TÜBİTAK
ULUSAL METROLOJİ ENSTİTÜSÜ

Reference Material Data Sheet

Name of the Material : Reference Material for pH in Soil

Reference Material Code : UME RM 9911

Issue Date : 13.12.2017

Last Revision Date : 10.08.2018 (Revision history can be found on the last page)

Validity Period : 1 year from the sales date.

Assigned Value :

Parameter	Assigned Value[1]	Standard Deviation[2]	Temperature[3]
pH	7.68	0.04	20 °C

[1] The assigned value is determined by measuring pH value of the soil sample in 1 M KCl suspension by ISO 10390:2005 method using a working level pH meter.

[2] The standard deviation of assigned value is the standard deviation of the measurements taken over 12 months.

[3] Temperature was continuously monitored throughout the measurements with 0.2 °C uncertainty.

Sales Date

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Description

The material is approximately 50 g of soil in an amber colored glass bottle. The soil sample was bottled after 4 hours of homogenization with three-dimensional mixer after grinding and sieving to reduce the size of the sample to 500 microns or less.

Intended Use

This material is intended to be used for method validation, verification and quality control of the analytical methods for determining pH value in soil.

Instructions for Use

pH measurement should be done according to the ISO 10390:2005 standard. Calibration should be made at temperature corresponding to relevant pH values and pH values of sample solutions should be measured at the same temperature. Certified buffer solutions compatible with the pH meter should be used for calibration. After the calibration process, the zero point potential (E°) (≤ 30 mV) and slope of the combined glass electrode (90 % - 102 %) should be determined and after the suitability has been controlled, the measurement of pH of the soil sample should be performed. The following procedure can be followed to measure pH in the soil:

7 g of soil sample is weighed in to a 50 mL falcon tube and then 35 mL of 1 mol/L KCl is added. The suspended sample should be shaken at 180 rpm for 60 minutes in a shaker. After shaking, the sample is allowed to rest for 60 minutes and the temperature is adjusted to 20 °C with a circulating thermostatic bath. After these steps, pH value of upper portion of the suspension is measured. All precautions should be taken to prevent contamination and moisture uptake of the sample during opening and use of the bottle.

Minimum sample intake amount is 7 g.

Storage Conditions

The material should be stored at (21 ± 3) °C.

TÜBİTAK UME cannot be held responsible for changes that might happen to the material at customer's premises due to noncompliance of the instructions for use, and the storage conditions given in the reference material data sheet.

Safety Information

Usual laboratory precautions apply.

It is strongly recommended that the material must be handled and disposed according to the safety guidelines where applicable.

Participants

Information about the laboratory participated in the sample preparation and measurement is given in the following table.

Laboratory	Address
TÜBİTAK UME	TÜBİTAK Gebze Yerleşkesi, Barış Mahallesi, Dr. Zeki Acar Caddesi No.1 41470 Gebze - Kocaeli / Turkey

Techniques Used for the Determination of the Assigned Values

The method used to determine pH value of the soil sample is given below.

Method/Technique	Parameter
ISO 10390:2005	pH

Revision History

Date	Remarks
13.12.2017	First publication.
10.08.2018	The material data sheet was updated due to renewal in document format and the uncertainty value was replaced with standard deviation value. Additionally, the temperature uncertainty value was changed.