Accredited Laboratory

A2LA has accredited

MICROBAC LABORATORIES, INC.
KNOXVILLE DIVISION

Maryville, TN

for technical competence in the field of

Environmental Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of A2LA *R206 - Specific Requirements - Environmental Testing Laboratory Accreditation Program*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 26th day of May 2017.

President and CEO
For the Accreditation Council
Certificate Number 3131.03
Valid to May 31, 2019

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

MICROBAC LABORATORIES, INC. – KNOXVILLE DIVISION
505 East Broadway Ave.
Maryville, TN 37804
LeAnne Burns Phone: 865 997 1200

ENVIRONMENTAL

Valid To: May 31, 2019 Certificate Number: 3131.03

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005 and the 2009 TNI Environmental Testing Laboratory Standard), accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies: Cold Vapor AA (CVAA), ICP, ICP/MS, Ion Chromatography, SmartChem Analyzer, and Skalar (Demands).

Parameter/Analyte	Potable Water	Nonpotable Water	Solid Hazardous Waste
Metals			
Aluminum	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Antimony	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Arsenic	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Barium	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Beryllium	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Boron	EPA 200.7	EPA 200.7	EPA 3051A EPA 6010C
Cadmium	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Calcium	EPA 200.7/200.8	EPA 200.7	EPA 3051A EPA 6010C
Chromium	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Chromium (III)	----------	Calculation	----------
Cobalt	----------	EPA 200.7/200.8	EPA 3051A EPA 6010C
Copper	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C

Parameter/Analyte	Potable Water	Nonpotable Water	Solid Hazardous Waste
Iron	EPA 200.7	EPA 200.7/200.8	EPA 3051A EPA 6010C
Lead	EPA 200.7/200.8	EPA 200.7 / 200.8	EPA 3051A EPA 6010C
Lithium	----------	EPA 200.7	----------
Magnesium	EPA 200.7	EPA 200.7	EPA 3051A EPA 6010C
Manganese	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Mercury	EPA 245.1	EPA 245.1	EPA 7471B
Molybdenum	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Nickel	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Potassium	EPA 200.7	EPA 200.7	EPA 3051A EPA 6010C
Selenium	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Silicon	EPA 200.7	EPA 200.7	EPA 3051A EPA 6010C
Silver	EPA 200.7/200.8	----------	EPA 3051A EPA 6010C
Sodium	EPA 200.7/200.8	EPA 200.7	EPA 3051A EPA 6010C
Strontium	----------	EPA 200.7	EPA 3051A EPA 6010C
Thallium	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Tin	----------	EPA 200.7/200.8	EPA 3051A EPA 6010C
Titanium	----------	EPA 200.7	EPA 3051A EPA 6010C
Uranium	EPA 200.8	EPA 200.8	----------
Vanadium	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Zinc	EPA 200.7/200.8	EPA 200.7/200.8	EPA 3051A EPA 6010C
Nutrients			
Ammonia (as N)	----------	EPA 350.1	----------
Kjeldahl Nitrogen	----------	SM 4500-Norg C	----------
Nitrate (as N)	----------	EPA 300.0	EPA 9056A
Nitrate-Nitrite (as N)	EPA 300.0	EPA 300.0	EPA 9056A
Nitrite (as N)	EPA 300.0	EPA 300.0	EPA 9056A
Organic Nitrogen	----------	Calculation	----------
Orthophosphate (as P)	EPA 300.0	EPA 300.0	EPA 9056A
Nitrogen, total	----------	Calculation	----------
Phosphorus, total	EPA 200.7	EPA 200.7	EPA 3051A EPA 6010C

Parameter/Analyte	Potable Water	Nonpotable Water	Solid Hazardous Waste
Demands			
Biochemical Oxygen Demand (BOD)	----------	SM 5210B	----------
Carbonaceous BOD	----------	SM 5210B	----------
Chemical Oxygen Demand (COD)	----------	HACH 8000	HACH 8000
Wet Chemistry			
Alkalinity	SM 2320B	SM 2320B	----------
Chloride	----------	----------	EPA 9056A
Chlorine (residual)	SM 4500-Cl G	HACH 8167	----------
Chromium VI	----------	SM 3500-Cr B	----------
Color	SM 2120B	SM 2120B	----------
Cyanide	EPA 335.4	EPA 335.4	----------
Filterable residue	SM 2540C	SM 2540C	----------
Fluoride	EPA 300.0	EPA 300.0	EPA 9056A
Hardness	SM 2340B	SM 2340B	SM 2340B
pH	SM 4500-H^+ B	EPA 9040B/9041A SM 4500-H^+ B	EPA 9045C
MBAS	SM 5540C	SM 5540C	----------
Nonfilterable residue	----------	SM 2540D	----------
Oil and Grease	----------	EPA 1664B	----------
Phenols	----------	EPA 420.4	----------
Settleable residue	----------	SM 2540F	----------
Specific Conductance	----------	EPA 120.1	----------
Sulfate	EPA 300.0	EPA 300.0	EPA 9056A
Total residue	----------	SM 2540B	----------
Turbidity	----------	EPA 180.1	----------
UV254	----------	- - - - - - - - - -	----------
Volatile residue	----------	SM 2540E	----------
Hazardous Waste Characteristics			
Ignitability	----------	----------	EPA 1010A
Paint Filter Liquids Test	----------	----------	EPA 9095A
Toxicity Characteristic Leaching Procedure	----------	----------	EPA 1311
Microbiology			
Acute *Ceriodaphnia dubia*	----------	EPA-821-R-02-012, 5th ed., 2002 Method 2002.0	----------
Acute *Pimephales promelas*	----------	EPA-821-R-02-012, 5th ed., 2002 Method 2000.0	----------
Coliforms, Fecal	----------	SM 9223 B-1997	----------

Parameter/Analyte	Potable Water	Nonpotable Water	Solid Hazardous Waste
Coliforms, Total and *Escherichia coli*	----------	SM 9223 B-1997	----------
Chronic *Ceriodaphnia dubia*	----------	EPA-821-R-02-013, 4th ed., 2002 Method 1002.0	----------
Chronic *Pimephales promelas*	----------	EPA 821-R-02-013 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th ed., Test Method 1000.0	----------