

Leaders in Specialty Gas Solutions

CAC
GAS&INSTRUMENTATION

Australia
www.cacgas.com.au

Asia
www.cacgas.com.sg

Leaders in Specialty Gas Solutions

Leaders in providing unique solutions, the CAC GAS team has the application expertise in order to improve customer efficiency and productivity while providing the highest quality products and services.

CAC GAS PROVIDES:

- Accredited calibration gases to ensure accurate, traceable measurements for process control, environmental and laboratory applications
- Gas generators, gas mixers, gas diluters.
- Gas sample systems, sample cylinders, odorization, chemical injection systems and supplementary products.
- A wide range of high quality, gas control products for the delivery of the gas mixtures to your instrument; storage and handling equipment to maximise safety and efficiency.
- Comprehensive technical customer support to assist with any requirement you may have.

At CAC GAS we understand that every market has its own unique challenges and requirements. **Choose a supplier that has a thorough understanding of your business and can provide appropriate and timely solutions for your specific application.**

Our products have become crucial tools for key gas measurement applications in the world's most important market sectors. From large scale energy production including LNG, oil, natural gas, mining and renewable energy technologies to everyday services that enrich all of our lives including water and wastewater treatment, food & beverage production, environmental monitoring, shipping, transportation, agriculture and emergency services.

Comprehensive Support

Access our technical experts to help you develop effective and efficient solutions with your OHS, process, environmental and laboratory calibration gas applications.

Application Expertise

CAC GAS will develop a thorough understanding of your challenges and will provide appropriate and timely solutions for your specific application.

Reliable Products & Service

The impact of unreliable or poorly serviced products is injury or even death. CAC GAS prioritises product quality and the highest service levels in everything we do.

With locations in both Sydney and Singapore, CAC GAS has the logistics expertise to deliver specialty gas mixtures globally. We stock a large number of gas standards and enter into supply agreements with organizations where immediate delivery is required.

Reference mixtures are available in multiple cylinder sizes, bottles, and ampoules all shipped directly to your location. Our products can be used in every applications where calibration and specialty gas mixtures are required.

We are an ISO9001 Certified Company



Applications



Gas Detection

CAC GAS provides calibration and bump test solutions to help ensure safety of workers through the accuracy of your personal, hand-held, vehicle mounted, or fixed gas detection instruments. Whether you require a single, disposable cylinder or a complete gas distribution system connecting multiple gas mixtures to hundreds of docking stations, CAC GAS has the solution.

As a speciality gas manufacturer, we supply calibration gas, regulators, and accessories for every gas detection instrument whether they are portable or fixed. Gas mixtures are available in a variety of sizes from 34 litres to more than 7500 litres gas volume, with gas delivery equipment, to meet your requirements.

Gas mixing and dilution systems are available that can be used for multi-point or 'span' calibrations for all types of instruments, even where ISO17025 or 'NATA' calibrations are required.

Our products can be used in every application where calibration gas mixtures are required.

Environmental Measurement

Environmental protection requires accurate and precise measurement of gas emissions. The global focus on emissions is leading to tighter controls and a greater need for high quality calibration gas mixtures. Whether the emission is stack gas, fugitive emissions, air quality or vehicle emissions, we supply the calibration gas to meet the exacting standards required.

CAC GAS provides EPA Protocol calibration gas mixtures prepared and analysed in strict accordance with the most current guidelines: EPA Traceability Protocol Assay and Certification of Gaseous Calibration Standards. In addition, we supply ISO 17025 and ISO 17034 Continuous Emissions Monitoring gas standards for CO2, CO, O2, NO, NO2 and SO2. All gas mixtures are traceable to BIPM though NIST, NPL, NMI, or other national measurement authorities, and certified by UKAS, NATA, DAkkS or other ILAC MRA signatories to ensure compliance with local and international regulations.

CAC GAS also provides specialty gas mixtures for combustion efficiency, biogas, landfill & soil remediation and agriculture environmental applications. Gas standards TO 14,15 and 17 are available for a variety of applications to measure VOC's in ambient air & soil contamination.





Laboratory Gas Analysis

CAC GAS provides solutions for laboratory gas requirements, whether for calibrating a gas chromatograph, experimentation with synthetic atmospheres, use of rare and exotic gases, isotopes (or 'labelled' gases), or any number of unique applications involving gas.

Laboratory analysers require the highest level of accuracy and lowest level of uncertainty in a calibration reference gas to provide precise and repeatable results.
CAC GAS provides gravimetrically produced calibration and speciality gas mixtures manufactured to the highest global standards.

To complement traditional gas mixtures, CAC GAS provides specialised gas regulators, carrier gas generators, and gas mixers and diluters.
PEAK Scientific's range of gas generators are specifically designed for laboratory applications, generating high purity air, nitrogen, and hydrogen. AlyTech GasMix devices provide the ultimate in flexibility when using gases in your lab. Create a practically unlimited number of gas mixtures on demand, with highly automated control via the GasMix software. With a complete line of gas control products, CAC GAS can provide a total solution for any laboratory application.

Process Gas Analysis

High quality gas mixtures for process gas analysis and online instrumentation are necessary contributors to effective and accurate measurement in manufacturing, custody transfer, and quality assurance. High quality
and high accuracy gravimetric gas and liquid standards are available for all applications in the LNG, natural gas, petrochemical, and oil refining industry.

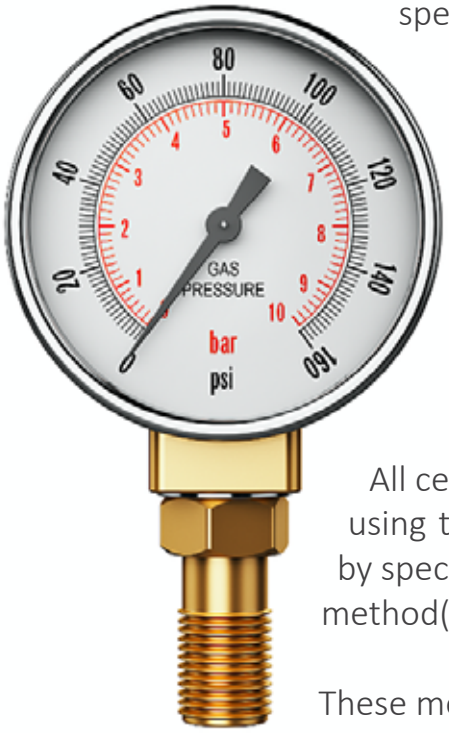
Our range of ISO 17025 and ISO 17034 certified calibration gases ensure accurate and traceable calibrations in the most demanding applications. Whether the requirement is a certified, traceable or an accredited gas standard, CAC GAS provides a technical solution which meets your specific needs or contractual obligations. A range of cylinder sizes and packaging options ensures your mixture and cylinders are fit for purpose, from 150cc to 50 litres, including piston cylinders, and collapsible liquid vessel (CLV) cylinders.

Delivering high quality calibration gas requires speciality gas control systems. CAC provides complete technical solutions including calibration-specific regulators, fittings, lines,
as well as diluting/mixing/vapourising systems compliant with ISO6145-7.



Certified Reference Materials

CAC Gas offers a wide range of certified reference materials including specialty gas mixtures, liquids, and liquefied gas standards.



Curated from several industry leading manufacturers, only mixtures that meet CAC's high standard for quality are supplied to meet the needs of an ever-evolving landscape of analytical applications.

CAC GAS's range of gases and liquids are available in a wide array of cylinders, bottles and ampoules.

All certified reference materials supplied by CAC Gas are manufactured using traceable weights and measures before being analysed or tested by specific, documented methods, and come with a certificate stating the method(s) used.

These methods exist to promote similar product quality and properties for a single product type from various manufacturers, or to ensure a minimum product quality. Methods may be nationally or internationally recognized, such as those from ASTM, ISO, or US EPA.

Traceability is demonstrated by an unbroken chain of measurements or calibrations all the way to the accepted international primary reference materials. This means the calibration of the instrumentation involved throughout the manufacturing process (scales/balances, mass flow controllers, pressure gauges, etc.) be ISO17025 certified. Calibration certificates for relative instruments are kept on file and referred to on the mixture certificate if required.

To meet the most stringent of customer requirements some mixtures will have been produced or calibrated within the scope of an ISO17034 or ISO17025 accredited organisation whose accreditation is recognised under the ILAC MRA, so they are accepted globally.



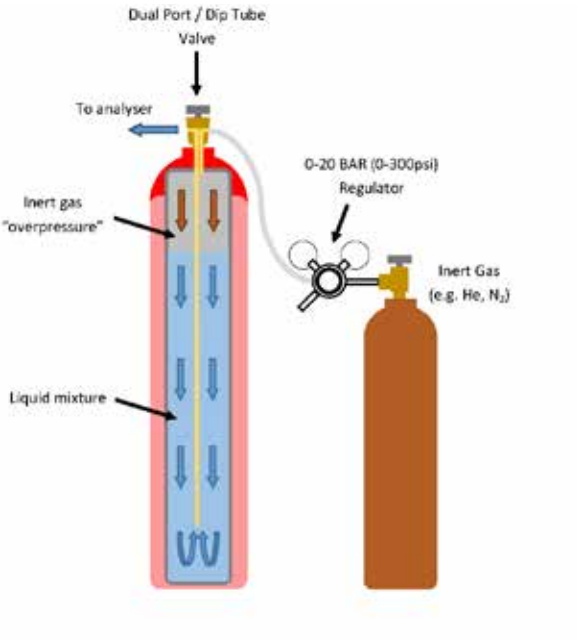
Accreditation proves the producer's technical capability in measurement, and stated traceability to SI units, having been thoroughly assessed by the relevant national testing authority.

*These mixtures meet the requirements of:

ISO/IEC17025:2017
ISO Guide 30:2015 (Clause 2.1.1 or 2.1.2)
AS2290:2018

Light Liquid Hydrocarbons & Liquid Reference Materials





Light Liquid Hydrocarbons

Light liquid hydrocarbons, sometimes referred to as liquified gas mixtures, are mostly known to fit between what can easily be distinguished as crude oil product, or natural gas streams. Light liquids fit a broad spectrum of process conditions spanning from NGLs, LPGs, condensates, petrochemical and Refinery Gases.

They are available in a range cylinders including constant pressure (CPC) and standard gas cylinders fitted with dip tube valves which can ensure the composition of the standard remains homogenous by keeping it under pressure.

Light liquid hydrocarbon reference materials have the advantage of closely matching the product being analysed, while also offering increased efficiency by allowing an increased number of calibrations with the same cylinder, when compared to a gaseous mixture.

Liquid Reference Materials

CAC GAS provides a wide variety of liquid reference materials / calibration standards from DCG partnerships. These standards are gravimetrically prepared and N.I.S.T. Traceable by weight with the gravimetric values verified by one or more analytical methods.



ASTM compliant and ISO17034 Liquid Standards in bottles and ampoules.



- Heavy Hydrocarbon Liquids
- Crude Oil
- Liquid Phase Natural Gas Liquids (NGL)

Available in 1 mL, 2 mL, 5 mL, 10 mL, 20 mL, 50 mL, 100 mL, 200 mL, 500 mL ,and 1 liter sizes.

Cylinder Size Options & Specialty Cylinders



CAC GAS offers non-refillable (low volume) cylinders and high pressure (large volume) cylinders and low pressure cylinders. All valve types are available including AS, BS, CGA and DIN as required. Gases are supplied with a certificate of composition. Cylinders are labelled with the gas volume, pressure, our reference, date of manufacture and shelf life.

TO Standards



TO 14, 15, 17 standards for VOC monitoring and soil sampling are available in all configurations 39, 41, 62 or subset component mixtures. Gas mixtures for all VOC's including BTEX mixtures, Isobutylene and other organic vapours are available.

ISO17025 Mixtures in Non-Refillable Cylinders



In addition to all our ISO 17025 mixtures being available in high pressure cylinders, certain ISO 17025 mixtures are available in non-refillable cylinders.

Lecture Bottles



Lecture bottles are a traditional cylinder type used for scientific research applications where lower volumes are required in a variety of gases and purity grades. Lecture bottles are available for many gases from ammonia to xenon. Lecture bottles have a 0.4 litres water capacity, measure 310 mm long by 50 mm diameter and come with a CGA 180 valve. Lecture bottle stands are also available.

Isotopic Gas Mixtures

Stable isotope analysis measures the relative abundance of isotopes within a sample. These measurements can help researchers investigate gas origins, assess food authenticity and study atmospheric processes.

An isotopic reference gas has a specified isotope signature as well as a defined chemical composition. Selecting both parameters helps laboratories calibrate their analysers and check measurement performance across the range relevant to their samples. Applications include petroleum geochemistry, food authentication, and environmental monitoring.

CAC Gas can help you identify a suitable mixture, pure gas or natural air standard and discuss compatible gas handling equipment.

Gas Generators, Mixers & Diluters

GasMix provides multiple solutions for creating on-site customized gas standards. Software controlled, the GasMix line is based on mixing, diluting and injecting two to twelve gas standards. Easy to use, GasMix is a versatile tool for laboratory, environmental or industrial application.





PEAK Gas Generators are specifically designed and engineered for GC laboratory applications, the Precision series represents the cutting-edge of Peak Scientific innovation in on-demand gas generator design. Combining convenience and reliability in a stackable, modular and compact design, Precision is the safe and practical choice for your GC instrument gas requirements.

CAC GAS provides a complete line of **ACD** electrochemical gas generators designed to provide calibration gas standards for H, NO2, CL2, CLO2, H2, HCN, H2S, NH3 and O3 gases. Simple to use with long life cells, these gas generators can replace gas cylinders for many applications.



Water & Wastewater Gas Conditioning and Gas Sampling

A custom designed single or multiple sensor sampling system suited for monitor of gas or vapor atmospheres from extreme environments containing temperature, humidity, particulate or pressure challenges.



- Designed for continuous monitoring in hazardous and non-hazardous area locations
- Reduced sensor replacement & maintenance costs due to moisture & contamination control
- Proven design used for sampling from sewers, digesters, drains, confined spaces, tank cleaning, exhaust ducts, etc
- Faster response time with sample flow-through design powered by internal diaphragm pump
- Humidity removal ensures accurate sensor readings even in highly humid environments

The Gecko Float is a floating probe used at the end of a gas detection sampling line in high water applications. It floats permitting air into the sampling line but preventing water entering the system.



Gas Sampling Systems, Sample Cylinders, and Sampling Instrumentation

Gas sampling systems and equipment for **Natural Gas, LNG, Light Liquid, Crude Oil sampling.** Welker sampling cylinders, constant pressure cylinders, gas conditioning systems, and a full range of regulators, valves and probes.



Sample Cylinders, Probes, Regulators & Valves

Sample Cylinders



The Welker® CP-2GM Constant Pressure Calibration Cylinder is the most effective solution for containing and maintaining calibration standards. The cylinder provides safety, reliability, and convenience to calibration standards used in laboratories world wide.



The Welker® CP-2GM Constant Pressure Sample Cylinder is recognized for its versatile abilities to safely transport a sample in original pipeline condition and provide a uniform mix using the internal Gravity Mixer™ prior to lab analysis.



The Single Cavity Sample Cylinder and the Absorbent Tube Cylinder are available for gas or liquid sampling in a variety of applications.

Probes, Regulators & Valves



Gas Conditioning Systems



Designed to ensure a clean, representative sample is delivered to the analyser. Options are available for a range of operating conditions and natural gas compositions.

Sample conditioning systems can heat or cool a sample, remove condensate, moisture, particulates, and other impurities in addition to ensuring the sample is delivered at the right pressure to the analyser.

Odorization Systems



Welker Odorization Systems are industry leading for safe, accurate, and emission-free spiking of odorant into natural gas streams.

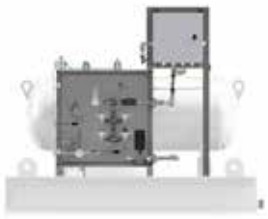
CAC GAS supplies a range of options from full turnkey solutions to small, lightweight portable systems. Systems can be offered with zero emissions technology and both pump and pumpless systems.

Spare parts and accessories are also available including probes, monitors, eliminators, and spill kits.









Hydrogen Injection Systems

Welker's Hydrogen Injection System offers a fully customisable, turnkey solution for the blending of hydrogen into natural gas pipelines.

A forward thinking strategy to meet decarbonisation goals, blending hydrogen with natural gas has been shown to significantly reduce emissions. The Welker Injection System helps you accurately achieve the desired concentration of Hydrogen in your natural gas stream.



CAC GAS is a
Welker Authorised Dealer

Gas Control

Precision Analyser Solution



We offer a full line of high precision gas control equipment along with our MICRO300 Precision Regulator. All items are kept in stock for fast shipment.

The MICRO300 Precision Regulator, specially configured by CAC Gas & Instrumentation for highly-sensitive applications, is designed for customers who need the most accurate calibrations.

The MICRO300 features fully supported 'sensitive' pistons and a low internal volume to reduce wasted gas and minimise reactions. The regulator is available with or without SilcoNert® 2000 coating.



Typical size regulator vs the Micro300



SilcoNert® coatings can be requested on all/any components.



1/8" and 1/6" OD tubing with SilcoNert® 2000 coating.



Quality fittings from Swagelok available from stock with SilcoNert coating.

Specialty Gas Regulators



CAC GAS supplies a complete line of flow and pressure regulators for non-refillable and high-pressure cylinders to supply specialty gas standards and calibration gases.

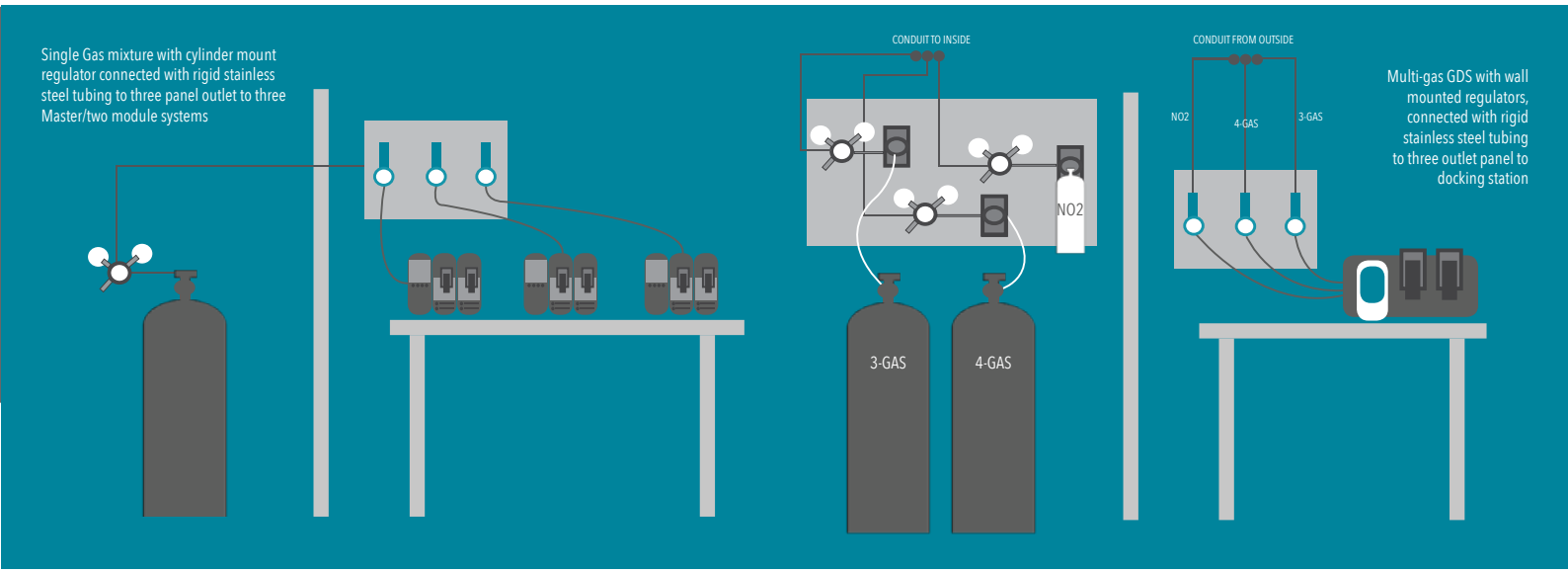
Our flow regulators include the Fixed Flow (FF), On Demand Flow (ODFR) and Variable Flow (VAF) regulators used for calibration and gas supply to gas analysers and gas detection instrumentation. The Tech-Master, Spec-Master and Chem-Master pressure regulators are part of a line of products including manifolds and outlet points to provide a complete gas control solution. The product line is capable of managing non corrosive and corrosive gases up to n6 purity.

Whether gas chromatography, process gas analysers, environmental analysis, or gas detection we have the regulator systems to meet your gas handling requirements.

Gas Distribution Systems

The GDS-100 gas distribution system is designed to provide customers with a simple solution to connect high pressure (large volume) calibration gas cylinders to their docking, calibration or bump test stations. For systems where two or more test stations are required then the GDS-100 provides the complete solution as follows:

- Customized to your needs.
- High Pressure gas cylinders (750, 1500, 3000 or 7500 litre)
- High Pressure Regulators (either cylinder mount or panel mount).
- Gas Distribution Interconnecting Hoseline (from Regulator to Outlet Panels)
- Outlet Panels (two, four, six or more outlets)
- Demand Flow Regulators if required.
- Connection to Docking Station or Bump Test Station (hose or tubing)
- All Stainless Steel Construction
- Outlet Panels can be connected together to provide total number of outlets required.



Cylinder Handling & Storage

A variety of gas cylinder storage and handling items are available including cylinder lifts, carrying cases & bags, disposal tools, gas cylinder enclosures, and cylinder restraints.



Services

Proficiency Testing

The scheme operates in accordance with ISO 17043 and focuses on the natural gas and LNG industries. Up to four different gas mixtures are sent to the participating laboratories for analysis.
The scheme is run on a quarterly basis giving regular opportunity for participation. CAC GAS with our partner EffecTech provides the Global Gas and LNG (GGLNG) proficiency testing scheme.

Key features of the PT Scheme are:

- A quantitative assessment of a laboratory's capability and performance
- An objective means of assessing and demonstrating the accuracy of your measurements
- An assessment of a participant's performance in relation to other laboratories



Gas Quality Measurement Systems Performance Evaluations

CAC GAS with our partners EffecTech and Synertec, provide performance evaluations on gas quality measurement systems and process gas chromatographs. The performance evaluations are in accordance with international standards ISO 10723. Highly trained and experienced staff provide fast and effective solutions to your fiscal, regulatory, contrac-tual, safety and environmental gas measurement obligations.

Instrument performance is evaluated to:

- Determine errors, bias and uncertainty of the measurement
- Re-calibrate response functions (MLC's) for correcting non-linear response characteristics
- Design the most appropriate calibration gas composition for your requirements

The objective of the performance evaluation is to assess the instruments performance against the requirements of:

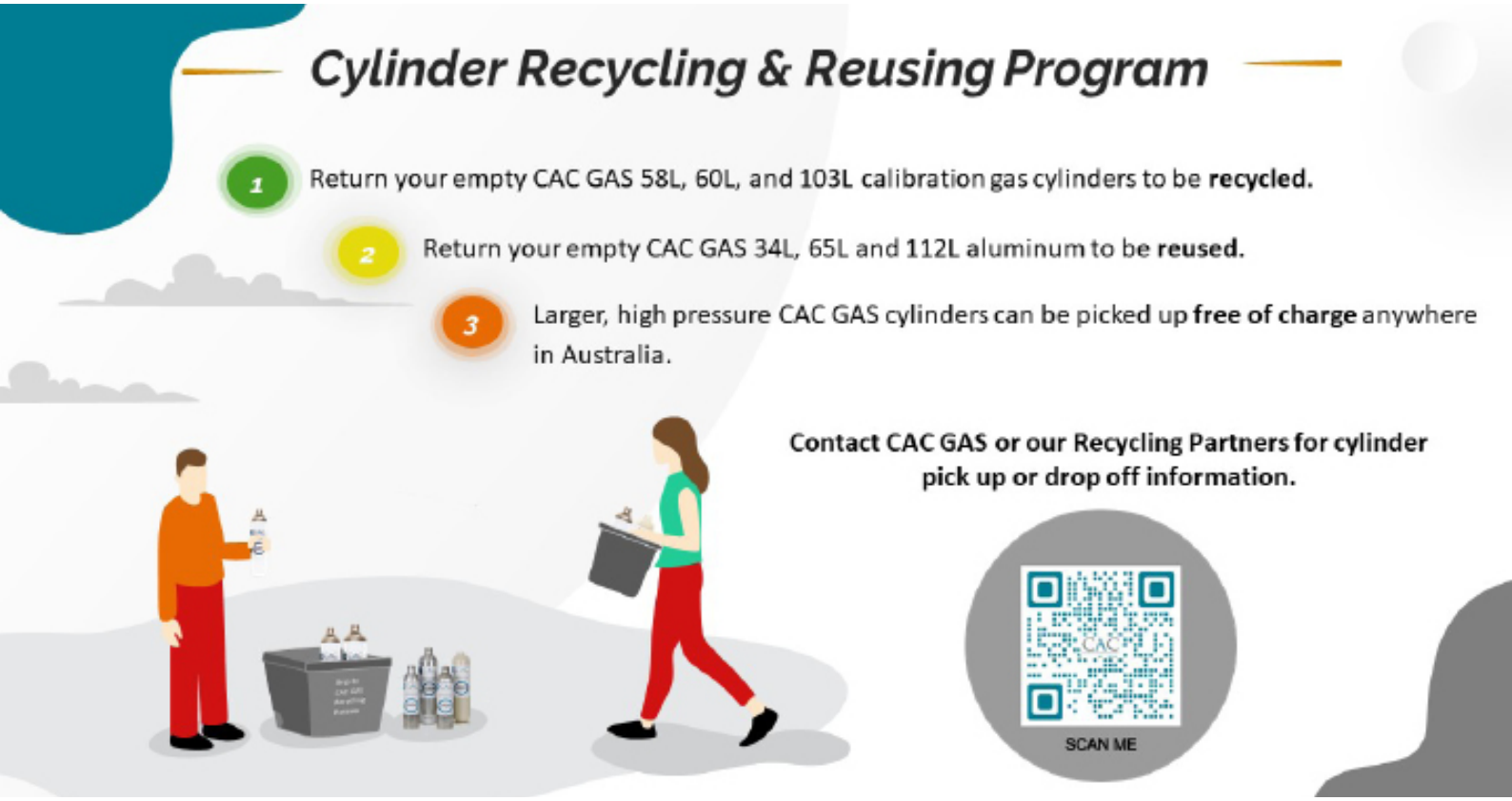
- Repeatability of measurement
- Maximum Permissible Errors (MPE)
- Maximum Permissible Bias (MPB)

What are the benefits of a quantitative performance evaluation?

- To improve your fiscal gas quality metering
- To validate your analytical system
- To reduce financial exposure from mismeasurement

Recycling

As part of our environmental initiatives and with your participation, CAC GAS aims to recycle or reuse all of our calibration gas cylinders.



Cylinders can be returned by contacting one of our recycling partners or by sending the cylinders directly to CAC GAS. Call (1-300-222 427) or email us to discuss your requirements or organise any of our services.

See all our recycling partners and their contact information HERE or by scanning the QR code above.





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