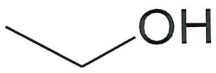
Reference Material Certificate

Reference Material (RM)

Product Name: Ethanol 80mg/100mL in Water

Catalogue Number: LGCETH-80
Lot Number: 1-H1455466WA

CAS Number: 64-17-5
Molecular Formula: C_2H_6O
Molecular Weight: 46.07
Solvent: Water
Format: Solution
Volume per Ampoule: 1 ml [1]



Long-term Storage: 20 °C, dark

Expiry Date: 08.04.2029
Intended Use: The primary aim of this material is for identification, calibration and quantification.

Component	Concentration ("as is")	Uncertainty
see product name	80.00 mg/100 ml [2]	U = 3.07 mg/100 ml [3]

Uncertainty of the concentration is expressed as an expanded uncertainty in accordance with ISO 17025 and ISO 17034 at the about 95 % level of confidence using a coverage factor of k = 2 and has been calculated by statistical analysis of our production system and incorporates uncertainty of the purity, homogeneity, stability and balance and weighing technique.
Concentration based on material weighings and material purity factor (purity of the neat material).

The solution´s concentration is verified against NIST-Standard SRM 2900 Lot 220112.

LGC certifies that this standard meets the specification stated in this certificate and warrants this product to meet the stated acceptance criteria through the retest date when stored unopened as recommended. Product should be used shortly after opening to avoid concentration changes due to evaporation. Warranty does not apply to ampoules stored after opening. Product warranties for this certified reference material are set out in the terms and conditions of purchase.

Release Date:
Augsburg, 08.04.2024

Signed:
Müller Nadine
RM Release

1 Ampoules are overfilled to ensure a minimum 1 ml volume fill. We advise laboratories to use measured volumes of this standard solution before diluting to the desired concentration.
2 The value is based on the results of analytical techniques, which calibration and verification was carried out with standards traceable to SI-units. The value is expressed on an "as is" basis. The concentration with its uncertainty is valid in the range between 16 °C and 24 °C.
3 The uncertainty "U" is the expanded uncertainty estimated in accordance with the Guide to the Expression of Uncertainty in Measurement (GUM). It is corresponding to a level of confidence of about 95 %.

Solution Standard Assay Parameters				
Analysis Method	HS-GC/FID			
Column:	DB-624, 30 m x 250 µm x 1.4 µm		Number of Measurements:	10
HS:	Oven: 85 °C, Loop: 100 °C; Transfer Line: 120 °C			
	Equilibration:	15 min		
	Injection Duration:	1min		
Injector:	160 °C			
Flow:	3 ml/min			
Oven Program:	35 °C / 5 min			
Detector:	Heater:	220 °C		
	AirFlow:	400 ml/min		
	H2Flow:	30 ml/min		
	N2Flow:	25 ml/min		

Neat Material Data	
Product Name:	Ethanol
CAS Number:	64-17-5
Molecular Formula:	C_2H_6O
Molecular Weight:	46.07
Compound Lot:	G1245744
Purity:	99.89 %
Uncertainty:	0.30 %
Solvent Lot:	V2C719312C32

I. Stability and Homogeneity

Accelerated stability studies indicate no significant instability. The given validity period is based on this data. This is backed up by historical data over the range of several years for the neat substance. Homogeneity assured by validated process of preparation (incl. ampoulation), verified by homogeneity testing (GC/FID). Random replicate samples of the final packaged RM have been analysed to prove homogeneity compliant with ISO 17034.

II. Further Information

General

For laboratory use only. Not suitable for human or animal consumption.

Handling of the RM

Before usage of the RM, it should be allowed to adjust to room temperature. The concentration with its uncertainty is guaranteed in the range between 16 °C and 24 °C. The uncertainty accounts for the temperature-dependent density in this range.
The RM should be used shortly after opening to avoid concentration changes due to evaporation. It is recommended to use 1 mL as the minimum sample size and if less material is used, to increase the certified uncertainty by a factor of two for half sample and four for a quarter of sample. If storage after opening is necessary, the RM should be tightly closed and kept from light and moisture. If the RM was in a sealed ampoule, it should be transferred to a vial with minimum head space.

Storage

The RM should be stored in the original sealed container at the indicated temperature.

Safety

Proper precautions should be observed while handling. See Safety Data Sheet.

Traceability

The balances used for gravimetric measurements are calibrated with weights traceable to the national standards (DKD). The calibration of the balances is verified daily internally and annually by an external accredited calibration service. Chromatographic methods are traceable to the International System of Units (SI).

Identity

The identity is verified by data from international scientific literature.