Certified Reference Material

BAM-K010g

Mixture of diesel oil and lubricating oil

Certified Value

Parameter	Value in g g^{-1}	Uncertainty U [1)] in g g^{-1}
Mass ratio of diesel oil / lubricating oil	1.000028	0.000014
Mass fraction of the boiling range C_{10} – C_{40}	0.969	0.015

[1)] Estimated expanded uncertainty U with a coverage factor of k = 2, corresponding to a level of confidence of approximately 95 %, as defined in the Guide to the expression of uncertainty in measurement (GUM, ISO/IEC Guide 98-3:2008).

Material Description

BAM-K010g (Lot VIII) is bottled in amber glass vials containing at least 2.0 mL of the mixture of diesel oil and lubricating oil. Additive free diesel oil without FAME (fatty acid methyl esters) and additive free lubricating oil were used to produce BAM-K010g. Figure 1 displays the GC-FID chromatogram of the calibration standard BAM-K010g.

Intended Use

BAM-K010g is intended to be used as calibration standard for the gas chromatographic determination of mineral oil hydrocarbons in water, soil and waste according to the analytical standard procedures ISO 9377-2, ISO 16703 and EN 14039. The concentrations of calibration solutions prepared by dilution of BAM-K010g have to be corrected by the certified mass fraction of the boiling range C_{10} – C_{40}.

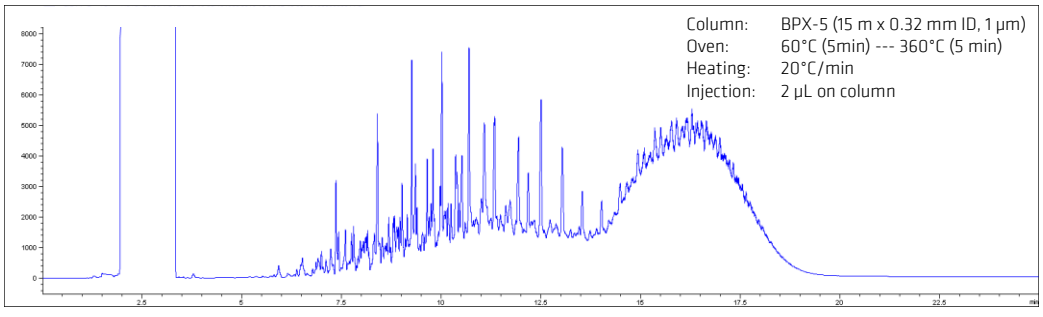

Fig. 1: GC-FID chromatogram of the calibration standard BAM-K010g (diluted in n-heptane)

Technical Report

A detailed technical report describing the preparation and certification of BAM-K010g is available on request or can be downloaded from the BAM website (www.bam.de).

This certificate is valid for a period of two years after dispatch of the reference material.

Lot-No. VIII - **Date of dispatch:**

Handling

Proper use of the reference material is essential for avoiding potential harm to the user. It is strongly recommended to handle and dispose of the reference material in accordance with the guidelines for hazardous materials legally in force at the site of end use and disposal. The content of the vial is preferably used completely at once. If not, the vial should be re-sealed with a new crimp cap or remaining standard should be filled in a tightly closed glass container and stored as specified below.

Storage

The calibration standard is to be stored tightly closed at room temperature at a dark place. If the material should become turbid by time, it should be replaced by a fresh unit and storage conditions should be checked and adjusted.

Metrological Traceability

Traceability of the certified value to the SI (Système International d'Unités) is ensured by the use of a calibrated balance, additionally verified by DKD calibrated weights of class E2. The certification of the mass ratio is based on precise weighing of both mineral oil quantities to be mixed. A correction of buoyancy was applied considering the densities of the mineral oils. The mass fraction of the boiling range C_{10} - C_{40} is traceable to a hydrocarbon reference mixture consisting of ten hydrocarbon standards (Sigma-Aldrich) with defined and confirmed purities through direct comparisons using gas chromatography with flame ionisation detection (GC-FID) and gravimetric handling.

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Accepted as BAM-CRM on February 18, 2021

Bundesanstalt für Materialforschung und –prüfung (BAM)

Dr. S. Richter
Committee for Certification

Dr. M. Koch
Project Coordinator

BAM holds an accreditation as a reference material producer according to ISO 17034. This accreditation is valid only for the scope as specified in the certificate D-RM-11075-01-00.
DAkkS is a signatory of the multilateral agreement (MLA) between EA, ILAC and IAF for mutual acceptance.

DAkkS Deutsche Akkreditierungsstelle D-RM-11075-01-00

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