

Environment – Air : Primary Standards



Gas standards

One of the key missions of the [Chemical and Biological Metrology Laboratory](#) of LNE is to establish the metrological traceability and to assess the uncertainty of analytical measurements. To this end, LNE implements primary reference methods and produces Certified Reference Materials (CRMs), for various applications in the field of industrial, environmental and health analysis.

CRMs are metrological tools to achieving the traceability of measurement results and therefore ensuring reliability and comparability of results of chemical analyses everywhere in the world. Ensuring traceability is moreover a requirement of ISO/CEI-17025 standard.

CRMs are mainly used to carry out analytical instruments calibration and analytical procedures validation.

All reference materials produced by the [Chemical and Biological Metrology Laboratory](#) of LNE are **Certified** Reference Materials, meaning that the traceability to SI (International System of Units) is fully ensured through primary methods of measurement. The quality of each CRM is fully documented in the certificate describing the way the traceability is established and providing the uncertainty of the certified value.

Most of the CRMs produced are covered by CMCs (Calibration and Measurement Capabilities) published in the BIPM (Bureau International des Poids et Mesures) database ensuring the equivalence of LNE capabilities with the other National Metrology Institutes worldwide. Accreditation against ISO Guide 34 for CRMs production is currently in progress.



Gas standard
in 10 liters cylinder

In the field of gas metrology, the mission of LNE is to produce gas standards to ensure the traceability and the accuracy of the measurements of ambient air quality, natural gas, industrial emissions, vehicle emissions, occupational exposure.

LNE is specialized in the preparation of traceable gas standards with low uncertainties levels. These gas standards are obtained by using gravimetry as preparation technique according to the International Standard ISO 6142 "Gas analysis - Preparation of calibration gas mixtures - Gravimetric method".

These gas standards are useful to gas manufacturers, laboratories of environmental analysis, laboratories of occupational exposure for calibrating air quality analysers, natural gas chromatographs, industrial and vehicle emissions monitors, occupational exposure analysers, breath alcohol analysers...

Available gas standards : carbon monoxide / carbon dioxide / nitrogen monoxide / propane / ethanol / benzene / toluene / xylene / natural gas (nitrogen, carbon dioxide, methane, ethane, propane, isobutene and n-butane) / chlorinated VOCs as dichloromethane, 1,2-dichloroethane, trichloroethylene, tetrachloroethylene and styrene.

On going development of a gas standards for 30 VOCs (ozone precursors).

Matrix : nitrogen or air

Regulations : European directives such as 2000/76/CE for industrial emissions, such as 2008/50/CE for air quality. OIML Recommendations such as OIML R99 for vehicles emission, OIML R140 for natural gas...

Concentration range : Typical range is $\mu\text{mol/mol}$ to cmol/mol , depending on the compounds.

Conditioning : Gas Standards are supplied in 10 liters cylinders (the final pressure depends on the compounds and on the concentrations).

Availability : Now available or available soon, depending on the compounds.

Minimum price : 1250 € HT per gas standard.

Contact person : Tatiana Macé (tatiana.mace@lne.fr) and Christophe Sutour (christophe.sutour@lne.fr) or metrology@lne.fr