



Breath Alcohol Calibration Verification Test No. 20-5691 Summary Report

Each sample pack consisted of four 34L certified reference material dry gas cylinders which participants were requested to analyze. Data were returned from 50 participants and are compiled into the following tables:

	<u>Page</u>
<u>Manufacturer's Information</u>	<u>2</u>
<u>Summary Comments</u>	<u>3</u>
<u>En Analysis Guide</u>	<u>4</u>
<u>Table 1: Reported Results</u>	<u>5</u>
<u>Graph 1: En Results</u>	<u>20</u>
<u>Table 2: Raw Data Adjustments</u>	<u>21</u>
<u>Table 3: Instrument Information</u>	<u>23</u>
<u>Table 4: Additional Comments</u>	<u>25</u>
<u>Appendix: Data Sheet</u>	
<u>Certificates of Analysis</u>	

This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample set consisted of four 34L certified reference material dry gas cylinders (Items 1-4). Participants were requested to analyze the contents of each cylinder and report the apparent breath alcohol concentration.

SAMPLE PREPARATION-

Each dry gas cylinder was compared to its corresponding Certificate of Analysis. After verifying the breath alcohol concentration with the lot number, the cylinder was labeled with the appropriate Item number.

SAMPLE SET ASSEMBLY: Each sample set was assembled with an Item 1, 2, 3 and 4 in a pre-labeled sample pack box.

<u>Item</u>	<u>Breath Alcohol Concentration</u> <u>(g/210L)</u>	<u>Manufacturer's Uncertainty</u> <u>(g/210L)</u>
1	0.200	± 0.0040
2	0.050	± 0.0020
3	0.080	± 0.0020
4	0.300	± 0.0060

The information presented here details how test samples were prepared as well as any design specifications. This information does not necessarily represent the answers that should or could be obtained from an examination of the sample(s). Final interpretation of the results should be deferred until the summary report is available.

Summary Comments

This test was designed to allow participants to assess their proficiency in the last calibration performed on their breath alcohol instrument. Each participant was supplied with a sample set consisting of four 34L certified reference material dry gas cylinders which contained different breath alcohol concentration (BrAC) values. (Refer to Manufacturer's Information for production details.)

En analysis was performed on reported results for each item. En is not calculated for labs who did not report their expanded uncertainty. Participants with "extreme" data (En absolute values greater than 1.00) have been marked with an "X". Please refer to the En Analysis Guide for more information on this statistical analysis. A total of 50 participants reported results; however, not all participants reported an expanded uncertainty for every item. The percentage of participants reporting their expanded uncertainty fluctuated between 64-70% depending on the item. A breakdown of the number of participants reporting "extreme" data per item based on En analysis is as follows: four for Item 1, two for Item 3, and four for Item 4. There was no "extreme" data reported for Item 2. Participants are advised to consider their reported expanded uncertainty when evaluating their En results. CTS uses a coverage factor equal to 2 in its analysis. At this time, the linearity of the results for each participant will not be analyzed utilizing regression statistics.

CTS noted many participants reported their instrument's serial numbers. For the sake of anonymity, CTS did not reproduce this information in the report.

En Analysis Guide

Normalized Error, or E_n , is used in proficiency testing in many other industries to judge the quality of measurement results. It measures the relationship of a participant's value to the reference value, relative to the combined uncertainties of those values. E_n is calculated as follows:

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Where the assigned value, X_{ref} , is determined in the manufacturer's reference laboratory, U_{ref} is the expanded uncertainty of X_{ref} , and U_{lab} is the Expanded Uncertainty of a participant's result, X_{lab} . E_n is not calculated for participants who did not report their Expanded Uncertainty.

Absolute values of E_n less than **1.00** should be obtained for the measurements to be acceptable. This is because there is a 95% probability that the calculated E_n will fall within an absolute value of 1.00. Any absolute values over 1.00 have been highlighted with an "X".

The following table and graph represent the results reported by participants.

X_{ref} and U_{ref} were determined by the dry gas cylinder manufacturer, which is ISO 17025 accredited.

Reported Results

As a verification of calibration, report the ethanol concentration of each cylinder and the uncertainty determined during the last calibration of the instrument.

TABLE 1 - Item 1

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 1 Manufacturer's Concentration: 0.200 g/210L

Item 1 Manufacturer's Uncertainty: 0.0040 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in En)	Performance Statistic (En1)
2XMWNM	IR	0.196	0.0130	1011.1 mBar	-0.29
3Q6NYQ	EC	0.205	0.0110	985	0.43
	IR	0.203	0.0106	985	0.26
3ZQR8P	Infrared (IR) Detector	0.195	0.0110	998 mB (Fisher Scientific [S/N])	-0.43
49FZ6L	Fuel Cell	0.197	0.0100	745 mm Hg	-0.28
4JYBED	IR	0.194		974 mb	
6QG2HJ	EC	0.197		1004	
	IR	0.199		1004	
8UMCMJ	IR	0.199	0.0090	1011 mBar	-0.10
A8NPWE	IR	0.201	0.0080	918 CF: 1.10	0.11
ABM9U8	Thermo electrically cooled lead selenide infrared.	0.200		1001 mbar	
B9CLYE	Fuel Cell	0.198	0.0050	751	-0.31
BPFF6D	Electrochemical Fuel Cell	0.199	0.0100	745 mmHg	-0.09
DXNTZE	EC	0.182	0.0098	1009	-1.70 X
	IR	0.189	0.0100	1009	-1.02 X
E3X7HD	IR	0.198	0.0100	970	-0.19
EFLBPA	IR	0.200	0.0080	921	0.00
FQHGF2	IR	0.197		975	

TABLE 1 - Item 1

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 1 Manufacturer's Concentration: 0.200 g/210L

Item 1 Manufacturer's Uncertainty: 0.0040 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _n)
GCXG38	IR	0.195	0.0130	1011.7 mBar	-0.37
GG8W9B	EC	0.204	0.0106	1003	0.35
	IR	0.200	0.0104	1003	0.00
GPHXUC	EC	0.180	0.0098	932	-1.89 X
	IR	0.189	0.0100	932	-1.02 X
H34PU7	IR	0.200	0.0440	901	0.00
HGMFT9	3.4 and 9.4 micrometer Dual-Wavelength Pyroelectric Detector	0.194	0.0360	764.31	-0.17
HJ96BZ	Thermo Electrically Cooled Selenide Lead infared	0.198		1001 mbar	
JPW488	Electro-Chemical Fuel Cell	0.199		940 mBar	
	Infra Red	0.198		940 mBar	
LNAC97	Infrared	0.201	0.0080	1001.8 mbar	0.11
LWLQQ3	Infrared	0.194	0.0070	855	-0.74
LXFGUV	Thermo Electrically Cooled Lead Selenide Infrared	0.201		1003 mbar	
M2FRQV	Thermo Electrically Cooled Lead Seleniod	0.200		1001 mbar	
M4KDH2	Fuel Cell	0.200	0.0050	758	0.00
MANJX6	EC	0.196	0.0104	1014	-0.36
	IR	0.199	0.0104	1014	-0.09
MUEVK4	EC	0.184	0.0098	977	-1.51 X
	IR	0.192	0.0100	977	-0.74
MUVRC4	Electrochemical Fuel cell	0.194	0.0080	756	-0.67

TABLE 1 - Item 1

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 1 Manufacturer's Concentration: 0.200 g/210L

Item 1 Manufacturer's Uncertainty: 0.0040 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _n)
MXU494	EC	0.207	0.0110	1008	0.60
	IR	0.200	0.0106	1008	0.00
PRF8GY	Infrared - pyroelectric	0.198		1004.6 hPa on instrument [S/N]	
PY4RLZ	IR	0.195		29.91	
Q7WJ8Y	IR	0.206		1013	
QRXHQR	infrared	0.197	0.0160	1008	-0.18
T2BGDY	EC	0.181	0.0098	1005	-1.80 X
	IR	0.186	0.0100	1005	-1.30 X
TEZDEW	Infrared	0.197	0.0040	985	-0.53
UAZNBU	EC (fuel cell)	0.200	0.0540	752.0 mm Hg	0.00
UJBQWV	Fuel Cell	0.198	0.0050	N/A - Instrument is programmed to adjust for barometric pressure automatically.	-0.31
UKLTHU	Fuel Cell	0.200	0.0060	738 mmHg	0.00
UNK4EU	IR	0.195		14.57	
UZY2JX	EC	0.203	0.0108	1015	0.26
	IR	0.198	0.0102	1015	-0.18
V4UEFL	Thermo Electrically Cooled Lead Selenide Infrared	0.199		1008 mbar	
WMJTWV	EC	0.200	0.0102	979	0.00
	IR	0.198	0.0102	979	-0.18

TABLE 1 - Item 1

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 1 Manufacturer's Concentration: 0.200 g/210L

Item 1 Manufacturer's Uncertainty: 0.0040 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _n)
XGEGBJ	Thermo electrically cooled lead selenide infrared.	0.202		999 mbar	
XWMM4U	EC	0.203	0.0106	1015	0.26
	IR	0.202	0.0104	1015	0.18
XZHEBQ	Electrochemical Fuel Cell	0.195	0.0100	740 mm Hg	-0.46
Y4LAVU	EC	0.208	0.0110	1008	0.68
	IR	0.207	0.0106	1008	0.62
Z7MWMN	Electrochemical sensor (fuel cel)	0.195	0.0120	995.6	-0.40
ZN37NP	IR	0.206		1012.2	

TABLE 1 - Item 2

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 2 Manufacturer's Concentration: 0.050 g/210L

Item 2 Manufacturer's Uncertainty: 0.0020 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _n 2)
2XMWNM	IR	0.050	0.0030	1011.1 mBar	0.00
3Q6NYQ	EC	0.053	0.0044	985	0.62
	IR	0.051	0.0044	985	0.21
3ZQR8P	Infrared (IR) Detector	0.049	0.0050	998 mB (Fisher Scientific [S/N])	-0.19
49FZ6L	Fuel Cell	0.049	0.0050	745 mm Hg	-0.19
4JYBED	IR	0.049		974 mb	
6QG2HJ	EC	0.049		1004	
	IR	0.050		1004	
8UMCMJ	IR	0.050	0.0020	1011 mBar	0.00
A8NPWE	IR	0.052		918 CF: 1.10	
ABM9U8	Thermo electrically cooled lead selenide infrared.	0.051		1001 mbar	
B9CLYE	Fuel Cell	0.050	0.0030	751	0.00
BPF6D	Electrochemical Fuel Cell	0.050	0.0050	745 mmHg	0.00
DXNTZE	EC	0.052	0.0046	1009	0.40
	IR	0.054	0.0046	1009	0.80
E3X7HD	IR	0.051	0.0050	970	0.19
EFLBPA	IR	0.051		921	
FQHGF2	IR	0.049		975	
GCXG38	IR	0.049	0.0040	1011.7 mBar	-0.22
GG8W9B	EC	0.052	0.0044	1003	0.41
	IR	0.050	0.0044	1003	0.00
GPHXUC	EC	0.047	0.0042	932	-0.64
	IR	0.048	0.0044	932	-0.41
H34PU7	IR	0.052	0.0440	901	0.05

TABLE 1 - Item 2

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 2 Manufacturer's Concentration: 0.050 g/210L

Item 2 Manufacturer's Uncertainty: 0.0020 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in En)	Performance Statistic (En2)
HGMFT9	3.4 and 9.4 micrometer Dual-Wavelength Pyroelectric Detector	0.048	0.0036	764.31	-0.49
HJ96BZ	Thermo Electrically Cooled Selenide Lead infrared	0.051		1001 mbar	
JPW488	Electro-Chemical Fuel Cell Infra Red	0.051 0.051		940 mBar 940 mBar	
LNAC97	Infrared	0.051	0.0080	1001.8 mbar	0.12
LWLQQ3	Infrared	0.049	0.0050	855	-0.19
LXFGUV	Thermo Electrically Cooled Lead Selenide Infrared	0.052		1003 mbar	
M2FRQV	Thermo Electrically Cooled Lead Seleniod	0.051		1001 mbar	
M4KDH2	Fuel Cell	0.050	0.0030	758	0.00
MANJX6	EC IR	0.050 0.050	0.0044 0.0044	1014 1014	0.00 0.00
MUEVK4	EC IR	0.051 0.051	0.0044 0.0044	977 977	0.21 0.21
MUVRC4	Electrochemical Fuel cell	0.048	0.0030	756	-0.55
MXU494	EC IR	0.051 0.050	0.0044 0.0044	1008 1008	0.21 0.00
PRF8GY	Infrared - pyroelectric	0.053		1004.6 hPA on instrument [S/N]	
PY4RLZ	IR	0.050		29.91	
Q7WJ8Y	IR	0.051		1013	
QRXHQR	infrared	0.052	0.0070	1008	0.27
T2BGDY	EC IR	0.048 0.049	0.0044 0.0044	1005 1005	-0.41 -0.21

TABLE 1 - Item 2

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
 Xref: Manufacturer's concentration
 Ulab: Participant's uncertainty
 Uref: Manufacturer's uncertainty

Item 2 Manufacturer's Concentration: 0.050 g/210L

Item 2 Manufacturer's Uncertainty: 0.0020 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in En)	Performance Statistic (En2)
TEZDEW	Infrared	0.050	0.0020	985	0.00
UAZNBU	EC (fuel cell)	0.048	0.0050	752.0 mm Hg	-0.37
UJBQWW	Fuel Cell	0.049	0.0030	N/A - Instrument is programmed to adjust for barometric pressure automatically.	-0.28
UKLTHU	Fuel Cell	0.050	0.0030	738 mmHg	0.00
UNK4EU	IR	0.050		14.57	
UZY2JX	EC	0.052	0.0044	1015	0.41
	IR	0.050	0.0044	1015	0.00
V4UEFL	Thermo Electrically Cooled Lead Selenide Infrared	0.051		1008 mbar	
WMJTVW	EC	0.051	0.0044	979	0.21
	IR	0.050	0.0044	979	0.00
XGEGBJ	Thermo electrically cooled lead selenide infrared.	0.052		999 mbar	
XWMM4U	EC	0.051	0.0044	1015	0.21
	IR	0.050	0.0044	1015	0.00
XZHEBQ	Electrochemical Fuel Cell	0.048	0.0050	740 mm Hg	-0.37
Y4LAVU	EC	0.052	0.0044	1008	0.41
	IR	0.051	0.0044	1008	0.21
Z7MWMN	Electrochemical sensor (fuel cel)	0.050	0.0050	995.6	0.00
ZN37NP	IR	0.051		1012.2	

TABLE 1 - Item 3

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 3 Manufacturer's Concentration: 0.080 g/210L

Item 3 Manufacturer's Uncertainty: 0.0020 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _{n3})
2XMWNM	IR	0.078	0.0030	1011.1 mBar	-0.55
3Q6NYQ	EC	0.082	0.0058	985	0.33
	IR	0.081	0.0058	985	0.16
3ZQR8P	Infrared (IR) Detector	0.079	0.0060	998 mB (Fisher Scientific [S/N])	-0.16
49FZ6L	Fuel Cell	0.079	0.0050	745 mm Hg	-0.19
4JYBED	IR	0.078		974 mb	
6QG2HJ	EC	0.078		1004	
	IR	0.079		1004	
8UMCMJ	IR	0.079	0.0040	1011 mBar	-0.22
A8NPWE	IR	0.081	0.0050	918 CF: 1.10	0.19
ABM9U8	Thermo electrically cooled lead selenide infrared.	0.081		1001 mbar	
B9CLYE	Fuel Cell	0.078	0.0030	751	-0.55
BPF6D	Electrochemical Fuel Cell	0.080	0.0050	745 mmHg	0.00
DXNTZE	EC	0.076	0.0056	1009	-0.67
	IR	0.079	0.0056	1009	-0.17
E3X7HD	IR	0.079	0.0050	970	-0.19
EFLBPA	IR	0.081	0.0050	921	0.19
FQHGF2	IR	0.078		975	
GCXG38	IR	0.078	0.0040	1011.7 mBar	-0.45

TABLE 1 - Item 3

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 3 Manufacturer's Concentration: 0.080 g/210L

Item 3 Manufacturer's Uncertainty: 0.0020 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in En)	Performance Statistic (En3)
GG8W9B	EC	0.082	0.0056	1003	0.34
	IR	0.080	0.0056	1003	0.00
GPHXUC	EC	0.073	0.0054	932	-1.22 X
	IR	0.077	0.0056	932	-0.50
H34PU7	IR	0.081	0.0440	901	0.02
HGMFT9	3.4 and 9.4 micrometer Dual-Wavelength Pyroelectric Detector	0.077	0.0036	764.31	-0.73
HJ96BZ	Thermo Electrically Cooled Selenide Lead infrared	0.080		1001 mbar	
JPW488	Electro-Chemical Fuel Cell	0.080		940 mBar	
	Infra Red	0.079		940 mBar	
LNAC97	Infrared	0.081	0.0080	1001.8 mbar	0.12
LWLQQ3	Infrared	0.078	0.0030	855	-0.55
LXFGUV	Thermo Electrically Cooled Lead Selenide Infrared	0.082		1003 mbar	
M2FRQV	Thermo Electrically Cooled Lead Seleniod	0.080		1001 mbar	
M4KDH2	Fuel Cell	0.080	0.0030	758	0.00
MANJX6	EC	0.078	0.0056	1014	-0.34
	IR	0.079	0.0056	1014	-0.17
MUEVK4	EC	0.077	0.0056	977	-0.50
	IR	0.078	0.0056	977	-0.34
MUVRC4	Electrochemical Fuel cell	0.078	0.0030	756	-0.55

TABLE 1 - Item 3

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 3 Manufacturer's Concentration: 0.080 g/210L

Item 3 Manufacturer's Uncertainty: 0.0020 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in En)	Performance Statistic (En3)
MXU494	EC	0.082	0.0056	1008	0.34
	IR	0.080	0.0056	1008	0.00
PRF8GY	Infrared - pyroelectric	0.082		1004.6 hPa on instrument [S/N]	
PY4RLZ	IR	0.078		29.91	
Q7WJ8Y	IR	0.082		1013	
QRXHQR	infrared	0.081	0.0070	1008	0.14
T2BGDY	EC	0.074	0.0054	1005	-1.04 X
	IR	0.076	0.0056	1005	-0.67
TEZDEW	Infrared	0.080	0.0020	985	0.00
UAZNBU	EC (fuel cell)	0.078	0.0050	752.0 mm Hg	-0.37
UJBQWW	Fuel Cell	0.079	0.0030	N/A - Instrument is programmed to adjust for barometric pressure automatically.	-0.28
UKLTHU	Fuel Cell	0.080	0.0030	738 mmHg	0.00
UNK4EU	IR	0.077		14.57	
UZY2JX	EC	0.082	0.0056	1015	0.34
	IR	0.079	0.0056	1015	-0.17
V4UEFL	Thermo Electrically Cooled Lead Selenide Infrared	0.081		1008 mbar	
WMJTWV	EC	0.080	0.0054	979	0.00
	IR	0.079	0.0054	979	-0.17

TABLE 1 - Item 3

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 3 Manufacturer's Concentration: 0.080 g/210L

Item 3 Manufacturer's Uncertainty: 0.0020 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in En)	Performance Statistic (En3)
XGEGBJ	Thermo electrically cooled lead selenide infrared.	0.082		999 mbar	
XWMM4U	EC	0.080	0.0056	1015	0.00
	IR	0.080	0.0056	1015	0.00
XZHEBQ	Electrochemical Fuel Cell	0.077	0.0050	740 mm Hg	-0.56
Y4LAVU	EC	0.083	0.0056	1008	0.50
	IR	0.082	0.0056	1008	0.34
Z7MWMN	Electrochemical sensor (fuel cel)	0.079	0.0050	995.6	-0.19
ZN37NP	IR	0.081		1012.2	

TABLE 1 - Item 4

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 4 Manufacturer's Concentration: 0.300 g/210L

Item 4 Manufacturer's Uncertainty: 0.0060 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _{n4})
2XMWNM	IR	0.293	0.0130	1011.1 mBar	-0.49
3Q6NYQ	EC	0.306	0.0152	985	0.37
	IR	0.305	0.0148	985	0.31
3ZQR8P	Infrared (IR) Detector	0.293	0.0110	998 mB (Fisher Scientific [S/N])	-0.56
49FZ6L	Fuel Cell	0.294	0.0150	745 mm Hg	-0.37
4JYBED	IR	0.292		974 mb	
6QG2HJ	EC	0.295		1004	
	IR	0.299		1004	
8UMCMJ	IR	0.301	0.0140	1011 mBar	0.07
A8NPWE	IR	0.302	0.0120	918 CF: 1.10	0.15
ABM9U8	Thermo electrically cooled lead selenide infrared.	0.301		1001 mbar	
B9CLYE	Fuel Cell	0.296	0.0050	751	-0.51
BPF6D	Electrochemical Fuel Cell	0.298	0.0150	745 mmHg	-0.12
DXNTZE	EC	0.268	0.0136	1009	-2.15 X
	IR	0.280	0.0138	1009	-1.33 X
E3X7HD	IR	0.296	0.0150	970	-0.25
EFLBPA	IR	0.301	0.0120	921	0.07
FQHGF2	IR	0.298		975	
GCXG38	IR	0.294	0.0130	1011.7 mBar	-0.42

TABLE 1 - Item 4

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 4 Manufacturer's Concentration: 0.300 g/210L

Item 4 Manufacturer's Uncertainty: 0.0060 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _n)
GG8W9B	EC	0.301	0.0144	1003	0.06
	IR	0.301	0.0144	1003	0.06
GPHXUC	EC	0.269	0.0136	932	-2.09 X
	IR	0.287	0.0142	932	-0.84
H34PU7	IR	0.300	0.0440	901	0.00
HGMFT9	3.4 and 9.4 micrometer Dual-Wavelength Pyroelectric Detector	0.292	0.0360	764.31	-0.22
HJ96BZ	Thermo Electrically Cooled Selenide Lead infrared	0.297		1001 mbar	
JPW488	Electro-Chemical Fuel Cell	0.298		940 mBar	
	Infra Red	0.296		940 mBar	
LNAC97	Infrared	0.303	0.0080	1001.8 mbar	0.30
LWLQQ3	Infrared	0.292	0.0100	855	-0.69
LXFGUV	Thermo Electrically Cooled Lead Selenide Infrared	0.299		1003 mbar	
M2FRQV	Thermo Electrically Cooled Lead Seleniod	0.299		1001 mbar	
M4KDH2	Fuel Cell	0.299	0.0050	758	-0.13
MANJX6	EC	0.291	0.0144	1014	-0.58
	IR	0.298	0.0146	1014	-0.13
MUEVK4	EC	0.275	0.0138	977	-1.66 X
	IR	0.289	0.0140	977	-0.72
MUVRC4	Electrochemical Fuel cell	0.290	0.0130	756	-0.70

TABLE 1 - Item 4

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 4 Manufacturer's Concentration: 0.300 g/210L

Item 4 Manufacturer's Uncertainty: 0.0060 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _n 4)
MXU494	EC	0.306	0.0150	1008	0.37
	IR	0.301	0.0148	1008	0.06
PRF8GY	Infrared - pyroelectric	0.298		1004.6 hPa on instrument [S/N]	
PY4RLZ	IR	0.293		29.91	
Q7WJ8Y	IR	0.308		1013	
QRXHQR	infrared	0.298	0.0240	1008	-0.08
T2BGDY	EC	0.270	0.0136	1005	-2.02 X
	IR	0.281	0.0138	1005	-1.26 X
TEZDEW	Infrared	0.295	0.0070	985	-0.54
UAZNBU	EC (fuel cell)	0.302	0.0540	752.0 mm Hg	0.04
UJBQWV	Fuel Cell	0.305	0.0050	N/A - Instrument is programmed to adjust for barometric pressure automatically.	0.64
UKLTHU	Fuel Cell	0.300	0.0060	738 mmHg	0.00
UNK4EU	IR	0.294		14.57	
UZY2JX	EC	0.300	0.0148	1015	0.00
	IR	0.298	0.0144	1015	-0.13
V4UEFL	Thermo Electrically Cooled Lead Selenide Infrared	0.299		1008 mbar	
WMJTVW	EC	0.296	0.0142	979	-0.26
	IR	0.299	0.0144	979	-0.06

TABLE 1 - Item 4

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

X_{lab}: Participant's concentration
 X_{ref}: Manufacturer's concentration
 U_{lab}: Participant's uncertainty
 U_{ref}: Manufacturer's uncertainty

Item 4 Manufacturer's Concentration: 0.300 g/210L

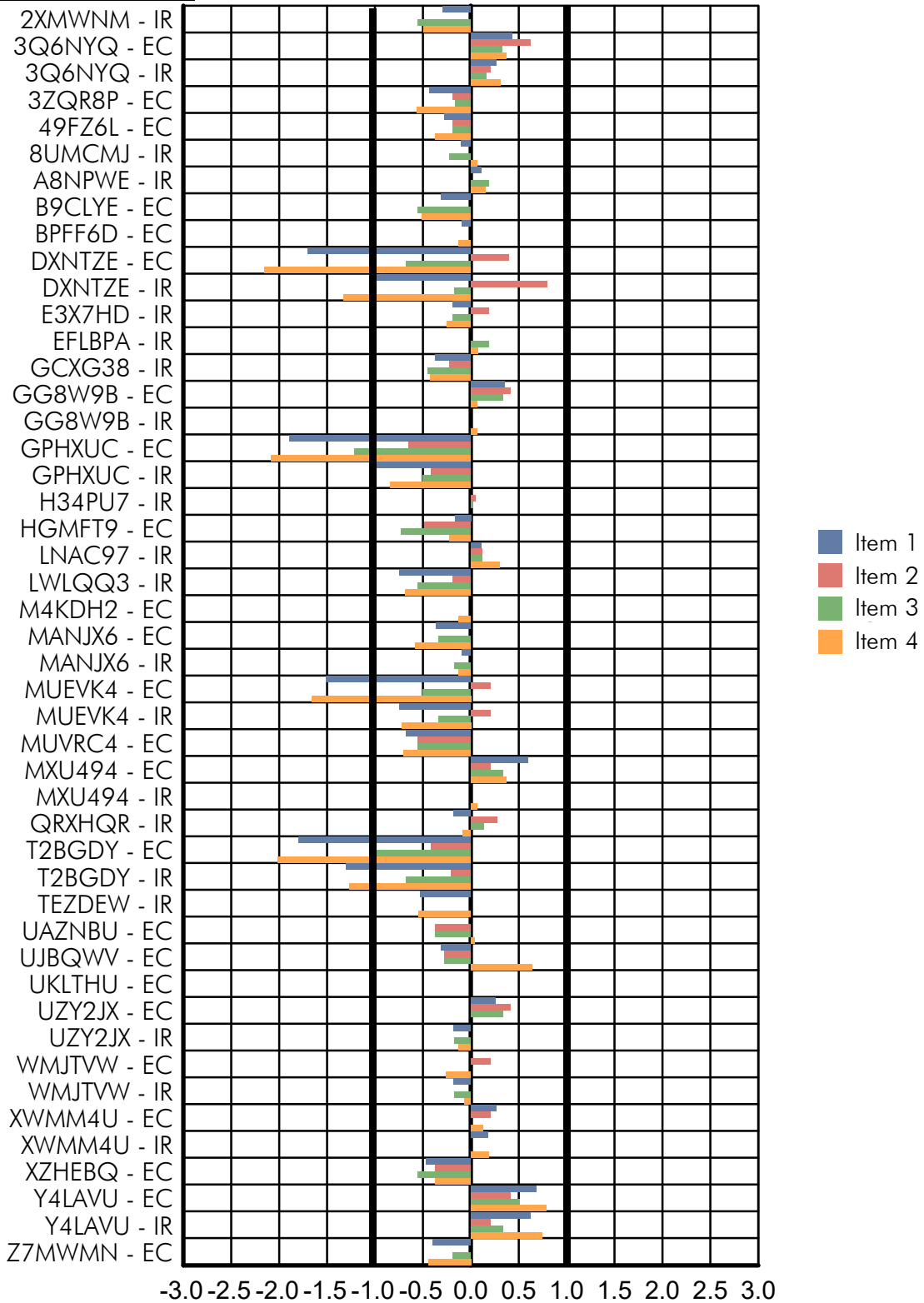
Item 4 Manufacturer's Uncertainty: 0.0060 g/210L

WebCode	Detector Type	Concentration (g/210L)	Uncertainty k=2 (g/210L)	Barometric Pressure (not used in E _n)	Performance Statistic (E _{n4})
XGEGBJ	Thermo electrically cooled lead selenide infrared.	0.301		999 mbar	
XWMM4U	EC	0.302	0.0146	1015	0.13
	IR	0.303	0.0146	1015	0.19
XZHEBQ	Electrochemical Fuel Cell	0.294	0.0150	740 mm Hg	-0.37
Y4LAVU	EC	0.313	0.0154	1008	0.79
	IR	0.312	0.0150	1008	0.74
Z7MWMN	Electrochemical sensor (fuel cel)	0.289	0.0240	995.6	-0.44
ZN37NP	IR	0.311		1012.2	

En Results

Graph 1

WebCode - Detector



Raw Data Adjustments

TABLE 2

List the type and amount of any adjustments made on the raw data to produce the reported concentration, such as for barometric pressure, the wet/dry offset, etc.

WebCode	Raw Data Adjustments
2XMWNM	Instrument automatically compensates for these
3ZQR8P	None. Instrument has built-in pressure sensor.
49FZ6L	I adjusted the corrected result produced by the instrument for barometric pressure and the wet/dry offset by multiplying it by "(760/745) x 1.045" to get the reading in g/210L, uncorrected.
6QG2HJ	none
8UMCMJ	none
A8NPWE	None
ABM9U8	Barometric pressure. The Data Master DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
B9CLYE	Raw data adjusted for wet/dry offset (+4.5%) and normalized to sea level (760/xxx*760mmHg)
BPF6D	The raw result is normalized to atmospheric pressure dividing 760 mmHg by the average raw atmospheric pressure of 745 mmHg. The result is also corrected by multiplying the resulting normalized atmospheric pressure result by 1.045.
GCXG38	N/A - Instrument Auto-Compensates
H34PU7	Barometric pressure correction factor is 1.12
HJ96BZ	Barometric Pressure. The Datamaster DMT is equipped with a barometric sensor. The target value is adjusted based on site specific reading of barometric pressure
JPW488	Breath Tube Adsorption 3%, Calgas Inlet Drygas 2%, IR Slope Multiplier 15382, EC Drygas Offset 9%, EC Quadratic Correction Factor 9, Cal Factor EC 1136, Cal Factor IR 925
LWLQQ3	No adjustment conducted
LXFGUV	Barometric pressure. The DataMaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
M2FRQV	Barometric pressure. The DataMaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
M4KDH2	Raw data adjusted for wet/dry offset (+4.5%) and normalized to sea level (760/758 * 760mmHg).
MUVRC4	The raw data is normalized to 760 mmHg and corrected with a factor of 4.5% to account for the wet/dry offset.
TEZDEW	normalized value = analyzed value/barometric pressure*1013
UAZNBU	All adjustments were calculated by the software programmed in the instrument itself.
UJBQWW	4.5% wet/dry offset for dry gas tanks is built into the instrument software. Instrument has barometer on board.

TABLE 2

WebCode	Raw Data Adjustments
UKLTHU	+4% correction factor for dry gas standard, Barometric pressure correction (760mmHg/lab barometric pressure)
V4UEFL	Barometric pressure. The DataMaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
XGEGBJ	Barometric pressure. The DataMaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
XZHEBQ	The mean of two raw data measurements is calculated. From this, the reported result is normalized for pressure and wet/dry offset. The following equation is used: Reported Result = mean result X (760/pressure reading) X 1.045
Z7MWMN	An adjustment was not performed because the instrument has a built-in pressure transducer. The pressure transducer automatically corrects for the altitude and applies the dry/wet offset for the selected dry gas standard.

Instrument Information

TABLE 3

WebCode	Instrument used	Detector type
2XMWNM	Intoxilyzer 8000	IR
3Q6NYQ	Draeger Alcotest 9510 [S/N]	EC
	Draeger Alcotest 9510 [S/N]	IR
3ZQR8P	Draeger Alcotest 7110 MK III-C	Infrared (IR) Detector
49FZ6L	Intox EC/IR II	Fuel Cell
4JYBED	Intoxilyzer 8000	IR
6QG2HJ	Draeger Alcotest 9510	EC
	Draeger Alcotest 9510	IR
8UMCMJ	Draeger 9510	IR
A8NPWE	Intoxilyzer 8000 [S/N]	IR
ABM9U8	Data Master DMT [S/N]	Thermo electrically cooled lead selenide infrared.
B9CLYE	Intox EC/IR II	Fuel Cell
BPF6D	Intoximeters, Intox EC/IR II	Electrochemical Fuel Cell
DXNTZE	[S/N]	EC
	[S/N]	IR
E3X7HD	Intoxilyzer	IR
EFLBPA	Intoxilyzer 8000	IR
FQHGF2	CMI Intoxilyzer 8000 [S/N]	IR
GCXG38	Intoxilyzer 8000	IR
GG8W9B	[S/N]	EC
	[S/N]	IR
GPHXUC	[S/N]	EC
	[S/N]	IR
H34PU7	Intoxilyzer 8000 [S/N]	IR
HGMFT9	Intoxilyzer 8000 [S/N]	3.4 and 9.4 micrometer Dual-Wavelength Pyroelectric Detector
HJ96BZ	Datamaster DMT [S/N]	Thermo Electrically Cooled Selenide Lead infrared
JPW488	Draeger Alcotest 9510	Electro-Chemical Fuel Cell
	Draeger Alcotest 9510	Infra Red
LNAC97	Intoxilyzer 9000	Infrared
LWLQQ3	Intoxilyzer 8000	Infrared
LXFGUV	DataMaster DMt [S/N]	Thermo Electrically Cooled Lead Selenide Infrared
M2FRQV	[S/N]	Thermo Electrically Cooled Lead Seleniod
M4KDH2	Intox ECIR II	Fuel Cell

TABLE 3

WebCode	Instrument used	Detector type
MANJX6	Draeger Alcotest 9510 [S/N]	EC
	Draeger Alcotest 9510 [S/N]	IR
MUEVK4	[S/N]	EC
	[S/N]	IR
MUVRC4	Intoximeter EC/IR II	Electrochemical Fuel cell
MXU494	[S/N]	EC
	[S/N]	IR
PRF8GY	Intoxilyzer 9000 [S/N]	Infrared - pyroelectric
PY4RLZ	Draeger Alcotest 7110 MKIII-C [S/N]	IR
Q7WJ8Y	Alcotest 9510 [S/N]	IR
QRXHQR	Intoxilyzer 8000	infrared
T2BGDY	Draeger Alcotest 9510 [S/N]	EC
	Draeger Alcotest 9510 [S/N]	IR
TEZDEW	DataMaster DMT-G with fuel cell option Serial #: [S/N]	Infrared
UAZNBU	ASV-XL	EC (fuel cell)
UJBQWV	Intoximeters Alco-Sensor V-XL	Fuel Cell
UKLTHU	ECIR II (Intoximeters, Inc.) serial number [S/N]	Fuel Cell
UNK4EU	Intoxilyzer 8000	IR
UZY2JX	Draeger Alcotest 9510 [S/N]	EC
	Draeger Alcotest 9510 [S/N]	IR
V4UEFL	DataMaster DMT [S/N]	Thermo Electrically Cooled Lead Selenide Infrared
WMJTWV	[S/N]	EC
	[S/N]	IR
XGEGBJ	DataMaster DMT [S/N]	Thermo electrically cooled lead selenide infrared.
XWMM4U	[S/N]	EC
	[S/N]	IR
XZHEBQ	Intoximeters Intox EC/IR II	Electrochemical Fuel Cell
Y4LAVU	[S/N]	EC
	[S/N]	IR
Z7MWMN	Dräger A7510: [S/N]	Electrochemical sensor (fuel cel)
ZN37NP	Alcotest 9510 [S/N]	IR

Additional Comments

TABLE 4

WebCode	Additional Comments
3ZQR8P	Instrument is capable of reporting infrared and electrochemical fuel cell results. Only infrared (IR) results are used for calibrations. Expanded uncertainty coverage factor used is 4.09.
6QG2HJ	This laboratory has not determined the uncertainty of measurement associated with calibration.
A8NPWE	Uncertainty is only established at levels used for calibration (0.040, 0.080, 0.200, and 0.300). Uncertainty will only be reported for those levels, and is reported with a K value of 3.1.
ABM9U8	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument applying it to calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration and hence not reported for the items.
BPF6D	The estimated uncertainty of measurement for $k=2$ is 5.0% or 0.005, whichever is greater.
EFLBPA	Measurement uncertainty is only calculated for specific calibration levels. The measurement uncertainty is not provided for concentrations not included in the current calibration procedure. Measurement uncertainty calculated using coverage factor of $k=3.1$. The uncertainty reported given as such.
FQHGF2	Currently, our laboratory is not calculating an uncertainty for this analysis. Also, the gas cylinders received listed the manufacturer with the lot number of each tank.
HJ96BZ	Each item was analyzed three times. The average value of the three analysis for each item was reported to three decimal places (reported concentration). The Laboratory only calculates expanded uncertainty for the calibration of the instrument applying it to calibration measurement during the certification process. Uncertainty is not calibrated for the verification of calibration and hence not reported for the items.
JPW488	Uncertainty of Measurement values (K-2) were not reported for this test as they are currently in process of being evaluated and measured for this instrument calibration process and not yet determined at K-2. The instrument reported SD of +/- 0.00127 (IR) and 0.00066 (EC) as one of the measured values.
LXFGUV	Each item was analyzed three times. The average value of the three analyses for each item was reported to the three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to calibration measurements during the certification process. uncertainty is not calculated for the verification of calibration, and hence not reported for the items.
M2FRQV	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to the calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration, and hence not reported for the items.
MUVRC4	Laboratory certificate of instrument accuracy is issued with an expanded uncertainty using a coverage factor of $K=3$. The uncertainty of measurement is calculated for the certification process. Four concentrations of dry gas standards are used to certify the instrument accuracy and the uncertainty of measurement is calculated for these concentrations. The uncertainty provided with reported concentration was determined using a coverage factor of $K=2$.

TABLE 4

WebCode	Additional Comments
PRF8GY	Barometric Pressure as recorded from Druck Pressure Monitor #1 = 1006.9 hPA. Uncertainty is not applied to individual results but is estimated on historical data for each calibration level. Expanded uncertainty is reported on our calibration certificate as follows: Reference material: 0.050 +/- 0.005 g/210L, 0.100 +/- 0.005 g/210L, 0.200 +/- 0.009 g/210L, 0.300 +/- 0.014 g/210L
QRXHQR	The Uncertainty of Measurement reported in Question 2 is not from the calibration of the instrument, but of the testing procedure itself.
TEZDEW	The uncertainty provided is based on the closest uncertainty value obtained during DMT calibrations.
UKLTHU	Item #1 lot number: 15320001A1 exp 8/5/2022, Item #2 lot number: 15320002A2 exp 8/5/2022, Item #3 lot number: 15320003A3 exp 8/5/2022, Item #4 lot number: 15320004A4 exp 8/5/2022
V4UEFL	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration, and hence not reported for the items.
XGEGBJ	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration, and hence not reported for the items.
XZHEBQ	The estimated uncertainty of measurement at k=2 coverage is 5.0% or 0.005, whichever is greater.

-End of Report-
(Appendix may follow)

Test No. 20-5691: Breath Alcohol Calibration Verification

DATA MUST BE SUBMITTED BY **Sept. 21, 2020, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234F

WebCode: LCE4LX

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Items Submitted (Sample Pack BRC):

Items 1-4: 34L certified reference material dry gas cylinders

1.) Detector type:

If additional detectors used, click the "Add Detector" link below.

2.) As a verification of calibration, report the ethanol concentration of each cylinder and the expanded uncertainty determined during the last calibration of the instrument. Results should be reported to three decimal places in g/210L and use a coverage factor of 2 for expanded uncertainty.

	Reported Concentration (g/210L)	Uncertainty (k=2)
--	---------------------------------	-------------------

Item 1:	<input type="text"/>	± <input type="text"/>
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Item 2:	<input type="text"/>	± <input type="text"/>
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Item 3:	<input type="text"/>	± <input type="text"/>
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Item 4:	<input type="text"/>	± <input type="text"/>
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Please note that it is the responsibility of the laboratory to normalize for barometric pressure and the wet/dry offset (if applicable).

3.) Instrument used:

4.) Barometric Pressure

5) List the type and amount of any adjustments made on the raw data to produce the reported concentration, such as for barometric pressure, the wet/dry offset etc.

6.) Additional Comments

Please note: Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

- This participant's data is intended for submission to ASCLD/LAB, ANAB, and/or A2LA. (Accreditation Release section below must be completed.)
- This participant's data is **not** intended for submission to ASCLD/LAB, ANAB, and/or A2LA.

Have the laboratory's designated individual complete the following steps **only if your laboratory is accredited in this testing/calibration discipline** by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory.

ANAB Certificate No.
(Include ASCLD/LAB Certificate here)

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety.

Authorized Contact Person and Title

Laboratory Name

Location (City/State)



7 Eastgate Dr. • P.O. Box 790 • Jacksonville, IL 62651-0790
217-245-2183 • Fax: 217-243-7634 • www.ilmoproducts.com

Certificate of Analysis

Certificate ID: 13070
Part #: BAC34L200T
Cylinder Size: 34L
Lot Number: 15320001A1
Expiration: 8/5/2022

0.200 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 34 Liters @ 500 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	521 ppm	+/- 2% (rel. ppm)	Gravimetric
Nitrogen	Balance		

*NIST Traceable to:
Gravimetric Balance
Calibration Certificate No. 404101701
Calibration Certificate No. 404101702

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

07-08-2020
Issuance Date



The calibration results within this certificate were obtained using equipment and standards capable of producing analytical results traceable to NIST, and apply only to the items contained on this certificate. ILMO Products Company makes no warranty or representation as to the suitability of the use of any information provided for any particular purpose. The information use is at the sole discretion and risk of the user. Liability shall be limited to established replacement cost of this material or service.



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Certificate of Analysis

Certificate ID: 13071
Part #: BAC34L050T
Cylinder Size: 34L
Lot Number: 15320002A2
Expiration: 8/5/2022

0.050 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 34 Liters @ 500 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	130 ppm	+/- 0.002 BAC (G/210L) [5.2 ppm]	NDIR
Nitrogen	Balance		

***Traceable to:**

Certified Reference Material - 262.4 µmol/mol
Ethanol in Nitrogen - Serial No. GN0015026 Lot No. 050319E11

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

07-08-2020
Issuance Date



The calibration results within this certificate were obtained using equipment and standards capable of producing analytical results traceable to NIST, and apply only to the items contained on this certificate. ILMO Products Company makes no warranty or representation as to the suitability of the use of any information provided for any particular purpose. The information use is at the sole discretion and risk of the user. Liability shall be limited to established replacement cost of this material or service.



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Certificate of Analysis

Certificate ID: 13072
Part #: BAC34L080T
Cylinder Size: 34L
Lot Number: 15320003A3
Expiration: 8/5/2022

0.080 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 34 Liters @ 500 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	208 ppm	+/- 0.002 BAC (G/210L) [5.2 ppm]	NDIR
Nitrogen	Balance		

***Traceable to:**

Certified Reference Material - 262.4 µmol/mol
Ethanol in Nitrogen - Serial No. GN0015026 Lot No. 050319E11

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

07-08-2020
Issuance Date



The calibration results within this certificate were obtained using equipment and standards capable of producing analytical results traceable to NIST, and apply only to the items contained on this certificate. ILMO Products Company makes no warranty or representation as to the suitability of the use of any information provided for any particular purpose. The information use is at the sole discretion and risk of the user. Liability shall be limited to established replacement cost of this material or service.



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Certificate of Analysis

Certificate ID: 13073
Part #: BAC34L300T
Cylinder Size: 34L
Lot Number: 15320004A4
Expiration: 8/5/2022

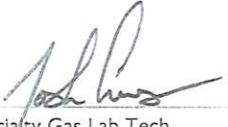
0.300 BAC (For the calibration of instruments used to determine breath alcohol concentration)

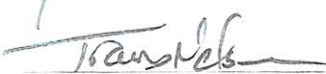
Contents: 34 Liters @ 500 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	782 ppm	+/- 2% (rel. ppm)	Gravimetric
Nitrogen	Balance		

*NIST Traceable to:
Gravimetric Balance
Calibration Certificate No. 404101701
Calibration Certificate No. 404101702

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).


Specialty Gas Lab Tech



07-08-2020
Issuance Date



The calibration results within this certificate were obtained using equipment and standards capable of producing analytical results traceable to NIST, and apply only to the items contained on this certificate. ILMO Products Company makes no warranty or representation as to the suitability of the use of any information provided for any particular purpose. The information use is at the sole discretion and risk of the user. Liability shall be limited to established replacement cost of this material or service.