

EffecTech®'s testing laboratory is accredited by the United Kingdom Accreditation Service (UKAS) for both composition and physical properties of natural gas, sulphur and gas condensate.

EffecTech® provides a high quality analysis, testing and sampling service. In addition, we provide a considered interpretation of analytical data, which is fit for purpose, with an understanding of how the measurement will be used by the customer in making key decisions about their business.

An experienced EffecTech® engineer can be onsite to take your gas sample or provide suitable sampling containers prepared according to ISO 10715:1997 - Natural Gas - Sampling guidelines. Great care and consideration is given to sampling to ensure a representative sample is obtained at the sample point, particularly for sulphur measurements.

For every natural gas sample we analyse, we:

- Use a range of seven reference gas mixtures traceable to internationally accepted standards of measurement in the field of natural gas. Each reference gas is analysed at least ten times to calibrate our analytical instruments in accordance with ISO 6143 prior to analysing the customers sample
- Use validated methods of natural gas analysis (developed on ISO 6974 and ASTM 1945-81)
- Perform at least ten replicate analyses of each sample in order to provide the degree of confidence required by the client and accepted by UKAS
- Quote measurement uncertainties on all components in the natural gas and on the derived physical properties using internationally accepted methods (ISO Guide to the Expression of Uncertainty in Measurement - GUM)

For every condensate, both pressurised and stabilised sample we analyse, we:

- C₁ to C₃₆, nitrogen and carbon dioxide according to ASTM D2887-04a
- Water content according to IP386/99
- Density according to IP365/84(86)

Quality is your confidence

In the analysis of natural gas, sulphur and gas condensate you require confidence in:

- Composition (component concentration including water).
- Sulphur content (hydrogen sulphide, ethyl mercaptan etc)
- Physical properties (calorific value, density, relative density and Wobbe index)
- Uncertainties on these measurements

To reduce potential financial exposure, EffecTech® data will ensure that you:

- Are getting value for money on the gas you are supplied
- Can calculate efficiencies of the processes you are using
- Can present data to your business partners which will stand up to external scrutiny used in custody transfer and allocation measurement systems.

EffecTech® Analysis Service

24 Hour Express Analysis

Results within 24 hours of sample arriving at our ISO 17025 Accredited Laboratory. Hydrocarbon and sulphur analysis.

Natural gas up to C₁₂, nitrogen, carbon dioxide, oxygen, argon, hydrogen and helium. Condensate analysis, both pressurised and stabilised up to C₃₆, nitrogen and carbon dioxide.

48 Hour Standard Analysis

Results within 48 hours of sample arriving at our ISO 17025 accredited laboratory – for hydrocarbon and sulphur analysis.

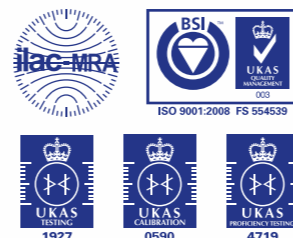
global leaders in gas measurement



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laboratory services

EffecTech®, through its UKAS accredited calibration laboratories, provides the highest quality reference gas mixtures with world leading accuracy and uncertainty.

Gas analysis is a comparative method, the final accuracy of the analysed composition, and that of any physical property calculated from it, is principally dependent on the quality of the calibration gas mixture used.



Calibration Gases

Using EffecTech® calibration gases can greatly reduce the uncertainty of the gas measurements you make whether it be underpinning your fiscal, contractual or environmental obligations. We ensure you receive the best solution for your application, drawing on years of experience in gas metrology. EffecTech® produces calibration gases to the highest international standards according to their scope of accreditation awarded by UKAS. Our ISO 17025 accredited calibration gases ensure accurate and traceable calibrations through an unbroken chain of measurements back to the SI unit amount of substance, the mole. Inaccurate, non-traceable calibration gases have the greatest potential for introducing errors into your gas composition measurements and in calculated physical properties such as calorific value or carbon emission factors.

EffecTech® offers ISO 17025 accredited calibration gases for the following applications:

- LNG
- Refinery gas
- Blast furnace gas
- Natural gas (up to C₁₀)
- Mixed refrigerants
- Trace sulphur/odorant (H₂S, COS)
- Stack emission (CO, CO₂, NO, SO₂ & O₂)

EffecTech® Calibration Gases

Express Delivery:

1 week to UK and Worldwide

Delivery for hydrocarbon mixtures ONLY is **1 week** to UK or ex works Worldwide.

Standard Delivery:

2-3 weeks to UK and Worldwide

Delivery for hydrocarbon mixtures is 2-3 weeks, sulphur mixtures is 4-5 weeks to UK or ex works Worldwide.

No Cylinder Rental Charge

The cylinder is purchased outright with the first mixture and refilled by EffecTech as required at a lower cost.

Cylinder Pressure Tests

These are included. EffecTech will arrange retest at no extra cost.

Gas Mixture Shelf Life Reminder

Gas mixtures which are not unconditionally stable will be issued with a shelf life. EffecTech send reminders to clients when mixtures approach the end of their shelf lives, thus preventing out of date mixtures being used.

Proficiency Testing

Proficiency Testing (PT) schemes provide an objective way of assessing the performance (bias, stability, and repeatability) of laboratories by a series of regular inter-laboratory comparisons.

EffecTech® is accredited by UKAS to provide the Global Gas and LNG PT scheme. The scheme is operated in accordance with ISO 17043 (ISO Guide 43) and focuses on the natural gas and LNG industries. Between 1 and 4 different ISO 17025 accredited synthetic gases (see table) are sent to the participating laboratories for analysis up to four times per year. Each laboratory reports their analytical results, which are compared to the reference values. The closeness of each laboratory's results to the reference values forms the basis of a quantitative assessment of their capability and performance. The full set of results for all laboratories are reported anonymously to the entire group, with each participant being made aware of the identity of their own results. Participation in this PT scheme provides laboratories with an objective means of assessing and demonstrating the reliability of their measurements. This may identify potential commercial risks and staff training requirements. In addition, participants are able to assess their performance in relation to other laboratories. Indeed, regular participation in PT schemes is required by accreditation bodies when assessing laboratories against ISO 17025.

The GGLNG PT scheme has been provided by EffecTech® for 3 years. Over this period as many as 50 laboratories participating in the scheme have been able to demonstrate improved performance.

Component	Mixture 1 LNG Composition (%mol/mol)	Mixture 2 Propane Composition (%mol/mol)	Mixture 3 Mixed Refrigerant (%mol/mol)	Mixture 4 Sulphur in Methane (ppm)
ethane	0.1 - 14	0.25 - 3	20 - 35	
propane	0.05 - 5	Balance	5 - 15	
Iso-butane	0.01 - 1	0.03 - 1		
n-butane	0.01 - 1	0.03 - 1		
Iso-pentane	0.005 - 0.35	0.02 - 0.08		
n-pentane	0.005 - 0.35	0.02 - 0.08		
n-hexane	0.001 - 0.35			
nitrogen	0.1 - 8	0.1 - 3	4 - 16	
carbon dioxide	0.05 - 8			
methane	balance		balance	balance
hydrogen sulphide				0.2 to 40
carbonyl sulphide				0.2 to 40
methyl mercaptan				0.2 to 40
ethyl mercaptan				0.2 to 40
dimethyl sulphide				0.2 to 40