

Hydrocarbon Processing Industry.



Our expertise allows us to deliver your particular blend in a timely manner with no compromises in quality.

Air Liquide has served the Hydrocarbon Processing Industry (HPI) for many years. We are the only Industrial Gas Company that is a full member of the Gas Processors Association plus we have maintained ties with such organizations as the National Petroleum Refiners Association, API and ASTM that develop standard methods of analysis of hydrocarbon samples. We offer refinery gas standards like our RG-1 and RG-2 standard mixtures. We also offer natural gas standards for BTU determination. Most hydrocarbon blends are custom mixtures though. Our expertise allows us to deliver your particular blend in a timely manner with no compromise in quality.

GAS PHASE HYDROCARBON STANDARDS

Air Liquide produces both standard gaseous reference blends and custom blends for use in calibrating both laboratory and field instrumentation. Most gaseous hydrocarbon standards are custom blends designed to match a particular gas stream.

Natural Gas Reference Standards are mixtures supplied with an analysis of the components (mol%); the BTU value of the mixture; the specific gravity; and the compressibility factor. The compositions of these various mixtures are listed with organizations like the Gas Processors Association in publication GPA No. 2261 "Analysis of Natural Gas by Gas Chromatography or the ASTM in Test Method D-1945." Certified BTU and Specific Gravity Natural Gas Standards are also available. The BTU value and the Specific Gravity are calculated based upon the analysis of the gas. Gas standards are also available that conform to the composition recommended by many of the instrument manufacturers for a specific application. Tell us the instrument to be calibrated and we can provide what the manufacturer specifies.

Component Selection Chart

Component MOL%	GPA Natural Gas Reference	Custom Gaseous Blends
Helium	0.5%	0.01 to 10%
Nitrogen	5.0%	0.01 to 95%
Carbon Dioxide	1.0%	0.01 to 20%
Methane	Balance	0.01 to 95%
Ethane	9.0%	0.01 to 95%
Propane	6.0%	0.01 to 95%
Isobutane	3.0%	0.01 to 10%
n-Butane	3.0	0.01 to 10%
Isopentane	1.0%	0.01 to 2%
n-Pentane	1.0%	0.01 to 2%
Neopentane	-	0.01 to 1%
n-Hexane	-	0.01 to 0.3%

LIQUID HYDROCARBON BLENDS

Liquefied Uniphase Calibration

Standards are made with high purity components that are analyzed prior to use in these mixtures. Liquid blends are typically prepared gravimetrically using precision balances calibrated with weights certified by NIST. After blending, the mixtures are analyzed by dedicated instrumentation to verify composition. Specific components are identified, quantified and reported in the extended analysis that accompanies each mixture.

Sulfur Standards in hydrocarbons are another of our specialties. We can provide both gas and liquid standards which are used to monitor levels of a variety of sulfur species. Many of these blends are used to calibrate total sulfur analyzers in refineries and gas plants.

Both standard liquid blends, like those specified by the GPA or ASTM, as well as custom blends are available. Because we stock more than 800 pure components, blends to your exact requirements can be produced. Typically, liquid blends are available in several different sizes and types of cylinders. Among the options available are:

- **Low Pressure Cylinders:** These cylinders are equipped with dip tubes that allow for the liquid blend to be removed from the bottom of the low cylinder. The cylinder is normally pressurized with an inert gas to reduce the amount of volatile components in the headspace of the cylinder. The advantage of low pressure cylinders is that they offer larger volumes of product and convenience of use. The limitation with mixture in these types of cylinders is that as liquid product is withdrawn, volatile components in the mixture may vaporize into the headspace altering the composition. For many applications this is not a serious problem and low pressure cylinders offer the best options.
- **Floating Piston Cylinders:** Piston cylinders offer the advantage of maintaining the liquid blend in a single phase. Pressure is maintained in the cylinder by a constant pressure on one side of the piston with an inert gas. Mixtures in these cylinders are typically used where accurate liquid calibration standards are necessary for a particular application.



Floating piston cylinders offer the advantage of maintaining the liquid blend in a single phase for better accuracy.