



# CERTIFICATE

## CERTIFIED REFERENCE MATERIAL BAM-U026

Mineral oil contaminated soil

### Certified Value(s)

| Characteristic  | Mass fraction <sup>1)</sup><br>in mg/kg | Uncertainty $U$ <sup>2)</sup><br>in mg/kg |
|---|---|---|
| Total petroleum hydrocarbons  | 1355                                    | 130                                       |
| <sup>1)</sup> Unweighted mean value of the means of six data sets obtained with the procedure according to ISO 16703:2011.<br><sup>2)</sup> Estimated expanded uncertainty $U$ with a coverage factor of $k = 2$ , corresponding to a level of confidence of approx. 95 %, as defined in the Guide to the expression of uncertainty in measurement, (GUM, ISO/IEC Guide 98-3:2008). |   |   |

### End of Validity

This certificate is valid for a period of 12 months starting with the dispatch of the reference material from BAM.

Date of dispatch:

Sample No.:

The minimum sample size for one determination is 5 g. The total petroleum hydrocarbon (TPH) mass fraction according to ISO 16703:2011 is related to sample intake (not to dry mass). The water content is  $(1.40 \pm 0.02)$  % and remains stable if the material is handled as indicated below.

### Material Description

Reference material BAM-U026 was obtained by blending a sandy loamy soil from a contaminated site in Berlin, Germany with a TPH free sandy loamy soil sampled near Berlin, Germany. After air-drying, sieving fractions  $< 125 \mu\text{m}$  were mixed, homogenised, and subdivided into units of 70 g which were filled in amber glass bottles with screw caps equipped with PTFE-inserts and sealed with shrinking foil. The material is stored at BAM at  $-20^\circ\text{C}$  until dispatch. Details of the preparation and characterisation procedures are specified in the certification report.

### **Recommended Use**

BAM-U026 is explicitly meant only to be used in analytical laboratories. The intended purpose of reference material BAM-U026 is the verification of analytical procedures equivalent to ISO 16703:2011 for the determination of the TPH content in soils and sediments by GC-FID. It is strongly recommended to handle and dispose of the reference material in accordance with the guidelines for analytical soil samples legally in force at the site of end use and disposal.

### **Transport and Storage**

The stability of the content of TPH allows dispatching the material at ambient temperature. On receiving, it is to be stored at -20 °C. Before withdrawing a subsample the bottle must have reached ambient temperature. Thereafter, the bottle must be closed tightly and stored at -20 °C again.

### **Metrological Traceability**

The total petroleum hydrocarbon content is defined by the method employed for its determination. The certified value is the mass fraction of mineral oil obtained by the analytical procedure according to ISO 16703:2011 in relation to the certified calibration standard BAM-K010g. Thus, the stated references for BAM-U026 are ISO 16703:2011 and the calibration standard BAM-K010g mentioned for this purpose therein.

### **Literature**

A detailed technical report describing the analysis procedures and the treatment of the analytical data used to certify BAM-U026 is available on request or can be downloaded from BAM website (<https://rrr.bam.de>).

**Accepted as a BAM-CRM on December 13, 2023**

## Bundesanstalt für Materialforschung und -prüfung (BAM)



*S. Richter*

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BAM-1.7

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.



This Certified Reference Material is offered by:

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