CERTIFICATE OF ACCREDITATION

ANSI National Accreditation Board

11617 Coldwater Road, Fort Wayne, IN 46845 USA

This is to certify that

Heraeus Electro-Nite Co., LLC

541 S. Industrial Drive
Hartland, WI 53029

has been assessed by ANAB and meets the requirements of international standard

ISO/IEC 17025:2017

while demonstrating technical competence in the field of

CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of activities to which this accreditation applies

AC-1294
Certificate Number

ANAB Approval

Certificate Valid Through: 05/27/2020
Version No. 005 Issued: 03/29/2019

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).

ANSI National Accreditation Board

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Heraeus Electro-Nite Co., LLC

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CALIBRATION

Valid to: **May 27, 2020** Certificate Number: **AC-1294**

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage - Measure	Up to 1 V	6 µV	Agilent 34420A Multimeter
DC Voltage – Measure[1]	Up to 200 mV	0.13 mV	Checkmate IV CX Calibrator
DC Current - Measure	Up to 20 mA	1.7 µA	Fluke 753 Multifunction Calibrator
Electrical Simulation of Temperature Measuring Systems Type B	(1 800 to 3 050) °F IPTS 48 (1 800 to 3 050) °F IPTS 68 (2 450 to 3 050) °F ITS 90 (1 350 to 1 650) °C IPTS 48 (1 260 to 1 160) °C IPTS 68 (1 350 to 1 650) °C ITS 90	0.3 °F 0.3 °F 0.3 °F 0.2 °C 0.2 °C 0.2 °C	Omega HH41 Digital Thermometer, Agilent 34420A Multimeter
Electrical Simulation of Temperature Measuring Systems[1] Type B	(2 450 to 3 050) °F IPTS 48 (2 450 to 3 050) °F IPTS 68 (2 450 to 3 050) °F ITS 90 (1 350 to 1 650) °C IPTS 48 (1 350 to 1 650) °C IPTS 68 (1 350 to 1 650) °C ITS 90	3.3 °F 3.3 °F 3.3 °F 1.9 °C 1.9 °C 1.9 °C	Checkmate IV CX Simulator
Electrical Simulation of Temperature Measuring Systems Type K	(800 to 2 250) °F IPTS 48 (800 to 2 250) °F IPTS 68 (800 to 2 250) °F ITS 90 (450 to 1 225) °C IPTS 48 (450 to 1 225) °C IPTS 68 (450 to 1 225) °C ITS 90	2.5 °F 2.5 °F 2.5 °F 1.4 °C 1.4 °C 1.4 °C	Omega HH41 Digital Thermometer, Agilent 34420A Multimeter

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Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of Temperature Measuring Systems[1] Type K	(800 to 2 250) °F IPTS 48 (800 to 2 250) °F IPTS 68 (800 to 2 250) °F ITS 90 (450 to 1 225) °C IPTS 48 (450 to 1 225) °C IPTS 68 (450 to 1 225) °C ITS 90	2.8 °F 2.8 °F 2.8 °F 1.5 °C 1.5 °C 1.5 °C	Checkmate IV K Simulator
Electrical Simulation of Temperature Measuring Systems Type R	(2 450 to 3 050) °F IPTS 48 (2 450 to 3 050) °F IPTS 68 (2 450 to 3 050) °F ITS 90 (1 350 to 1 650) °C IPTS 48 (1 350 to 1 650) °C IPTS 68 (1 350 to 1 650) °C ITS 90	0.5 °F 0.5 °F 0.6 °F 0.3 °C 0.3 °C 0.3 °C	Omega HH41 Digital Thermometer, Agilent 34420A Multimeter
Electrical Simulation of Temperature Measuring Systems[1] Type R	(2 450 to 3 050) °F IPTS 48 (2 450 to 3 050) °F IPTS 68 (2 450 to 3 050) °F ITS 90 (1 350 to 1 650) °C IPTS 48 (1 350 to 1 650) °C IPTS 68 (1 350 to 1 650) °C ITS 90	3.1 °F 3.1 °F 3.1 °F 1.7 °C 1.7 °C 1.7 °C	Checkmate IV CX Simulator
Electrical Simulation of Temperature Measuring Systems Type S	(1 950 to 3 050) °F IPTS 48 (2 450 to 3 050) °F IPTS 68 (2 450 to 3 050) °F ITS 90 (1 260 to 1 650) °C IPTS 48 (1 350 to 1 650) °C IPTS 68 (1 350 to 1 650) °C ITS 90	0.6 °F 0.6 °F 0.6 °F 0.4 °C 0. 4 °C 0. 4 °C	Omega HH41 Digital Thermometer, Agilent 34420A Multimeter
Electrical Simulation of Temperature Measuring Systems[1] Type S	(2 450 to 3 050) °F IPTS 48 (2 450 to 3 050) °F IPTS 68 (2 450 to 3 050) °F ITS 90 (1 350 to 1 650) °C IPTS 48 (1 350 to 1 650) °C IPTS 68 (1 350 to 1 650) °C ITS 90	3.1 ° F 3.1 ° F 3.2 ° F 1.7 ° C 1.8 ° C 1.8 ° C	Checkmate IV CX Simulator

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. Calibration services are provided for equipment manufactured by Hereaus Electro-Nite only.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1294.

Vice President