



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

BioTek Services, A Transcat Company
5310 South Laburnum Avenue
Henrico, VA 23231

Fulfills the requirements of

ISO/IEC 17025:2017

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 07 September 2023
Certificate Number: AC-2489.18



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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 April 2017).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

BioTek Services, A Transcat Company

5310 South Laburnum Avenue
Henrico, VA 23231
Lori Moore 804-222-5833

CALIBRATION

Valid to: **September 7, 2023**

Certificate Number: **AC-2489.18**

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Pipettes, Dilutors, Dispensers, Repeaters, Syringes ¹	(0.2 to 0.5) µL	20 nL	Analytical Balances, ASTM E617 Class 1 Weights; BTS-SOP-002
	(0.5 to 1) µL	40 nL	
	(1 to 2.5) µL	38 nL	
	(2.5 to 5) µL	39 nL	
	(5 to 10) µL	47 nL	
	(10 to 50) µL	49 nL	
	(50 to 100) µL	0.18 µL	
	(100 to 200) µL	0.24 µL	
	(200 to 500) µL	1.5 µL	
	(500 to 1 000) µL	1.7 µL	
	(1 000 to 2 500) µL	4.4 µL	
	(2 500 to 5 000) µL	8 µL	
	(5 000 to 10 000) µL	20 µL	
(10 000 to 50 000) µL	56 µL		
(50 000 to 100 000) µL	77 µL		
Balances ^{1,2}	Up to 500 mg	6 µg	Characterized ASTM E617 Class 1 weights and internal procedure BTS-SOP-003 utilized in the calibration of the weighing system.
	500 mg to 5 g	21 µg	
	(5 to 10) g	32 µg	
	(10 to 20) g	49 µg	
	20 g to 5 kg	0.000 19 % of reading	
	(5 to 10) kg	0.000 15 % of reading	
	(10 to 50) kg	0.000 12 % of reading	

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Bench Scales ^{1,2} Metric (SI)	50 g to 5 kg (5 to 10) kg (10 to 50 kg)	0.000 31 % of reading 0.000 26 % of reading 0.000 2 % of reading	ASTM E617 Class 1 weights, NIST Handbook 44, and internal procedure BTS-SOP-003 utilized in the calibration of the weighing system.
Avoirdupois	(0.1 to 11) lb (11 to 22) lb (22 to 50) lb	0.000 31 % of reading 0.000 26 % of reading 0.000 2 % of reading	
Floor Scales ^{1,2} Avoirdupois	(25 to 675) lb (675 to 750) lb (750 to 4 250) lb	0.012 % of reading 0.011 % of reading 0.01 % of reading	NIST Class F weights, NIST Handbook 44, and internal procedure BTS-SOP-003 utilized in the calibration of the weighing system.

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Temperature – Measure ¹	(-80 to -30) °C (-30 to 0) °C (0 to 125) °C (125 to 350) °C	0.07 °C 0.056 °C 0.057 °C 0.13 °C	Fluke 1529 Chub-E4 Thermometer Readout, Hart Scientific 5615 SPRT, Fluke 1560 Black Stack

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Centrifuge Rate of Rotation ¹	(500 to 2 200) rpm (2 200 to 5 000) rpm	4 rpm 8 rpm	Optical Tachometer
Stopwatches, Timers ¹	Up to 1 d	22 ms/d	Helmut Klein TM 4500 Timometer

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. The CMC for scales and balances is highly dependent upon the resolution of the unit under test. The CMC presented here does not include the resolution of the unit under test. The resolution will be included in the reported measurement uncertainty at the time of calibration.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-2489.18.



R. Douglas Leonard Jr., VP, PILR SBU

