# Certificate of Analysis

## Waste Water Coliform MicrobE™

Lot No. P249-083
Expiration Date:[1] 05/2017

Catalog No. 083
Issue Date: February 18, 2016
Revision Date: Original

## Certification

| Parameter | Certified Value[2] | Uncertainity[3] | QC Performance Acceptance Limits™[4] | PT Performance Acceptance Limits™[5] |
|---|---|---|---|---|
| Sample - A (Membrane Filtration) | **CFU/100mL** | | **CFU/100mL** | **CFU/100mL** |
| Total Coliforms | 373 | -37%, +59%. | 163 - 854 | 149 - 931 |
| Fecal Coliforms | 140 | -29%, +41%. | 40 - 493 | 22 - 893 |
| E.coli | 219 | -32%, +47%. | 85 - 564 | 34 - 1420 |
| Sample - A (MPN) | **MPN/100mL** | | **MPN/100mL** | **MPN/100mL** |
| Total Coliforms | 487 | -30%, +43%. | 159 - 1490 | 114 - 2080 |
| Fecal Coliforms | 357 | -28%, +38%. | 102 - 1250 | 51.6 - 2470 |
| E.coli | 470 | -30%, +42%. | 235 - 940 | 164 - 1350 |
| Sample - B | **CFU/100mL** | | | |
| Total Coliforms | <1 | | | |
| Fecal Coliforms | <1 | | | |
| E.coli | <1 | | | |

## Analytical Verification

| Parameter | Certified Value | Proficiency Testing Study[6] Mean Recovery | % | n | Organism Identification[7] |
|---|---|---|---|---|---|
| Sample - A (Membrane Filtration) | **CFU/100mL** | **CFU/100mL** | | | |
| Total Coliforms | 373 | 373 | 100% | 24 | Escherichia coli, NCTC 9001 |
| Fecal Coliforms | 140 | 140 | 100% | 78 | Escherichia coli, NCTC 9001 |
| E.coli | 219 | 219 | 100% | 15 | Escherichia coli, NCTC 9001 |
| Sample - A (MPN) | **MPN/100mL** | **MPN/100mL** | | | |
| Total Coliforms | 487 | 487 | 100% | 53 | Escherichia coli, NCTC 9001 |
| Fecal Coliforms | 357 | 357 | 100% | 39 | Escherichia coli, NCTC 9001 |
| E.coli | 470 | 470 | 100% | 65 | Escherichia coli, NCTC 9001 |

1. The certified values are monitored and purchasers will be notified of any signifigant changes resulting in recertification or withdrawl of this certified reference material during the period of validity of this certificate.

2. The Certified Values for this sample are the mean reported concentrations for these analytes from ERA's proficiency testing study.

3. The stated uncertainty is the total propagated uncertainty at the 95% confidence interval. This is represented as a percentage above and below the certified value. This uncertainty is based on analytical verification of this product by ERA using common analytical methods for the quantitative evaluation of microbiological samples, multiplied by a coverage factor which is equal to the Student t factor at a 95% confidence interval at n-1 degrees of freedom. The uncertainty applies to the product as supplied and does not take into account optional dilutions and/or preparations the laboratory may perform while using this product.

4. The QC Performance Acceptance Limits (QC PALs™) are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALs™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALs™ to realistically evaluate your performance against your peers.

5. The PT Performance Acceptance Limits (PT PALs™) are calculated using the regression equations and fixed acceptance criteria specified in the USEPA National Standards Criteria Document and/or the NELAC proficiency testing requirements. Use the PT PALs™ when analyzing this QC standard alongside USEPA and NELAC compliant PT standards. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and, therefore, the acceptance limits of this QC standard and any PT standard may differ relative to their difference in concentrations.

6. The Analytical Verification data include the mean value, percent recovery and number of data points reported by the laboratories in our Proficiency Testing study compared to the Certified Values.

**CFU** = Colony Forming Units. **MPN** = Most Probable Number.

7. In order to assure identity and traceability, reference cultures used for these quality control samples come from a recognized national collection. These organisms meet all requirements specified in the NELAC proficiency testing requirements.

If you have any questions or need technical assistance, please call 1-800-372-0122 or email info@eraqc.com

Certifying Officer: Michael Blades

ACCREDITED

**REFERENCE MATERIAL PRODUCER**
**CERT # 1539.03**

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