

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200955-0

Thermo Fisher Scientific
Madison, WI

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*


Calibration Laboratories

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2017-10-01 through 2018-09-30

Effective Dates




For the National Voluntary Laboratory Accreditation Program



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 200955-0

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

<p>Thermo Fisher Scientific 5225 Verona Road, Building 1 Madison, WI 53711 Mr. Ron Christianson Phone: 608-276-5696 Fax: 608-276-6250 E-mail: ron.christianson@thermofisher.com</p>	<p>Fields of Calibration Optical Radiation</p>
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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
OPTICAL RADIATION			
PHOTOMETRIC (20/O02)			
Wavelength Measurement ^{Note 7} Fluid Holmium Cells	241.12 nm	0.30 nm	1.0 nm SBW
	249.89 nm	0.30 nm	
	278.13 nm	0.30 nm	
	287.22 nm	0.30 nm	
	333.48 nm	0.30 nm	
	345.38 nm	0.30 nm	
	361.25 nm	0.30 nm	
	385.61 nm	0.30 nm	
	416.25 nm	0.30 nm	
	467.82 nm	0.30 nm	
	485.23 nm	0.30 nm	
Wavelength Measurement ^{Note 7} Nominal Peak Locations Glass Holmium Filters	536.56 nm	0.30 nm	0.5 nm SBW
	640.50 nm	0.30 nm	
	279.00 nm	0.30 nm	
	287.00 nm	0.30 nm	
	334.00 nm	0.30 nm	
	361.00 nm	0.30 nm	
	419.00 nm	0.30 nm	
	454.00 nm	0.30 nm	
537.00 nm	0.30 nm		
	638.00 nm	0.50 nm	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Wavelength Measurement ^{Note 7} Nominal Peak Locations Glass Didymium Filters	279.00 nm	0.30 nm	1.0 nm SBW
	287.00 nm	0.30 nm	
	334.00 nm	0.30 nm	
	361.00 nm	0.30 nm	
	419.00 nm	0.30 nm	
	446.00 nm	0.30 nm	
	460.00 nm	0.30 nm	
	537.00 nm	0.30 nm	
	638.00 nm	0.50 nm	
	334.00 nm	0.30 nm	
	361.00 nm	0.30 nm	
	419.00 nm	0.30 nm	
	446.00 nm	0.30 nm	
	460.00 nm	0.30 nm	
	537.00 nm	0.30 nm	
	638.00 nm	0.50 nm	
	334.0 nm	1.0 nm	4.0 nm SBW
	361.0 nm	1.0 nm	
	419.0 nm	1.0 nm	
	446.0 nm	1.0 nm	
	460.0 nm	1.0 nm	
	537.0 nm	1.0 nm	
	638.0 nm	1.0 nm	
	573.00 nm	0.30 nm	0.5 nm SBW
	585.00 nm	0.30 nm	
	685.00 nm	0.50 nm	
	741.00 nm	0.50 nm	
	807.00 nm	0.50 nm	
473.00 nm	0.30 nm	1.0 nm SBW	
513.00 nm	0.30 nm		
529.00 nm	0.30 nm		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks	
Wavelength Measurement ^{Note 7} Nominal Peak Locations Spectronic Wavelength Filters	585.00 nm	0.30 nm	2.0 nm SBW	
	685.00 nm	0.30 nm		
	748.00 nm	0.30 nm		
	807.00 nm	0.30 nm		
	879.00 nm	0.30 nm		
	473.00 nm	0.30 nm		
	513.00 nm	0.30 nm		
	529.00 nm	0.30 nm		
	585.00 nm	0.30 nm		
	685.00 nm	0.30 nm		
	748.00 nm	0.30 nm		
	807.00 nm	0.30 nm		
	879.00 nm	0.30 nm		
	473.0 nm	1.0 nm		4.0 nm SBW
	513.0 nm	1.0 nm		
	529.0 nm	1.0 nm		
	585.0 nm	1.0 nm		
	685.0 nm	1.0 nm		
	748.0 nm	1.0 nm		
	807.0 nm	1.0 nm		
	879.0 nm	1.0 nm		
	400.00	0.50 nm	1.0 nm SBW	
	520.00	0.50 nm		
	780.00	0.50 nm		
400.00	0.50 nm	2.0 nm SBW		
520.00	0.50 nm			
780.00	0.50 nm			
400.0	1.0 nm	4.0 nm SBW		
520.0	1.0 nm			
780.0	1.0 nm			

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks		
Neutral Density Glass Filters Nominal Absorbance @ 546.1 nm	0.0380	0.0030	Traceable through NPL at 1.0 nm SBW		
	0.1350	0.0030			
	0.2200	0.0030			
	0.4800	0.0040			
	0.9300	0.0060			
	1.4000	0.0080			
	1.900	0.010			
	2.400	0.010			
	2.900	0.015			
Nominal Transmittance and Absorbance (At wavelength shown below)	Transmittance (absorbance)		Traceable through NIST SRM [®] 930 at 1.0 nm SBW		
	Transmittance (absorbance)				
	440 nm	0.3000 (0.5229)		0.0018 (0.0026)	
	465 nm	0.3000 (0.5229)		0.0018 (0.0026)	
	546.1 nm	0.3000 (0.5229)		0.0018 (0.0026)	
	590 nm	0.3000 (0.5229)		0.0018 (0.0026)	
	635 nm	0.3000 (0.5229)		0.0018 (0.0026)	
	440 nm	0.2000 (0.6990)		0.0012 (0.0026)	
	465 nm	0.2000 (0.6990)		0.0012 (0.0026)	
	546.1 nm	0.2000 (0.6990)		0.0012 (0.0026)	
	590 nm	0.2000 (0.6990)		0.0012 (0.0026)	
	635 nm	0.2000 (0.6990)		0.0012 (0.0026)	
	440 nm	0.1000 (1.0000)		0.00071 (0.0031)	
	465 nm	0.1000 (1.0000)		0.00071 (0.0031)	
	546.1 nm	0.1000 (1.0000)		0.00071 (0.0031)	
	590 nm	0.1000 (1.0000)		0.00071 (0.0031)	
	635 nm	0.1000 (1.0000)		0.00071 (0.0031)	
	440 nm	0.5000 (0.3010)		0.0030 (0.0026)	Traceable through NIST SRM [®] 1930 at 1.0 nm SBW
	465 nm	0.5000 (0.3010)		0.0030 (0.0026)	
	546.1 nm	0.5000 (0.3010)		0.0030 (0.0026)	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty <small>Note 3</small>	Remarks
590 nm	0.5000 (0.3010)	0.0030 (0.0026)	
635 nm	0.5000 (0.3010)	0.0030 (0.0026)	
440 nm	0.03000 (1.5229)	0.00048 (0.0070)	
465 nm	0.03000 (1.5229)	0.00048 (0.0070)	
546.1 nm	0.03000 (1.5229)	0.00048 (0.0070)	
590 nm	0.03000 (1.5229)	0.00048 (0.0070)	
635 nm	0.03000 (1.5229)	0.00048 (0.0070)	
440 nm	0.01000 (2.0000)	0.00025 (0.0110)	
465 nm	0.01000 (2.0000)	0.00025 (0.0110)	
546.1 nm	0.01000 (2.0000)	0.00025 (0.0110)	
590 nm	0.01000 (2.0000)	0.00025 (0.0110)	
635 nm	0.01000 (2.0000)	0.00025 (0.0110)	
Potassium Dichromate 60 mg/l in perchloric acid	Nominal Absorbance at 235, 257, 313, & 350 nm	0.0065	Traceable through NIST SRM [®] 2031 at 1.0 nm SBW
END			

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Notes

Note 1: A Calibration and Measurement Capability (CMC) is a description of the best result of a calibration or measurement (result with the smallest uncertainty of measurement) that is available to the laboratory's customers under normal conditions, when performing more or less routine calibrations of nearly ideal measurement standards or instruments. The CMC is described in the laboratory's scope of accreditation by: the measurement parameter/device being calibrated, the measurement range, the uncertainty associated with that range (see note 3), and remarks on additional parameters, if applicable.

Note 2: Calibration and Measurement Capabilities are traceable to the national measurement standards of the U.S. or to the national measurement standards of other countries and are thus traceable to the internationally accepted representation of the appropriate SI (Système International) unit.

Note 3: The uncertainty associated with a measurement in a CMC is an expanded uncertainty with a level of confidence of approximately 95 %, typically using a coverage factor of k = 2. However, laboratories may report a coverage factor different than k = 2 to achieve the 95 % level of confidence. Units for the measurand and its uncertainty are to match. Exceptions to this occur when marketplace practice employs mixed units, such as when the artifact to be measured is labeled in non-SI units and the uncertainty is given in SI units (Example: 5 lb weight with uncertainty given in mg).

Note 3a: The uncertainty of a specific calibration by the laboratory may be greater than the uncertainty in the CMC due to the condition and behavior of the customer's device and specific circumstances of the calibration. The uncertainties quoted do not include possible effects on the calibrated device of transportation, long term stability, or intended use.

Note 3b: As the CMC represents the best measurement results achievable under normal conditions, the accredited calibration laboratory shall not report smaller uncertainty of measurement than that given in a CMC for calibrations or measurements covered by that CMC.

Note 3c: As described in Note 1, CMCs cover calibrations and measurements that are available to the laboratory's customers under normal conditions. However, the laboratory may have the capability to offer special tests, employing special conditions, which yield calibration or measurement results with lower uncertainties. Such special tests are not covered by the CMCs and are outside the laboratory's scope of accreditation. In this case, NVLAP requirements for the labeling, on calibration reports, of results outside the laboratory's scope of accreditation apply. These requirements are set out in Annex A.1.h. of NIST Handbook 150, Procedures and General Requirements.

Note 4: Uncertainties associated with field service calibration may be greater as they incorporate on-site environmental contributions, transportation effects, or other factors that affect the measurements. (This note applies only if marked in the body of the scope.)

Note 5: Values listed with percent (%) are percent of reading or generated value unless otherwise noted.

Note 6: NVLAP accreditation is the formal recognition of specific calibration capabilities. Neither NVLAP nor NIST guarantee the accuracy of individual calibrations made by accredited laboratories.

Note 7: Traceability for all wavelength measurements established through atomic spectral lines of Mercury vapor discharge lamps.

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