CERTIFICATE OF ANALYSIS

ERM®-CC015

Mineral oil contaminated sediment

ausverkauft / out of stock

Certified Values		
	Certified value [1]	Uncertainty [2]
Compound	Mass fraction in mg/kg	
Total petrol hydrocarbons (TPH)	2000	± 161

[1] Unweighted mean value of 23 laboratory means using gas chromatography with flame ionisation detection (GC/FID) according to ISO/DIS 16703:2001.

[2] Estimated expanded uncertainty *U* with a coverage factor of about *k*=2, corresponding to a level of confidence of 95 %, as defined in the Guide to the expression of uncertainty in measurement, ISO, 1993.

This certificate is valid until May 2007; this validity may be extended as further evidence of stability becomes available.

The minimum sample size for one determination is 5 g.

NOTE

European Reference Material ERM®-CC015 was originally certified as BAM-U015. It was produced and certified under the responsibility of Bundesanstalt für Materialforschung und –prüfung (BAM) according to the principles laid down in the technical guidelines of the European Reference Materials® co-operation agreement between BAM-LGC-IRMM. Information on these guidelines is available on the Internet (http://www.erm-crm.org).

Accepted as an ERM®, Berlin, 2004-04-14.

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DESCRIPTION OF THE SAMPLE

The intended purpose of reference material ERM®-CC015 is the validation of analytical procedures for the determination of TPH in soil and sediments according to ISO/DIS 16703:2001 [1] by GC/FID and for quality assurance in analytical laboratories.
The material ERM®-CC015 is a sediment sampled from river Saale, near the city of Halle, Sachsen-Anhalt, Germany. The composition is a sandy weakly clayish silt which had been contaminated over decades by industrial and municipal sewages. After drying, fractionation by sieving and homogenisation, the sieve fraction < 63 µm was subdivided into 256 units of 82 g which were filled in brown glass bottles with screw caps containing PTFE-inlays and sealed with shrinking foil. The material is stored at BAM at –20°C until dispatch.
The within- and among-bottle-homogeneity was demonstrated by analysis of variance on 12 from 256 bottles (4 replicate analyses per bottle).
The stability study after storage of selected units of the reference material for 12 months at different temperatures revealed a shelf life of at least 5 years if the bottles are kept at – 20°C. If periodical investigations on this material reveal any significant changes, all users known to BAM will be notified. If the stability of the reference material extends beyond the indicated period, a respective information will be published on the internet (http://www.bam.de/service/referenzmaterialien/).
The tests for homogeneity and stability are described in detail in the certification report.

PARTICIPANTS

The certification study involved the following 23 laboratories using GC/FID for the determination of TPH according to ISO/DIS 16073:2001 [1]:
AIR Analytik Institut Rietzler GbR, Nürnberg
Bundesanstalt für Materialforschung und –prüfung (BAM), Berlin, I. 2
Bundesanstalt für Geowissenschaften and Rohstoffe (BGR), Hannover
GÖRTLER &PARTNER Umweltanalytik GmbH., Ottobrunn-Riemerling
G &P Torsten Plaar GmbH., Labor für Umweltanalytik, Oldenburg
ICA Institut für Chemische Analytik GmbH., Leipzig
Institut Fresenius GmbH, Chemische und Biologische Laboratorien., Berlin
Institut Fresenius GmbH., Organische Umwelt- und Routineanalytik, Taunusstein
Institut Kirchhoff Berlin IKB, Zentrale Analytik GmbH., Berlin
Institut für Wasserbau, Universität Stuttgart, Versuchseinrichtung zur Grundwasser- und Altlastensanierung, (VEGAS), Stuttgart
Umweltbundesamt(UBA), Labor für Wasseranalytik, FG II 3.6, Berlin
Dr. Wessling Laboratorien GmbH., Labor Altenberge, Altenberge
Australia: Australian Government Analytical Laboratories AGAL, South Melbourne
Danmark: Department of Chemistry DHI, Water &Environment, Horsholm
Finland: Ekokem Oy Ab, Riihimäki
Finland: Finnish Environmental institutes, Research Laboratory, Helsinki
Finland: Golder Associates Oy, Helsinki
Finland: SGS Inspection of service Oy, Environmental Services, Hamina
The Netherlands: Alcontrol Biochem Laboratoria, Hoogfliet
The Netherlands: NTRON B. V. , Dittard
The Netherlands: Tauw laboratory, Deventer
United Kingdom: AES, Northcumberland dock, Tyne and Wear

SAFETY INFORMATION

It is strongly recommended to handle and dispose the reference material in accordance with the guidelines for hazardous materials legally in force at the site of end use and disposal.

INSTRUCTIONS FOR USE

Before withdrawing a subsample the bottle has to have reached room temperature and is to be mixed thoroughly. Thereafter, the bottle is to be closed tight and stored at –20°C. The stability of the reference material is not affected by short periods of handling at ambient temperature during transport and use.

STORAGE

The material has to be stored at -20°C in its original bottle.

TECHNICAL REPORT

A detailed technical report (paper copy; in German) describing the production, general characterisation as well as the analytical procedures applied and the treatment of the analytical data during certification of ERM®-CC015 is available on request from BAM.

REFERENCES

[1] ISO /DIS 16703, 2001, "Soil quality - Determination of mineral oil content by gas chromatography"

Supply of Reference Materials by Bundesanstalt für Materialforschung und –prüfung:

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