

Certificate of Analysis

STD 212

CERTIFIED REFERENCE MATERIAL

6 components: 1000mg/l each of Triethylamine [CAS:121-44-8] ; Pyridine [CAS:110-86-1] ; N-Ethyldiisopropylamine [CAS:7087-68-5] ; Diisopropylamine [CAS:108-18-9] ; N-Methylaniline [CAS:100-61-8] ; Tributylamine [CAS:102-82-9] in Methanol

Lot N: 891500
Barcode: 93016247

Ref N: RD0905171.3

Certification Date: 29.03.2023

Component	Certified Value* and uncertainty [µg/ml]	CAS	Chemical Formula
Triethylamine	1000.6 ± 9.8	121-44-8	C ₆ H ₁₅ N
Pyridine	1012.0 ± 9.9	110-86-1	C ₅ H ₅ N
N-Ethyldiisopropylamine	1002.2 ± 9.7	7087-68-5	C ₈ H ₁₉ N
Diisopropylamine	1005.6 ± 9.7	108-18-9	C ₆ H ₁₅ N
N-Methylaniline	1005.9 ± 9.7	100-61-8	C ₆ H ₅ NHCH ₃
Tributylamine	1015.7 ± 9.8	102-82-9	C ₁₂ H ₂₇ N

* WQP 5.15.1/2 The certified value was obtained gravimetrically and confirmed experimentally by GC/MS or HPLC

Density 0.7878 g/cm³ at 20°C

Starting Material	Purity, Batch
Triethylamine	98.6% (41470442)
Pyridine	99.6% (41486009)
N-Ethyldiisopropylamine	99.8% (41457719)
Diisopropylamine	97.6% (41480618)
N-Methylaniline	99.4% (41453179)
Tributylamine	98.1% (41459287)

Storage Conditions: Store in a refrigerator and protected from light

Expiry Date: 29.04.2024

Concept of Certification and traceability statement:

This certified reference material is produced by gravimetric measurement and dissolving the individual substances in Methanol.

The reported expanded uncertainty of measurement is stated as the standard uncertainty multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02 and incorporates the uncertainties of the raw-material purity, the mass and the volume.

The metrological traceability is defined as the "property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty".

The metrological traceability is ensured through gravimetric measurement and dissolving of certified reference material/s (traceable to SI) from laboratories/producers, accredited according to ISO 17034.

The measurement results are traceable to SI. All analytical balances used for the preparation of the solution are calibrated yearly under an in-house procedure with class E1 and class E2 analytical weights, traceable to SI (DKD), and are checked daily.

Class A laboratory glassware is used.

The results from temperature measurement are traceable to SI. The thermometers used for solution's calibration are calibrated from an ISO 17025 accredited laboratory.

The ambient conditions are controlled with a hygrometer calibrated from an ISO 17025 accredited laboratory.

Both, purity of the starting materials and solvent, were checked using appropriate analytical instrument.

Intended use: For Laboratory Use Only

This CRM is intended for:

Calibration of TLC, GC/FID, GC/TCD, GC/ECD, GC/MS, GC/MS/MS, LC/UV, LC/MS and LC/MS/MS

Validation of analytical methods

Preparation of "working reference samples"



CPAchem Ltd. is ISO 17034 (Cert No AR-1835)
and ISO/IEC 17025 (Cert No AT-1836) accredited by ANAB

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Detection limit and linearity studies

This statement is not intended to restrict the use for other purposes.

Instructions for the correct use of this certified reference material:

This CRM can be used directly or can be diluted in an appropriate solvent. Only a clean class A glassware should be used. Do not pipet from container. Obtained concentration (in mg/l) after dilution is a result from the multiplication of certified value of CRM concentration and the CRM's volume used for dilution and divided into the flask's volume used for dilution. For quantitative analysis, we recommend analyzing this mixture separately, without mixing it with other solutions, to ensure accurate results for every compound.

Stability and storage:

This CRM is with a guaranteed stability until $\pm 5\%$ of the certified concentration for a period of 12 months. Stability is guaranteed of an unopened original packaging stored, as written in the section: Storage Conditions. Even if the product is stable at normal laboratory conditions, in order to increase its stability, we highly recommend it to be stored in a refrigerator.

The product should be used shortly after opening to avoid concentration changes due to evaporation. Warranty does not apply to a product stored after opening.

Hazardous situation:

The normal laboratory safety precautions should be observed when working with this RM. Further details for the handling of this RM are available in a safety data sheet.

Level of homogeneity

This solution was mixed according to an in-house procedure (MQP 5.13.1) and is guaranteed to be homogeneous. To ensure sufficient homogeneity of the sample prior to use thoroughly mix by inversion or sonicate.

Names of certifying officers:

Laboratory:  Margarita Dimitrova

Manager:  Krassimira Taralova

This document QF 5.17.1/1 version 1 is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31, ISO Guide 35, and Eurachem / CITAC Guides

This certificate relates solely to the lot number given above.

All processes (including generating of this certificate) are completely controlled by the specialized Computer-Aided-Manufacturing (CAM) software.

This Certified Reference Material was produced under a quality management system that is:

- Registered to ISO 9001 Quality Management System (Lloyd's Register Quality Assurance Ltd Cert No 0039638)
- Accredited according to ISO/IEC 17025
- Accredited according to ISO 17034

Additional Information

Gravimetric Data

Component	Purity %	Source Lot No	Weighed quantity, g	Final quantity, kg.10 ⁻³	Bulk/ Standard Solution lot No	Concentration mg/kg	Chemist ID
Triethylamine	98.6	41470442	0.30517	3.5424	91938459	84942	AS
		91938459	0.1178	7.8783	93016247	1270.10	DG
Pyridine	99.6	41486009	0.1269	1.5049	91939791	83987	AS
		91939791	0.1205	7.8783	93016247	1284.59	DG
N-Ethyldiisopropylamine	99.8	41457719	0.10739	3.2071	91947987	33418	AS
		91947987	0.2999	7.8783	93016247	1272.11	DG
Diisopropylamine	97.6	41480618	0.14555	3.3636	91947994	42234	AS
		91947994	0.2381	7.8783	93016247	1276.40	DG
N-Methylaniline	99.4	41453179	0.11595	3.1899	91941039	36131	AS
		91941039	0.2784	7.8783	93016247	1276.79	DG
Tributylamine	98.1	41459287	0.26352	3.4257	91938428	75463	AS
		91938428	0.1346	7.8783	93016247	1289.28	DG