

Certificate of Analysis

Analytical reference material RMPMO001

Product identifier

Product No.: RMPMO001

Lot No.: 24001

Expiry: 03/2029

Intended use

RMPMO001 is an analytical reference material for the analysis of MOSH and MOAH by LC-GC-FID. The material is intended for use as a calibration standard, a quality control standard, and/or in method development for analytical techniques.

Material description

RMPMO001 is bottled in an amber glass vial with a PTFE seal. The vial contains at least 1 ml of a base oil (SN 500). The base oil consists of distillates (petroleum), solvent-dewaxed heavy paraffinic and residual oils (petroleum), solvent-dewaxed.

Storage

Tightly closed at 4°C in the dark.

Certified values

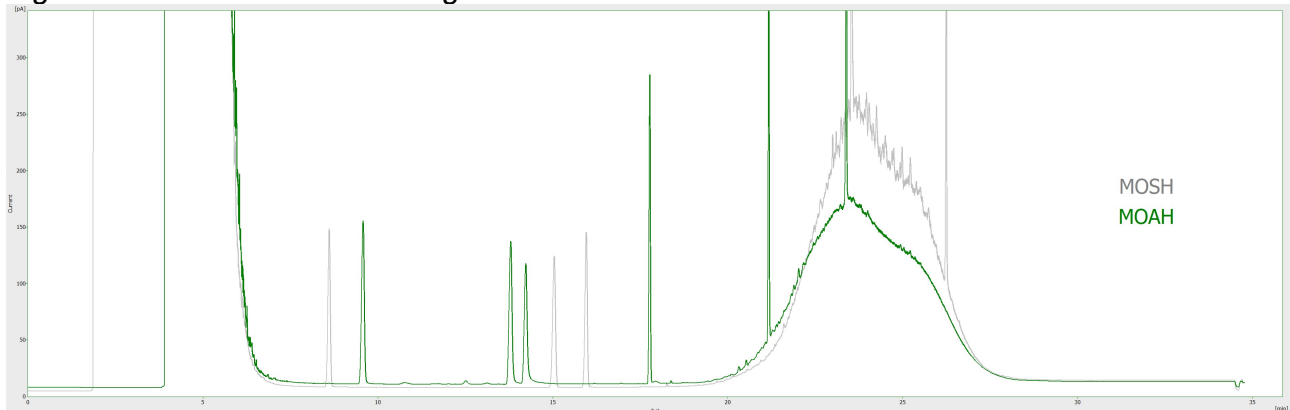
Parameter	Value [w/w %]	Uncertainty u [w/w %]
Total MOSH > C-10 to ≤ C-50	57.8	0.474
Total MOAH > C-10 to ≤ C-50	36.3	0.264

Content of MOSH and MOAH by fractions

MOSH	Value [w/w %]
> C10 bis ≤ C16	< 0.1
> C16 bis ≤ C20	1.1
> C20 bis ≤ C25	8.6
> C25 bis ≤ C35	35
> C35 bis ≤ C40	8.7
> C40 bis ≤ C50	3.8

MOAH	Value [w/w %]
< C16	0.2
≥ C16 bis ≤ C25	5.9
> C25 bis ≤ C35	21
> C35 bis ≤ C50	9.0

Figure 1. LC-GC-FID chromatogram of the reference standard RMPMO001 in hexane



Measurement method

The content of MOSH and MOAH is quantified on an Agilent system (LC 1260 combined to GC 8890) with FID detector. The material is analysed after dilution of the reference material in hexane (0.5 mg/ml) without further sample preparation in a laboratory accredited according to DIN EN ISO/IEC 17025:2018 (1).

Metrological Traceability

The traceability of the certified value to the SI is ensured using calibrated balances and calibrated pipettes. The constitution of the standard is traceable to Restek Mix MOSH/MOAH (catalogue no. 31070).

Handling

The usual laboratory safety precautions apply. See Safety Data Sheet.

Legal Notice

The producer certifies that this reference material meets the specification stated in this certificate until the expiry date, provided it is stored unopened at the recommended temperature herein. The reference material was produced and verified in accordance with DIN EN ISO 17034:2016 (2) and ISO Guide 35:2017 (3).

Supplier

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PROOF-ACS GmbH is accredited by the German accreditation authority DAkkS according to DIN EN ISO 17043:2010-05 (D-EP-22211-01-00) (4). PROOF-ACS GmbH does not have any analytical laboratory facilities of its own. Homogeneity testing and stability testing are subcontracted to laboratories, accredited according to DIN EN ISO/IEC 17025:2018 (1).

Customers with any concerns related to the reference material are invited to contact PROOF-ACS GmbH as mentioned before.

The certificated was authorised on behalf of PROOF-ACS GmbH by

References

1. DIN-Normenausschuss Qualitätsmanagement Statistik und Zertifizierungsgrundlagen (NQSZ). General requirements for the competence of testing and calibration laboratories. DIN EN ISO/IEC 17025:2018-03. 2018.
2. DIN-Normenausschuss Qualitätsmanagement S und Z (NQSZ) DNM (NMP). General requirements of the competence of reference material producers (ISO 17034:2016) [Internet]. DIN EN ISO 17034:2016. 2016. Available from: www.din.de
3. www.iso.org. Reference materials - Guidance for characterization and assessment of homogeneity and stability [Internet]. ISO Guide 35:2017. 2017. Available from: www.iso.org
4. Statistik und Zertifizierungsgrundlagen (NQSZ) im DIN Normenausschuss Qualitätsmanagement. Conformity assessment - General requirements for proficiency testing. DIN EN ISO/IEC 17043:2010-05. 2010.
5. Statistik und Zertifizierungsgrundlagen (NQSZ) DIN-Normenausschuss Qualitätsmanagement. Statistical methods for use in proficiency testing by interlaboratory comparison. DIN ISO 13528:2020-09. 2020.

Annex

Preparation

A commercially available base oil (SN 500) is homogenised and bottled in portions of 1 ml each.

Homogeneity testing

Homogeneity testing is subcontracted to a lab, which holds an accreditation according to DIN EN ISO/IEC 17025:2018 (1).

The reference material was checked for homogeneity according to the recommendations of ISO Guide 35:2017 (3) and DIN ISO 13528:2020 (5). Ten samples of the batch are analysed to confirm the homogeneity of the reference materials. Random stratified sampling was applied for selection of the samples for homogeneity testing.

Table 2. Results of the homogeneity testing

Sample No.	Sub-sample No.	MOSH [w/w %]	MOAH [w/w %]
1	1	57	36
	2	57	36
2	1	56	37
	2	59	37
3	1	57	37
	2	57	36
4	1	58	36
	2	57	36
5	1	57	36
	2	59	36
6	1	58	36
	2	57	36
7	1	57	36
	2	58	36
8	1	58	36
	2	57	36
9	1	57	35
	2	63	39
10	1	57	36
	2	59	37
Mean [%]		57.8	36.3
Homogeneous acc. to DIN ISO 13528 (5)		yes	yes