

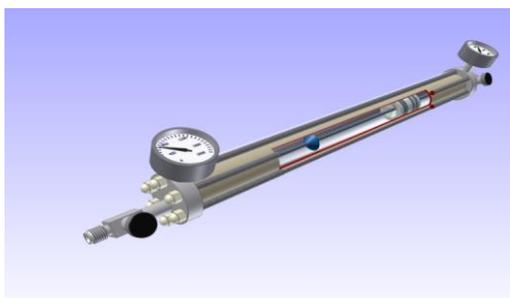
# Certified Reference Materials

## LPG (Liquefied Petroleum Gas)

### LPG

LPG (liquefied petroleum gas) is widely used as car fuel and in the industry as fuel and feedstock. Good quality measurement results are a prerequisite for adequate process control, product quality management, and ultimately meeting your customers' expectations. For the purpose of laboratory quality control, determination of the energy content, and fiscal measurement of LPG, VSL now offers Certified Reference Mixtures of LPG. The available composition ranges are given in the table below.

Component	Concentration (mol/mol)	Uncertainty ( $k=2$ )
Ethane	$0.1 - 0.3 \times 10^{-2}$	1.0 %
Propylene	$0.5 - 50 \times 10^{-2}$	1.0 %
<i>i</i> -Butane	$0.1 - 3 \times 10^{-2}$	1.0 %
<i>n</i> -Butane	$0.1 - 1 \times 10^{-2}$	1.0 %
<i>i</i> -Pentane	$0.1 - 1 \times 10^{-2}$	1.0 %
Propane	Balance	1.0 %



Constant Pressure Cylinder (1000 cc)

The mixtures are delivered in a 1000 cc Constant Pressure Cylinder (CPC). The stability of the mixtures is warranted for one year. Stability studies are ongoing and it is expected that the warranty can be extended in the near future.

*VSL's Chemistry group has more than 25 years of experience in preparing Calibration Gas Mixtures (CRMs). The hierarchy chain in traceable gas mixtures starts with a suite of highly accurate Primary Standard Gas Mixtures (PSMs). These standards are produced by gravimetric methods from high purity gases that have been analysed extensively on possible impurities. Extensive maintenance programmes including stability studies are important parts of a rigorous Quality Assurance programme. This programme is accredited against ISO/IEC17025 and ISO Guide 34. In most cases, these standards cover the full range of composition from low ppm up to percentage level and are blended as binary mixtures and also as multi component gas mixtures.*

For more information, please contact our Sales & Planning department at [vsl@vsl.nl](mailto:vsl@vsl.nl).

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