



*EffecTech*

Global Leaders in  
Gas Measurement



# Calibration Gases and Services



# Message from the CEO, EffecTech Group



I am passionate about the quality culture that exists in our business. A core value that was created in the beginning has been cultivated and nurtured and now thrives across the entire organisation. As a consequence, the EffecTech brand is known worldwide for quality and added value. I am convinced the continuing success of the Group is due to this commitment.



EffecTech has pledged to exceed customer expectations and to increase customer satisfaction through the culture of continuous improvement. This commitment is demonstrated through a constant focus on innovation and improvement in the range and quality of our products and services. We do not settle for anything less than excellence in every part our business and we continually strive to improve by having the courage to change.

As you browse this brochure you will realise that everything we offer here is covered by one or more of our quality accreditations. We are rightly proud of the success we have achieved in being awarded these badges of quality from the United Kingdom Accreditation Service (UKAS). We are proud of our UKAS logos. So when you see these on our certificates, reports and labels please take a moment to be reassured of our passionate commitment behind these and to remember that our quality is your confidence.

Dr Gavin Squire BSc CChem FRSC

## ACCREDITATIONS

For our latest  
schedules of  
accreditation,  
please visit the  
UKAS website:  
[ukas.org](http://ukas.org)



The scopes of accreditation included in this brochure are correct at time of printing.



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# About Us

EffecTech is a global leader in gas measurement, providing accredited inspection, calibration and testing services to the energy and power industries for gas quality, flow and total energy metering. Our highly trained and experienced staff provide fast and effective solutions to your fiscal, regulatory, contractual, safety and environmental gas measurement requirements.

## Key Locations

### UK Headquarters

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Global Leaders in Gas Measurement

**Our UKAS schedules of accreditation:**  
[effectech.co.uk/schedules](http://effectech.co.uk/schedules)

The image features a blue gradient background with several 3D molecular models. The most prominent is a large water molecule (H2O) in the upper right, with a large dark blue oxygen atom and two smaller light blue hydrogen atoms. Other smaller water molecules are scattered throughout the scene. Additionally, there are several methane (CH4) molecules, each consisting of a central dark blue carbon atom bonded to four light blue hydrogen atoms. The models are rendered with soft shadows and highlights, giving them a realistic, three-dimensional appearance.

# Calibration Gases

# Why Choose EffecTech Calibration Gases?

EffecTech is a leading supplier of calibration gases to customers all over the world. All mixtures supplied under EffecTech's ISO 17025 accreditation are traceable to international standards.

## Quality

*"world leading quality coupled with fantastic customer service."*

ISO 17025 calibration accreditation for both primary and secondary standards provides confidence in the high quality gases you will receive from EffecTech.

## Delivery

*"we do everything possible to get your calibration gas to you when you need it."*

Express delivery for hydrocarbon mixtures is 1 week to UK or ex works worldwide. Standard delivery for hydrocarbon mixtures is 2-3 weeks, emissions gases is 2-4 weeks and sulphur mixtures is 4-5 weeks to UK or ex works worldwide.

## No cylinder rental charge

Your cylinder is purchased outright initially with the first mixture and refilled when required at a lower price. Cylinder pressure tests are included with this service at no extra cost.

## Equipment

Calibration gases are provided in a range of sizes and valve connections to suit customer requirements. We also supply gas control equipment with your calibration gas to ensure the integrity of the high quality gas is maintained on delivery to the instrument.

## Gas mixture shelf life reminder

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

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**For more information, visit**  
[effectech.co.uk/calibrationsgases](http://effectech.co.uk/calibrationsgases)

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A certificate of calibration is provided with every gas mixture including reference values and uncertainties, as well as phase diagrams (where appropriate) and advice on storage conditions, to ensure that the gas mixture remains useable throughout its lifetime.



# EffecTech Reference Gas Mixtures

ISO 17025 accredited reference gas mixtures are the industry-standard recommendation for customers who wish to avoid the financial consequences of long-term mismeasurement and to ensure the measurement accuracy of analytical equipment.

EffecTech offers the following reference gas mixtures:

## Primary Reference Gas Mixtures (PRGM)

PRGMs are the highest quality standards available for use by commercial organisations. These reference gases have the lowest achievable uncertainties and are used by ISO 17025 laboratories who need to establish reference values for internal gas standards.

## Secondary Reference Gas Mixtures (SRGM)

SRGMs are the most frequently used calibration gases for the calibration of gas chromatographs and other analytical devices because they balance low uncertainties with value for money, especially when supplied in large volume cylinders.

EffecTech supplies SRGMs for:

- Natural gas and LNG gases, sulphur and odourant gases for the oil and gas industry
- Binary emission gas mixtures for continuous emissions monitoring
- Blast furnace gases for process control and emissions trading requirements in iron and steel manufacturing

## Calibrated Gas Mixtures (CGM)

EffecTech offers a calibration service for speciality gas manufacturers who need to supply accredited calibration mixtures to their customers. EffecTech provides a certificate reporting the analytical values and uncertainty for each calibrated mixture.

All of the calibration gases shown in this brochure can be supplied by EffecTech as ISO 17025 accredited PRGM, SRGM or through a third party supplier as a CGM.

## ACCREDITATIONS



# Natural Gas and LNG



Natural gas composition varies from source to source and often varies on a daily and seasonal basis. Using a calibration gas that is specifically designed for your application ensures that you will continue to achieve the best possible gas quality measurements.

EffectTech's experienced staff draw on over twenty years of experience in the gas industry to design calibration gases to suit each customer's specific requirements.

The SRGM ranges we offer can be seen in the table below:

Component	Amount fraction range (% mol/mol)	Component	Amount fraction range (% mol/mol)
nitrogen	0.1 to 22	2,2-dimethylbutane	0.001 to 0.35
carbon dioxide	0.05 to 15	benzene	0.001 to 0.2
methane	34 to 100	cyclohexane	0.001 to 0.2
ethane	0.1 to 35	n-heptane	0.001 to 0.2
propane	0.05 to 15	toluene	0.001 to 0.1
iso-butane	0.01 to 2	methylcyclohexane	0.001 to 0.1
n-butane	0.01 to 2	n-octane	0.0005 to 0.05
neo-pentane	0.002 to 0.35	n-nonane	0.0005 to 0.02
iso-pentane	0.005 to 0.35	n-decane	0.0005 to 0.005
n-pentane	0.005 to 0.35	oxygen	0.0005 to 22.5
n-hexane	0.001 to 0.35	helium	0.005 to 0.2
2-methylpentane	0.001 to 0.35	hydrogen	0.005 to 0.2
3-methylpentane	0.001 to 0.35		

Please note - the upper limit for oxygen may be limited due to restrictions in place required for the safe manufacture of such mixtures. Calibration of oxygen in gas mixtures by ISO 12963:2017 using galvanic fuel cell sensors. Calibration of gas mixtures using gas chromatography with TCD and FID detection. Please see our accreditation schedule for PRGM ranges at [www.ukas.com](http://www.ukas.com)



## Composition

Effectech's calibration gas design takes into account

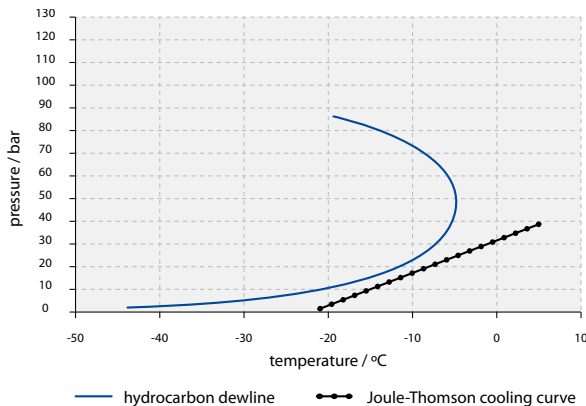
- Variation of delivered composition
- Operational temperature and pressure
- Accuracy needed to make it fit for purpose

to deliver the optimum gas mixture for your measurement needs.

## Maximising gas volume

Proposed designs will also maximise cylinder fill pressures, where appropriate, through gas liquid phase equilibrium calculations so you receive the highest gas volume possible within the required parameters.

Phase diagram of your calibration gas mixture



Each certificate of calibration for hydrocarbon mixtures includes a phase diagram calculated using equations of state showing how the stated storage and usage temperature have been derived.

## Physical properties

Physical properties for all natural gas and LNG calibration mixtures are included on certificates of calibration.

These can be used for measurement confirmation as part of your quality control procedures and validation.

Physical properties of **calorific value, relative density, real density, Wobbe index, mean molecular mass and compression factor** are calculated from composition according to ISO 6976, GPA 2172 or ASTM D3588.

## Bespoke calibration gas design

Effectech can use a performance evaluation to identify suitable alternative calibration gas compositions in circumstances where the stream gas

composition may be impractical. These mixtures replicate the same results as the stream gas and provide you with a more cost-effective solution.

## ACCREDITATIONS



# Sulphur and Odourant Gases



EffectTech supplies sulphur gas mixtures to help you meet your network entry/exit requirements or for strict process control and monitoring.

Binary or multi-component mixtures are available in methane, nitrogen or natural gas matrices.

Due to the reactive nature of sulphur components, each standard is calibrated twice, a week apart, to ensure the stability of the gas mixture. You will be contacted before the end of the mixture's shelf life so you can reorder before the mixture expires.

The ISO 17025 accredited calibration gases we provide are included in the table.

**For more information, contact**  
[sales@effecttech.co.uk](mailto:sales@effecttech.co.uk)

Component	Amount fraction range (µmol/mol)	
	SRGM	PRGM
hydrogen sulphide	0.2 to 10	0.2 to 200
carbonyl sulphide	0.2 to 10	0.2 to 200
methanethiol (methyl mercaptan)	0.2 to 10	0.2 to 200
ethanethiol (ethyl mercaptan)	0.2 to 10	0.2 to 200
dimethyl sulphide	0.2 to 10	0.2 to 200
1-propanethiol (n-propyl mercaptan)	0.2 to 10	0.2 to 200
2-propanethiol (iso-propyl mercaptan)	0.2 to 10	0.2 to 200
ethyl methyl sulphide (methyl ethyl sulphide)	0.2 to 10	0.2 to 200
1-butanethiol (n-butyl mercaptan)	0.2 to 10	0.2 to 200
2-methyl-2-propanethiol (tert-butyl mercaptan)	0.2 to 10	0.2 to 200
2-methyl-1-propanethiol (iso-butyl mercaptan)	0.2 to 10	0.2 to 200
1-methyl-1-propanethiol (sec-butyl mercaptan)	0.2 to 10	0.2 to 200
diethyl sulphide	0.2 to 10	0.2 to 200
n-hexyl mercaptan	0.2 to 10	0.2 to 200
tetrahydrothiophene (THT)	0.2 to 10	0.2 to 200

## ACCREDITATIONS



Calibration of gas mixtures using gas chromatography with sulphur chemiluminescence detection (SCD).

# Other Calibration Gases

## Continuous emission monitoring (CEM) gases

Binary gas mixtures in a nitrogen or air balance (where possible) are available for customers who require calibration gases accredited to ISO 17025 for CEM and personal monitoring systems.

ISO 17025 accredited mixtures are required for Quality Assurance Level 2 (QAL2) and the Annual Surveillance Test (AST).

Component	Amount fraction range (% mol/mol)
carbon dioxide	0.1 to 15
oxygen	0.0005 to 25
methane in nitrogen	0.1 to 5
methane in air	0.1 to 2.5

Component	Amount fraction range ( $\mu\text{mol/mol}$ )
propane	3 to 100
carbon monoxide	10 to 1000
nitric oxide	5 to 600
nitrogen dioxide	5 to 500
sulphur dioxide	5 to 1000

Calibration of oxygen mixtures to 22.5% mol/mol by ISO 12963:2017 using galvanic fuel cell sensors.  
Calibration of all other gas mixtures using dynamically generated reference gases in accordance with ISO 6145 Part 7: Thermal Mass Flow Controllers.

## Blast furnace gases

EffecTech supplies blast furnace calibration gases for process control measurement and EU/ETS requirements for iron and steel manufacturers producing large quantities of carbon (CO and CO<sub>2</sub>).

The range of blast furnace calibration gases available from EffecTech are:

Component	Amount fraction range (% mol/mol)
nitrogen	27 to 54
carbon dioxide	20 to 31
hydrogen	1 to 16
carbon monoxide	20 to 31

Calibration of gas mixtures in accordance with ISO 6143:2001 using gas chromatography with thermal conductivity (TCD).

**For more information, contact**  
[sales@effectech.co.uk](mailto:sales@effectech.co.uk)

## ACCREDITATIONS





Services

# Performance Evaluation and Inspection

Gas quality mismeasurements can put companies at risk of financial or legal litigation, and also lead to poor process control.

Maintaining confidence in analytical measurements used to calculate the physical properties and ultimately the commercial value of the gas, is vital for the long-term successful operation of a custody transfer / fiscal measurement system.

By investing in annual performance evaluation and inspection, you can be sure that:

- Traceability and accuracy of your data is guaranteed
- Your instruments and systems are validated
- Quality of the data generated will be greatly improved

EffectTech provides these validations on process gas chromatographs and gas quality measurement systems in accordance with the international standards ISO 17020 and ISO 10723.

Our highly trained and experienced staff provide fast and effective solutions and support to help you meet your fiscal, regulatory, contractual, safety and environmental gas measurement obligations.

EffectTech's services are independent and recommendations can be regarded as objective.

Such validations are often used for:

- Factory Acceptance Tests
- Site Acceptance Test
- Fiscal metering and custody transfer requirements
- EU/ETS compliance
- Biogas site requirements

**For more information, visit**  
[effecttech.co.uk/siteservices](http://effecttech.co.uk/siteservices)

## ACCREDITATIONS



# Performance Evaluation of Analytical Instrumentation



## Why do I need a quantitative performance evaluation?

A performance evaluation of a process gas chromatograph can:

- Improve fiscal gas quality metering
- Conform with EU emissions trading legislation
- Validate your analytical system
- Limit financial and legal exposure from mismeasurement

### What is a performance evaluation?

An experienced EfecTech Gas Quality engineer assesses the process gas chromatograph on-site by the measurement of a suite of gas mixtures with a range of compositions designed for your measurement.

The engineer then evaluates the performance of the instrument to determine errors, bias and uncertainty of the measurement. The ISO 10723 standard is applied to provide quantitative measures of the instrument's performance which can be compared against contractual specifications, regulatory requirements or other previously set benchmarks.

The objective of the performance evaluation is to assess the instrument's performance against the requirements of:

- Repeatability of measurement
- Maximum Permissible Errors (MPE)
- Maximum Permissible Bias (MPB)

Performance evaluations can also be used to:

- Re-calibrate response functions for correcting non-linear response in gas chromatographs operating in a Type 1 mode (ISO 6974-1)
- Assess the linearity uncertainty component for gas chromatographs operating in a Type 2 mode (ISO 6974-1)
- Design the most appropriate calibration gas composition for your needs

Performance evaluations can be combined with condition-based monitoring systems for additional day-to-day monitoring to give you confidence in your measurement system.

## ACCREDITATIONS



For more information, contact [sales@effectech.co.uk](mailto:sales@effectech.co.uk)

# Inspection of Gas Quality Measurement Systems

Measurement errors can occur at any stage in the gas quality measurement system. EffectTech's ISO 17020 accredited inspection provides an objective assessment of the sampling system, pressure reduction system, carrier and calibration gas systems against industry best practice. Combined with the evaluation of your instrument this can give assurance that the instrument is validated and the traceability and accuracy of your data is guaranteed.

## The ISO 17020 inspection

An EffectTech ISO 17020 inspection covers:

- Sampling
- Sample conditioning
- Calibration
- Analysis
- Physical property calculation
- Staff training
- Quality control
- Maintenance

A detailed report is provided, which makes recommendations, where appropriate, to improve the measurement system.

## Support services

As part of our service we include free telephone support and advice including:

- Analytical procedures including calibration gas composition
- Quality control procedures
- Refinement of parameters to improve gas quality measurements

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**For more information visit**  
[effecttech.co.uk/siteservices](http://effecttech.co.uk/siteservices)

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## ACCREDITATIONS



# Flow Metering Validations



EffecTech offers metering system validations for measurement of gas volume.

A metering system validation will reduce exposure to commercial risk created over time by over or under measurement of gas volume.

- Gas volume uncertainties are the dominant factor in the metering of energy. Regular validations will reduce mismeasurements and unaccounted for gas
- On-site calibrations of temperature, pressure and differential pressure ensuring traceable validations with defined uncertainty

## Primary instrumentation

Orifice plates should be inspected, cleaned and regularly re-calibrated by an accredited laboratory.

Turbine and ultrasonic flow meters can be validated in-situ by monitoring various operating parameters.

## Secondary instrumentation

On-site differential pressure, pressure and temperature transmitters are calibrated to ensure a high standard of accuracy and traceability.

## Flow computer

Functions and calculations are verified against independent off-line calculations. Flow computer constants and system data such as meter factors, orifice plate and pipe dimensions, and gas composition dependent factors are inspected.



# Proficiency Testing Schemes

If your laboratory holds ISO 17025 accreditation, then regular participation in ISO 17043 accredited proficiency testing (PT) schemes is a mandatory requirement.

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

Available from EffecTech:

- Global Gas and LNG Proficiency Testing Scheme (GGLNG) for the natural gas and LNG industry
- Stack Emissions Proficiency Testing Scheme (SEPTS) for companies that provide stack testing services
- On demand PT schemes designed to suit individual customer requirements

- EffecTech is an ISO 17043 accredited Proficiency Testing Scheme Provider so participation ensures compliance with ISO 17025 requirements
- Regular participation also allows companies to monitor levels of improvement against their own results as well as the results from the rest of the scheme members.

## Benefits of participation:

- Samples are prepared and calibrated by EffecTech's ISO 17025 accredited laboratory
- After completing the scheme, you can request an ISO 17025 certificate of calibration for each cylinder free of charge
- No cylinder rental payments
- All initial transport of cylinders to the participant's requested location will be arranged by EffecTech and recharged at cost

Once a member of the scheme, EffecTech will contact each laboratory with a reminder for the next round.

**For more information visit**  
[effectech.co.uk/proficiencytesting](http://effectech.co.uk/proficiencytesting)

## ACCREDITATIONS



### Global Gas and LNG Scheme

EffecTech's Global Gas and LNG (GGLNG) proficiency testing scheme enjoys global participation from natural gas and LNG companies, providing an international scope for inter-laboratory comparisons.

Up to four different gas mixtures are sent to the participating laboratories for analysis. The scheme is run on a quarterly basis giving regular opportunities for participation.

Component	LNG composition (% mol/mol)	Propane composition (% mol/mol)	Mixed refrigerant (% mol/mol)	Sulphur component mixture (µmol/mol)
ethane	0.1 to 14	0.25 to 3	20 to 35	
propane	0.05 to 5	balance	5 to 15	
iso-butane	0.01 to 1	0.03 to 0.7		
n-butane	0.01 to 1	0.03 to 0.7		
iso-pentane	0.005 to 0.35	0.02 to 0.08		
n-pentane	0.005 to 0.35	0.02 to 0.08		
n-hexane	0.001 to 0.35			
nitrogen	0.1 to 8	0.1 - 2	8 to 16	
carbon dioxide	0.1 to 8			
methane	balance		balance	balance
hydrogen sulphide				1 to 10
carbonyl sulphide				1 to 10
methyl mercaptan				1 to 10
ethyl mercaptan				1 to 10
dimethyl sulphide				1 to 10

Please see the following table to find out which items are supplied in each round.

Component	Q1	Q2	Q3	Q4
LNG composition	✓	✓*	✓	✓*
propane composition	✓		✓	
mixed refrigerant	✓		✓	
sulphur component mixture		✓		✓

\*The LNG composition in Q2 and Q4 will not contain carbon dioxide and the nitrogen amount fraction range will be 0.1 - 1 (% mol/mol)

#### ACCREDITATIONS



## Stack Emissions Proficiency Testing Scheme

EffectTech's Stack Emissions Proficiency Testing Scheme (SEPTS) has been described as "excellent all round" and now has participants in the UK and Ireland as well as in the rest of Europe and Asia.

Companies with multiple testing teams need only purchase one set of gases and can submit multiple sets of results for a small additional fee.



### On demand proficiency testing schemes

In addition to the two formal schemes on offer, EffectTech provides on demand proficiency testing schemes, in which gas mixtures are provided to a client for 'blind' measurement. After measurement and reporting of results, a short report is issued and then an ISO 17025 certificate is issued for the gas mixture(s) to provide traceability standards for quality control or calibration.

These schemes are not covered by EffectTech's ISO 17043 proficiency testing scheme accreditation.

**For more information, contact**  
[sales@effecttech.co.uk](mailto:sales@effecttech.co.uk)

Mixture types	Amount fraction range (% mol/mol)
oxygen in nitrogen	2 to 14
carbon dioxide in nitrogen	1 to 10

Mixture types	Amount fraction range (µmol/mol)	
sulphur dioxide in nitrogen	50 to 1000	
propane in 10% oxygen / nitrogen	1 to 50	
nitric oxide in nitrogen	5 to 500	
carbon monoxide in nitrogen	50 to 1000	
NO/NO <sub>2</sub> in nitrogen	nitric oxide (NO)	40 to 400
	nitrogen oxides (NO <sub>x</sub> )	50 to 500

### ACCREDITATIONS



# EffecTech® Training Academy



How much do your key staff know about gas measurements?

To avoid the financial implications of mismeasurement it is important that the engineers and managers responsible for the gas chromatographs and process instruments understand what is being measured and how it is measured, as well as being able to identify and resolve problems.

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**All of EffecTech's training courses can be provided in Uttoxeter or at a customer site on request. For more information, visit [effectech.co.uk/training.php](http://effectech.co.uk/training.php)**

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EffecTech Training Academy courses are designed to provide participants with the knowledge and tools needed to understand and apply best practice in gas quality measurement.

Courses can be tailored to suit beginners, intermediate and advanced level learners. Students will develop knowledge and skills that they can apply in the work-place through a combination of both practical hands-on experience and theoretical presentations.

## Gas Chromatograph Training for Technicians and Managers

For this two-day course, EffecTech has a range of gas chromatographs most commonly used on-site and in laboratories. Students will gain hands-on practical experience in their use, calibration and maintenance. Theoretical aspects of gas chromatography and the calculation of physical properties will be covered.

Students will also receive an overview of the role of gas quality measurement in the natural gas / LNG industries, including what natural gas is and how and why its composition is measured.

The course can be tailored to suit the requirements of engineers who use either process or laboratory gas chromatographs.



### Statistics and Uncertainty

Students will receive an overview of the importance of statistics and the calculations of uncertainty when making gas measurements. Students will examine the types of errors found in gas analysis and how they are propagated. The importance of repeat measurements, trend analysis and the use of Monte Carlo simulations will also be covered. The course will include practical exercises to build confidence in developing spreadsheet-based uncertainty calculations.

### Liquefied Natural Gas and LNG Sampling

This course will provide an overview of the measurement of liquefied natural gas (LNG) and focuses on the difficulties in sampling and measurement of LNG. Current best practice will be covered along with an introduction to the cutting edge research EfecTech has undertaken to produce known composition LNG which has been subsequently used to validate optical instruments for the direct measurement of LNG.

### Performance Evaluation Training

EfecTech also offers a performance evaluation training course for site-based technical personnel on the importance of gas quality measurements and industry best practice when using GCs in the field. This is available as part of a package to operators who also require performance evaluations and inspections on their sites.



# Natural Gas Analysis



Customers with both one-off and regular natural gas sample testing requirements can take advantage of EffecTech's ISO 17025 accredited testing service for the analysis of natural gas samples.

The EffecTech ISO 17025 scope covers the following:

- Natural gas up to C<sub>12</sub>, nitrogen, carbon dioxide, oxygen, argon, hydrogen and helium
- Sulphur content

## Testing services

### 24 Hour express analysis

For urgent requirements, results can be issued within 24 hours of the sample arriving at our laboratory.

### 48 Hour standard analysis

For standard requirements, results are issued within 48 hours of the sample arriving at our laboratory.

## Site sampling and training

EffecTech also offers an on-site service for companies that are unable to take their own samples. An EffecTech engineer will visit your site to take a sample of gas for immediate analysis at our ISO 17025 testing laboratory. Training is also provided so that your technicians can carry out in-house sampling for your future analysis requirements.

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**For more information visit:**  
[effectech.co.uk/testing](http://effectech.co.uk/testing)

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## ACCREDITATIONS



# LNG Sampling System Inspection



EffectTech offers an LNG sampling system inspection service in accordance with ISO 8943 to enable customers to check that their sampling systems are fit for purpose under a full range of conditions.

An experienced EffectTech Gas Quality engineer will complete a full inspection of the LNG loading sampling system against the requirements of ISO 8943. The inspection reviews the following:

- The enthalpy of sub-cooling for homogeneous sample vapourisation
- GC repeatability in line with the requirements of EN 12838 for the measurement of vapourised LNG

A detailed compliance report is provided, highlighting any recommendations for change and adjustments based upon the findings.

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**For more information, contact:**  
[sales@effecttech.co.uk](mailto:sales@effecttech.co.uk)

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# Consultancy and Research

EffectTech has honed its expertise over 20 years of experience in the gas and LNG industries and has forged an international reputation as the global leader in the field of gas quality measurement.

This makes us perfectly positioned to offer our customers high quality consultancy services. We carry out cutting-edge research at our specially-designed research facilities at our head office in Uttoxeter, UK.

## EffectTech offers consultancy and research services for:

- All elements of gas quality measurement
- Gas quality / LNG research projects
- New instrument evaluation / factory performance evaluation
- Independent data processing and evaluation
- Audits and inspections of laboratory quality systems
- Calibration gas design for new measurement requirements
- Bespoke customer projects



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**If you would like to know more about our consultancy services, or have a project you would like to discuss, please contact us at [info@effecttech.co.uk](mailto:info@effecttech.co.uk) for more information.**

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# LNG Metrology

## World's first traceable cryogenic LNG reference liquids developed at EffecTech.

As Liquefied Natural Gas (LNG) continues to grow as an energy source globally, it is vital that both suppliers and users ensure that rigorous standards and measurement methods are applied to avoid the risks of mismeasurement.

LNG has its own unique measurement issues related to vapourisation and enrichment. In response to this, EffecTech has developed a bespoke cryostat facility for the production of cryogenic LNG reference liquids.

### How it works

The cryostat can be used as a calibration device into which instrument probes can be inserted for direct measurements of LNG inside the cryostat. These measurements can then be used to calibrate or validate the instrument.

Composition measurements made on the re-vapourised samples are compared with the reference gas values to determine any differences.

These differences in composition are quantified and the results are compared to the requirements of the vapourisation testing standard EN 12838:2000.

A transportable version of the cryostat is under development providing calibrations and validation in-situ at customers' sites.

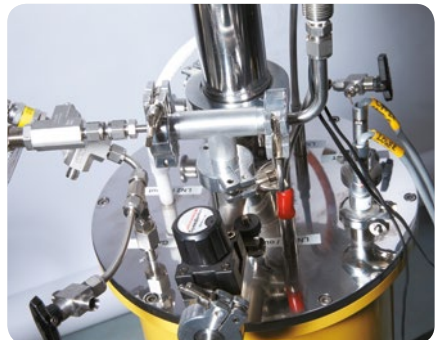
### Bespoke consultancy

EffecTech is at the forefront of LNG quality measurement techniques and would like to work with partners in industry to develop LNG gas quality measurement standards.

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**If you have a project you would like to discuss, please contact us at [info@effectech.co.uk](mailto:info@effectech.co.uk)**

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Seeking excellence  
for your energy  
measurement  
through accreditation

ISO 17025 calibration

ISO 17020 inspection

ISO 17043 proficiency testing

ISO 10723 performance evaluation



*EffectTech*



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key locations in India and Qatar.