



ISO/IEC 17025 and ANSI/NCSL Z540-1 accredited
The specialists in ASTM and laboratory thermometers & hydrometers
Members: ASTM API NCSLI ASQ NCWM

1501 Decker Avenue Suite 118 Stuart, FL 34994 USA
Tel: 772 286 7710 1-800-713-6647
Fax: 772 286 8737 E-mail: sales@icllabs.com
Internet: www.icllabs.com

Setting new standards in calibration excellence!

CALIBRATION REPORT FOR VOLUMETRIC GLASSWARE

Report No. U184794 Page 1 of 2 SO: 123456

THIS IS TO DOCUMENT THAT THE ARTIFACT DESCRIBED BELOW HAS BEEN EXAMINED AND TESTED IN ICL'S CALIBRATION LABORATORY IN ACCORDANCE WITH OUR ISO/IEC 17025 CALIBRATION PROCEDURE, WHICH IS BASED UPON ASTM E-542, 'STANDARD PRACTICE FOR CALIBRATION OF LABORATORY VOLUMETRIC APPARATUS', WITH RESULTS AS DETAILED BELOW. THIS CALIBRATION MEETS THE REQUIREMENTS OF ISO/IEC 17025, ANSI/NCSL Z540-1-1994, AND THE ISO 9000/QS 9000 SERIES OF QUALITY STANDARDS.

CUSTOMER INFORMATION:

SAMPLE CUSTOMER
STREET ADDRESS
CITY, STATE ZIP

PURCHASE ORDER NUMBER:

SUBMITTED BY: SAMPLE COMPANY

DATE RECEIVED FOR CALIBRATION: 04-13-2011

DATE REPORT ISSUED: 05-16-2011

DESCRIPTION OF ARTIFACT:

DESCRIPTION: VOLUMETRIC FLASK CAPACITY: 10mL

GRADUATIONS: SINGLE LINE AT INDICATED CAPACITY

SERIAL NO.: XXXXXX INSCRIPTION: PYREX

ENGINEERING UNITS: mL @ 20C GRADUATED TO CONTAIN

ICL CATALOG NO: NOT APPLICABLE - CLIENT'S ARTIFACT

THIS ARTIFACT IS MARKED 'CLASS A' CLASS A TOLERANCE: +/- 0.020 mL



RESULTS OF PHYSICAL EXAMINATION:

THIS ARTIFACT HAS BEEN EXAMINED UNDER A POLARIZED LENS AND STRAINS IN THE GLASS, IF ANY, WERE JUDGED TO BE MINIMAL AND OF NO DETRIMENT TO THE FUNCTION OF THE ARTIFACT.

THIS ARTIFACT IS IN ACCEPTABLE CONDITION, FREE OF CRACKS OR OBVIOUS DAMAGE, UNLESS OTHERWISE NOTED BELOW.

CALIBRATION PROCEDURE USED: ICL Procedure 03, which is based upon ASTM E542-01 (Reapproved 2007)

RESULTS OF CALIBRATION:

The volume(s) contained or delivered by this artifact cannot be adjusted or modified by ordinary means; accordingly, the values presented below should be considered to be both 'As Found' and 'As Left' values.

NOMINAL VOLUME	AS FOUND	CORRECTION	TOLERANCE	IN TOL?	UNCERTAINTY
10.000 mL	9.989 mL	+0.011 mL	0.020 mL	YES*	0.010 mL

THIS ARTIFACT COMPLIES WITH THE ACCURACY REQUIREMENTS FOR CLASS A GLASSWARE.

*DECISION RULE: Unless otherwise instructed, ICL uses the following decision rule: if indications are perceived to reside within the tolerance limits, the indications are considered as compliant; any indications perceived to reside outside the tolerance limits are considered to be non-compliant. The above declaration was made according to this rule. The user should be aware that although all of the indications of this artifact were perceived to reside within the tolerance limits, one or more of the indications were inside the tolerance limits by an amount smaller than the expanded ($k=2$) uncertainty of this measurement (shown in the data table).

*THE UNCERTAINTY GIVEN REPRESENTS THE EXPANDED UNCERTAINTY ($k=2$) AT APPROXIMATELY A 95% CONFIDENCE LEVEL.

ALL VOLUMES REFERRED TO IN THE REPORT ARE BASED UPON mL @20C, THE STANDARD VOLUMETRIC UNIT.

ALL TEMPERATURES IN THIS CALIBRATION REPORT ARE BASED ON THE INTERNATIONAL TEMPERATURE SCALE OF 1990 (ITS-90).

FOR A DISCUSSION OF ACCURACIES ATTAINABLE WITH VOLUMETRIC GLASSWARE, PLEASE SEE ASTM E542.

LABORATORY ENVIRONMENTAL CONDITIONS: ROOM TEMPERATURE: 23C +/- 2C RELATIVE HUMIDITY: 51%
ATMOSPHERIC PRESSURE: 766 MM, OR 30.2 INCHES OF MERCURY.

THIS TEST WAS PERFORMED USING LABORATORY GRADE DISTILLED WATER AT A TEMPERATURE OF 21.3C, CONVERTED MATHEMATICALLY TO MILLILITERS @20C USING EQUATION 1 OF ASTM E542-01.

MEASUREMENT UNCERTAINTY HAS BEEN CALCULATED IN ACCORDANCE WITH METHODS ELABORATED BY NIST TN-1297.

THE MEASUREMENT UNCERTAINTIES ($k = 2$) REPORTED DO NOT CONTAIN ESTIMATES FOR (1) ANY EFFECTS THAT MAY BE INTRODUCED BY TRANSPORTATION OF THE ARTIFACT BETWEEN ICL AND THE USER'S LABORATORY, (2) DRIFT OF THE ARTIFACT, (3) HYSTERESIS OF ITS INDICATION, OR (4) ANY MEASUREMENT UNCERTAINTIES INTRODUCED BY THE USER.

THIS CALIBRATION WAS PERFORMED BY: DEBORAH M. WEBER

THE CALIBRATION PERFORMED AND DOCUMENTED BY THIS CALIBRATION REPORT IS A FULL SCALE CALIBRATION AND NO LIMITATIONS OF USE ARE IMPOSED ON THIS ARTIFACT.

TRACEABILITY INFORMATION

THIS CALIBRATION IS TRACEABLE TO NIST THROUGH THE CALIBRATED DEVICES LISTED BELOW:

THIS TEST PROCEDURE WAS PERFORMED USING A METTLER AX-504, PR-1203, OR PB-3002 BALANCE (AS APPROPRIATE FOR THE VOLUMES TESTED). THESE BALANCES ARE SERVICED AND CALIBRATED ANNUALLY BY METTLER-TOLEDO. THE CORRECT FUNCTION OF THE BALANCE WAS VERIFIED IMMEDIATELY BEFORE THE TEST USING AN ASTM CLASS 1, NIST TRACEABLE CALIBRATED SET OF MASSES, S/N P742, CALIBRATED BY ICL CALIBRATION LABS, INC., WHICH IS ACCREDITED TO ISO/IEC 17025 FOR THE CALIBRATION OF MASS BY THE A2LA (Certificate 526.01).

THE THERMOMETER USED FOR WATER TEMPERATURE DETERMINATION IS SERIAL NO 306199.

IF ADDITIONAL INFORMATION REGARDING THIS CALIBRATION IS REQUIRED, PLEASE CONTACT THIS LABORATORY.

ICL CALIBRATION LABORATORIES, INC.

An ISO/IEC 17025 & ANSI/NCSL Z-540-1 accredited laboratory - American Association for Laboratory Accreditation Certificate #526.01

J. Jeff Kelly, Technical Director
Deborah M. Weber, Quality Deputy
Documentation prepared by: LORI PARR

Documentation reviewed by: KAREN MANGOLD

DATE REPORT ISSUED: 05-16-2011

NOTE: IF FROSTING (WHEN DRY) APPEARS ON THE GLASSWARE, THIS INDICATES THAT CHEMICAL ATTACK HAS OCCURRED AND THAT RECALIBRATION IS RECOMMENDED.

This calibration report may not be reproduced except in full without the express written permission of ICL Calibration Laboratories, Inc.

This report applies only to the item calibrated.

Report No. U184794 Page 2 of 2