

# Certified Reference Material

## BAM-K009a

### Lubricating oil (additive free)

#### Certified Value

Parameter	Value in g g <sup>-1</sup>	Uncertainty <i>U</i> <sup>1)</sup> in g g <sup>-1</sup>
Mass fraction of the boiling range C <sub>10</sub> – C <sub>40</sub>	0.982	0.011

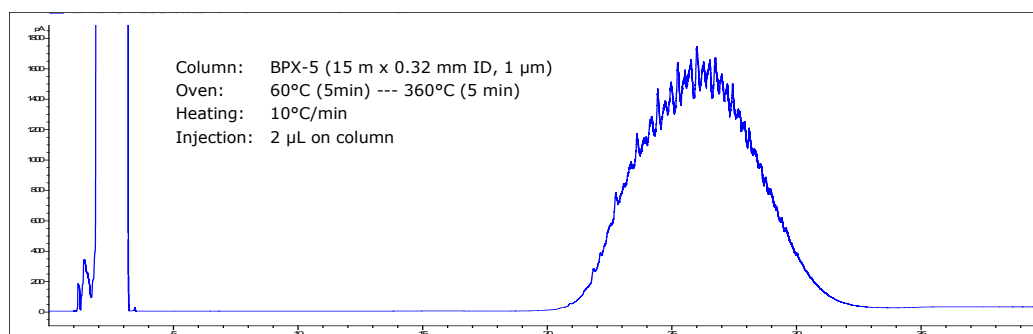
<sup>1)</sup> Estimated expanded uncertainty *U* with a coverage factor of *k* = 2, corresponding to a level of confidence of approximately 95 %, as defined in the Guide to the expression of uncertainty in measurement (GUM, ISO/IEC Guide 98-3:2008).

#### Material Description

BAM-K009a (Lot II) is bottled in amber glass vials containing at least 2.0 mL of additive free lubricating oil. Figure 1 displays the GC-FID chromatogram of BAM-K009a.

#### Intended Use

BAM-K009a is intended to be used as a type B mineral oil of a 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 concentration of a calibration solution prepared by dilution of BAM-K009a has to be corrected by the certified mass fraction of the boiling range C<sub>10</sub> – C<sub>40</sub>.



**Fig. 1:** GC-FID chromatogram of BAM-K009a (diluted in n-heptane)

#### Technical Report

A detailed technical report describing the preparation and certification of BAM-K009a is available on request or can be downloaded from the BAM website ([www.bam.de](http://www.bam.de)).

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

**Lot-No. II -**

**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

BAM-K009a is to be stored tightly closed at room temperature in 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

The mass fraction of the boiling range C<sub>10</sub> - C<sub>40</sub> 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. Accurate weighing is ensured using a calibrated balance.

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**Accepted as BAM-CRM on April 14, 2022**

**Bundesanstalt für Materialforschung und –prüfung (BAM)**

Dr. S. Richter  
Committee for Certification

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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.



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