portability
- Minimal maintenance; stable measurements reduce recalibration
- Cost-effective alternative to lab analyzers for research, testing and verification

Interested to find out more?

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SGS

When you need to be sure