



Getting ahead through innovation.

With its innovative concepts, Linde is playing a pioneering role in the global market. As a technology leader, it is our task to constantly raise the bar. Traditionally driven by entrepreneurship, we are working steadily on new high-quality products and innovative processes.

Linde offers more. We create added value, clearly discernible competitive advantages, and greater profitability. Each concept is tailored specifically to meet our customers' requirements – offering standardised as well as customised solutions. This applies to all industries and all companies regardless of their size.

If you want to keep pace with tomorrow's competition, you need a partner by your side for whom top quality, process optimisation, and enhanced productivity are part of daily business. However, we define partnership not merely as being there for you but being with you. After all, joint activities form the core of commercial success.

Linde – ideas become solutions.

Specialty gases for the petrochemical industry.
 Maintaining peak performance
 with maximum precision.



HiQ® equipment and gas distribution systems

A primary requirement when using specialty gases is maintaining supply integrity between the cylinder and the instrument or process. The quality of the gas is often no better than the quality of the distribution system. HiQ® equipment and gas distribution systems have been developed to meet the various supply conditions of a petrochemical facility while maintaining gas purity and performance.

Key equipment product areas include:

- BASELINE® specialty gas regulators are our entry point for specialty gas equipment for gases of up to 5.0 purity (99.999 %).
- The REDLINE® equipment portfolio is designed for laboratory use with single-cylinder supply, or central gas distribution systems for gas purities of up to 7.0 (99.99999 %).
- Ready-to-use gas supply container systems, designed for safe cylinder storage and use in outside areas of the complex.
- Laboratory gas generators supply hydrogen, nitrogen, or zero air for use in areas where cylinders may be unsuitable.
- Gas supply system design and installation to ensure your system will meet the demands of today, and the expectations of tomorrow.

Linde as a total solution provider

In addition to its specialty gases, equipment and supply distribution systems, Linde offers products and services for every key area in a petrochemical facility. These include:

- Pipeline and bulk gas supply products
- Welding gases
- Blanketing gases
- Various industrial gases as components for synthesis processes
- Refrigerants
- Safety and personal protection products and training
- On-site plant and installation engineering (from small installations to turnkey chemical plants)



Calibration mixtures to meet precision requirements

HiQ® specialty gases from Linde represent the best and most appropriate there is in the world of high-purity gases, accurate gas mixtures, precision-engineered gas supply systems and the high-quality services needed for optimum results. Precise answers to individual needs. Customised to meet specific requirements. Delivered in a form and frequency tailored to each application. The only word you need to remember in specialty gases is HiQ®.

High-purity carrier and instrument gases

HiQ® specialty gases are essential for reliable and accurate operation of analytical instruments and process gas analysers. From standard gas chromatography to chemiluminescence spectrometry, our pure gases are available in purities up to grade 7.0 and delivered in a cylinder package to suit your individual analytical requirements.

Packaged chemicals

Linde packaged chemicals play a vital role in a great many production processes. From carbon monoxide for manufacturing to hydrogen chloride for catalyst regeneration, our packaged chemicals come in various purities and supply packages to precisely meet your needs.

Calibration gas mixtures

Whether focusing on process optimisation, product development, environmental monitoring, or validation of analytical techniques, accurate measurement is a must. HiQ® calibration gas mixtures are manufactured to meet your most stringent calibration requirements – from binary to multi-component blends, with concentration levels from percent to parts per billion.

Hydrocarbon blends

In process control, online production verification is required on a timely and regular basis. Incorrect readings can lead to serious production losses, expensive system downtime, and potential non-compliance issues. HiQ® hydrocarbon blends are produced to meet exacting standards, with full traceability when required, to ensure your operation performs at peak levels with each and every calibration.

HiQ®. Precision matters in everything we do.

Meeting the challenges of today.

Expanding market penetration for chemicals and plastics, combined with increasing requirements for transportation fuels and the world-wide depletion of easily accessible raw materials are creating tremendous operational pressures for even the most efficient petrochemical complex. Innovative, leading-edge technology is required to improve production efficiency and profitability, and to maintain production quality while reducing acid rain and carbon footprint potential from operations.

As a market leader in the supply of industrial and specialty gases, Linde works continually with its many petrochemical customers around the globe, offering solutions to improve process performance, reduce environmental impact, and lower overall production costs.



ECOCYL® portable specialty gases solution



SPECTRA-SEAL® calibration gas mixtures with extended flat line stability guarantee

Safety in the workplace

Employee safety is a top priority in every petrochemical facility. Combustible and toxic gases can be found in the vicinity of processing areas or work areas with limited ventilation. For safety and protection, plants use perimeter and individual-area gas detectors to monitor gas exposure levels. In confined space areas, employees wear personal gas detection devices to monitor explosive or toxic limit values, as well as oxygen deficiency potential.

To ensure detection reliability, gas sensors must be tested and calibrated on a regular basis. Linde offers a variety of portable, easy-to-use specialty gas solutions, both refillable and non-refillable, in levels from percent to parts per million. Our patented ECOCYL® calibration gas package is the ultimate ready-to-go application. Consisting of a refillable cylinder with integrated valve, pressure regulator and flow selector, ECOCYL® offers a quick, convenient and portable package for sensor calibration in all areas of the plant.

ISO accreditation

HiQ® specialty gases are supplied to the highest standard of quality assured by ISO 9001 standards. Many dedicated Linde special gases facilities are accredited to ISO 17025:2005, with various facilities following additional programmes such as:

- ISO Guide 34:2000 General requirements for the competence of reference material production
- ISO 6141 Requirement for certificates for calibration gas mixtures
- ISO 6142 Preparation of calibration gas mixtures by gravimetric method
- ISO 6143 Comparison methods for determining and check-ing the composition of calibration gas mixtures
- ISO 6144 Preparation of calibration gas mixtures by volumetric method
- ISO 61976 Specified method for calculation of the calorific value and Wobbe index of dry natural gas and other combustible gaseous fuels

Environmental compliance

Petrochemical facilities must comply with legislative requirements for environmental emission monitoring and reporting. Incorrect measurement can lead to non-compliance fines as well as potential plant shutdown. Continuous emission monitoring systems are widely used to quantify the amounts of released material. Linde offers a wide range of accredited environmental calibration gas standards, including our industry-leading SPECTRA-SEAL® calibration gas mixtures, to ensure compliance on a daily basis. These standards are also the legal basis for measurements used in carbon trading.