

Environment – Water : Drinking Water Matrix



Triazine and Phenylurea Herbicides in Drinking Water



Herbicides are stored :

- in acetonitrile in sealed vials
- on solid phase extraction (SPE) cartridges previously percolated with a water sample spiked with triazines and phenylureas

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.

According to the Water Framework Directive 2000, European Member States are committed to monitor priority substances on a regular basis in all relevant water bodies and to check compliance with the environmental quality standards (EQS).

Herbicides are among the priority substances of the Water Framework Directive and thus it is of primary interest to laboratories of environmental analysis to develop analytical methods fit for purpose of compliance checking with the EQS for these compounds. Moreover, the need for CRMs with a composition as close as possible to real water to improve the quality of the analysis of organic contaminants is critical.

LNE has developed a CRM, using SPE technique, for the determination of herbicides in drinking water at EQS concentrations, e.g. triazines (atrazine, desethylatrazine, desisopropylatrazine, simazine, terbutryne, terbutylazine) and phenylureas (chlortoluron, linuron, diuron, et isoproturon).

The characterisation of this CRM was performed during an inter laboratory campaign.

Concentration range : Concentrations are about 0,1 mg/l for seals and 0,5 µg/l for cartridges.

Conditioning : The CRM Herbicides Kit contains 2 sealed vials (acetonitrile) and 3 SPE cartridges. CRM has to be stored under -20°C.

Availability : Now available

Price : 350 - 400 €HT per kit

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