

Environment – Solids : Various Matrices



Metals in PM10

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.



Partisol plus – Filters for PM 10 compartment

Metals as Lead, Arsenic, Cadmium, Nickel are regularly measured in air quality : these compounds belong to the most monitored and regulated pollutants.

To enable the validation of analytical protocols and to ensure the traceability and the accuracy of measurements of ambient air, LNE forecasts to develop a method for loading metals on filters.

The method will consist in loading particulate matter PM10 with metals (Lead, Arsenic, Cadmium and Nickel) by using primary liquid solutions : the loaded particulate matter will be then impacted on an adequate filter.

These matrix reference materials will be useful to laboratories of environmental analysis for calibrating analysers and validating the analytical methods.

Regulations : European directives such as 2008/50/CE and 2004/107/CE for air quality...

Concentration range : Typical range is $\mu\text{g/g}$ depending on the metal.

Availability : In development

Conditioning : The certified concentration of the metals is loaded on a filter.

Price : On request

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