

# Certificate of Analysis

## ISO Guide 34 Reference Material

**Product Number:** IBF-1245  
**Lot Number:** CP-3834

**Lot Issue Date:** 05-Aug-2016  
**Expiration Date:** 30-Sep-2017

**Product Name:** Buffer, pH 12.45  $\pm$  0.02 @ 25°C (NIST Traceable), Reference Standard

### Description:

This Reference Material (RM) was prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA Scientific's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	True Value	Analytical Method
pH @ 25°C	12.44 $\pm$ 0.02 pH units	pH

**Solvent:** ASTM type 1 water

**Storage:** Store at room temperature (15-30°C)

### Traceability:

Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

### Estimation of Uncertainties:

The true value is reported, with its uncertainty value calculated at the 95% confidence level.

### Homogeneity:

This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

### Intended Use:

This RM is intended for the calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

### Instructions for Use:

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Each unit contains slightly more than the stated labeled volume to facilitate transfer of the material for testing.

### Hazards:

Refer to the Safety Data Sheet for information regarding this RM.

### Expiration of Certification:

The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

# Certificate of Analysis

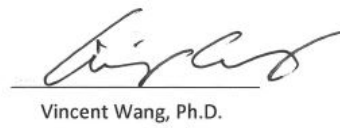
## ISO Guide 34 Reference Material

**Product Number:** IBF-1245  
**Lot Number:** CP-3834

**Lot Issue Date:** 05-Aug-2016  
**Expiration Date:** 30-Sep-2017

### **Maintenance of Certification:**

The long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes are noted that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

  
John Russo  
President  
Vincent Wang, Ph.D.  
Director of QA/RA