



Quantitative Drug Analysis - Cocaine HCl

Test No. 24-5061 Summary Report

Each sample pack consisted of two items containing different concentrations of cocaine hydrochloride (HCl), which participants were asked to analyze. Data were returned from 69 participants and are compiled into the following tables:

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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 pack consisted of two items containing different concentrations of cocaine hydrochloride (HCl) and lidocaine. Participants were asked to examine each item and report the concentration of cocaine HCl in the sample.

SAMPLE PREPARATION: Prior to production, the appropriate amount of cocaine HCl and diluent for each item were combined and thoroughly mixed to ensure homogeneity. For each item, approximately 350 mg of the powder was weighed out and deposited into a glassine bag, which was folded and secured with a label. The folded glassine bag was placed into a small zip top bag, heat sealed and then placed into a pre-labeled envelope.

SAMPLE PACK ASSEMBLY: One of each item was placed into a pre-labeled sample pack envelope.

VERIFICATION: The laboratories that participated in predistribution received additional specimens for duplicate testing of each item. Predistribution results were consistent with each other and the manufacturer's preparation information. The following methods were used to examine the items: LC, NMR, HPLC, and electronic balance.

Item	Preparation Concentration - Cocaine HCl
1	50%
2	69%

Please note that the preparation concentration is the value used for calculations during the test preparation phase and may not necessarily represent the final concentration of the samples. It is advised to wait for the Grand Mean statistics available in this Summary Report as well as wait for the Individual Reports before evaluating performance.

Summary Comments

This test was designed to allow participants to assess their proficiency in the determination of powdered cocaine hydrochloride (HCl) concentrations. Each sample pack consisted of two items: Item 1 contained approximately 50% cocaine HCl, and Item 2 contained approximately 69% cocaine HCl. Refer to the Manufacturer's Information for preparation details.

The results are separated into two tables: reported results (Table 1) and raw analytical data (Table 3). The table of reported results shows the concentration that each participant would report according to their normal reporting procedures (e.g. mean, lowest result, truncated results). The table of raw analytical data shows the results from each determination made by the laboratory to produce their reported results. The majority of the population used the mean of duplicate/several determinations for their quantitative reporting procedures.

The raw data was used to calculate the grand mean and the standard deviation for each item. If a participant's data was marked with an "X", it was considered extreme data (± 5 STD from grand mean) and the results were excluded from the calculations of the grand mean and standard deviation. Of the 69 responding participants, no participants were marked as extreme for either item. The calculated grand mean concentration of Item 1 was 48.80% with a standard deviation of 3.044, and the grand mean concentration of Item 2 was 67.25% with a standard deviation of 3.523. These calculations are supplied to assist the participants and accrediting bodies in determining the acceptability of the results.

The most utilized method of analysis among participants was GC/FID.

As a supplemental examination of the raw data, Bivariate Control Analysis was also performed to analyze the measurement of both samples simultaneously. In this analysis, a comparative performance value (CPV) is provided for each participant, which is a unitless ratio indicating the number of standard deviations a participant's results are from the Grand Mean. The closer a participant's CPV is to zero, the more consistent their results are with the other participants' data. For the graphical portion, an ellipse was drawn so that 99% of the time, a randomly selected participant was inside of it. If a participant's data was marked with an "X", it fell outside the 99.5% control limit and the results were excluded from the calculations for this supplemental examination. For more information regarding Bivariate Control Analysis, please see the supplemental section at the end of this report.

Reported Results

What is the concentration of cocaine HCl in each of the samples?

TABLE 1

WebCode	Item 1 Reported Concentration (units)	Item 2 Reported Concentration (units)	Uncertainty (k)
Preparation concentration:	50%	69%	
24M9HK	49.4 ± 3.7 (%)	61.5 ± 4.6 (%)	3
2M4HJL	48.5 (%)	67.6 (%)	
3B2GJM	50.8 ± 2.4 (%)	70.6 ± 2.4 (%)	2
3C28XH	50.7 ± 4.4 (%)	65.0 ± 5.7 (%)	3
3GDHNQ	49.5 ± 1.7 (%)	68.2 ± 1.7 (%)	2
3K9AWN	47.5 ± 6.7 (%)	65.2 ± 9.2 (%)	3.07
4JVZJG	48.8 ± 4.3 (%)	69.0 ± 6.0 (%)	3
4UDGCN	46.7 ± 6.6 (%)	65.4 ± 9.2 (%)	3.07
4ZXLZH	169 ± 20 (milligrams)	236 ± 28 (milligrams)	2
6EJCJK	50.1 ± 7.1 (%)	68.7 ± 9.7 (%)	3.07
6EXV4H	45.4 ± 6.4 (%)	63.4 ± 8.9 (%)	3.07
6KFDCJ	45.09 ± 0.407 (%)	68.78 ± 0.407 (%)	2
6M8CQG	47 ± 1.77 (%)	70 ± 2.64 (%)	2
6WHDCN	42 ± 3.00 (%)	58 ± 4.15 (%)	2
7AHMFH	50.3 ± 4.1 (percent)	68.3 ± 5.5 (percent)	2
7GKRB9	47.5 ± 2.2 (%w/w)	66.3 ± 2.8 (%w/w)	2
7N43HH	50.0 ± 4.1 (percent)	68.1 ± 6.3 (percent)	2.65
7R3DEH	51 ± 10 (%)	69 ± 13 (%)	2.576
7VHL3G	44.97 ± 4.39 (%)	64.62 ± 6.3 (%)	2

TABLE 1

WebCode	Item 1 Reported Concentration (units)	Item 2 Reported Concentration (units)	Uncertainty (k)
Preparation concentration:	50%	69%	
88APP8	51.4 ± 2.2 (percent)	72.8 ± 2.2 (percent)	3
8VWU4G	48.7 ± 9.7 (%)	68.3 ± 9.7 (%)	2.576
9ZKJFD	165 ± 19 (milligrams)	235 ± 28 (milligrams)	2
ALYQ6C	169 ± 20 (milligrams)	235 ± 28 (milligrams)	2
B2D9KJ	48.3 ± 0.7 (%)	66.2 ± 0.8 (%)	2
B4F8VC	45 (%)	65 (%)	
C4UT6D	40.8 ± 5.8 (%)	58.2 ± 8.2 (%)	3.07
D8TQTB	49.2 ± 3.8 (%)	68.4 ± 5.3 (%)	2.65
DE8D3E	490 ± 20 (mg/g)	665 ± 32 (mg/g)	2
DXZKPC	56,7 ± 3 (%)	74,4 ± 3 (%)	2
E2G3TE	49.1 ± 0.6 (% by weight)	67.0 ± 1.5 (% by weight)	2
EFG2FB	44.2 ± 6.2 (%)	61.7 ± 8.7 (%)	3.07
FLXWW7	51.5 ± 4.5 (%)	71.1 ± 6.2 (%)	3
FQD6K6	47.6 ± 4.2 (%)	68.5 ± 6.0 (%)	3
G7JXG8	50.47 ± 2.50 (%)	67.84 ± 1.86 (%)	2
GXRDL8	49.44 ± 7.06 (%)	70.91 ± 9.89 (%)	2.571
H3ZFK8	45.8 ± 6.5 (%)	60.7 ± 8.5 (%)	3.07
H8C4K4	46.8 ± 4.1 (%)	66.3 ± 5.8 (%)	3
HKJW64	169 ± 20 (milligrams)	229 ± 27 (milligrams)	2
J2JT9	49.5 ± 3.91 (%)	69.1 ± 5.46 (%)	2
JAWGE7	49.6 ± 6.7 (%)	70.6 ± 6.7 (%)	2

TABLE 1

WebCode	Item 1 Reported Concentration (units)	Item 2 Reported Concentration (units)	Uncertainty (k)
Preparation concentration:	50%	69%	
JAX8T2	48.4 ± 4.2 (%)	68.0 ± 5.9 (%)	3
JKYTT9	52.5 ± 1.99 (%)	68.9 ± 2.62 (%)	2
K7WJPY	51.4 ± 4.5 (%)	67.5 ± 5.9 (%)	3
KAT877	50.2 ± 7.1 (%)	67.8 ± 9.5 (%)	3.07
KMWF24	48 ± 3 (%)	68 ± 5 (%)	2
KW4B69	49.50 ± 1.3 (weight %)	67.44 ± 1.0 (weight %)	2
L3M3KZ	48.7 ± 4.44 (%)	65.9 ± 6.01 (%)	2
LGA3L2	49.35 ± 4.05 (%)	69.05 ± 4.65 (%)	4.3
LMXQG7	48.9 ± 1.86 (%)	64.9 ± 4.15 (%)	2
NAFU7Y	48.6 (%)	70.5 (%)	
NMKDGY	50.75 ± 0.3 (%)	69.67 ± 0.7 (%)	
NXML8X	48.4 ± 4.2 (%)	68.7 ± 6.0 (%)	3
NZY22X	49.8 ± 4.4 (%)	68.8 ± 6.0 (%)	3
PF8EV2	49.1 ± 2.5 (%)	68.2 ± 2.0 (%)	2
PL4FPZ	45,47 (%)	62,02 (%)	
PQJNDY	48.02 (%)	66.52 (%)	
PRVEM4	49.7 ± 4.17 (%)	66.2 ± 5.56 (%)	2
QAEPUN	46.37 ± 1.9 (mg/ml)	65.47 ± 2.4 (mg/ml)	
QQKYT3	50.9 ± 3.46 (%)	68.8 ± 2.54 (%)	2
T9TZFZ	51.1 ± 2.3 (%)	68.2 ± 2.9 (%)	2
TEYTAV	48.5 ± 6.8 (%)	66.2 ± 9.3 (%)	3.07

TABLE 1

WebCode	Item 1 Reported Concentration (units)	Item 2 Reported Concentration (units)	Uncertainty (k)
Preparation concentration:	50%	69%	
WEM4XU	46.7 ± 6.6 (%)	65.9 ± 9.3 (%)	3.07
XF9E2R	58.8 ± 4.7 (%)	77.0 ± 4.7 (%)	2
Y83MHP	56 ± 9 (%)	73 ± 11 (%)	2.576
YBEUJU	49.3 ± 1.8 (% weight)	67.7 ± 0.8 (% weight)	2
YJCMRN	50.94 ± 2.6 (%)	71.30 ± 3.22 (%)	2.048
YM7GPP	48.0 ± 4.8 (%)	64.1 ± 6.2 (%)	2.65
YRMNDN	43.0 ± 7.1 (%)	60.4 ± 10.6 (%)	1.96
ZDZYQR	159 ± 13 (mg)	221 ± 13 (mg)	2

Reporting Procedures

TABLE 2

WebCode	Reporting Procedures
24M9HK	The mean of duplicate/several determinations.
2M4HJL	The mean of duplicate/several determinations.
3B2GJM	The mean of duplicate/several determinations.
3C28XH	single sample
3GDHNQ	The mean of duplicate/several determinations.
3K9AWN	The mean of duplicate/several determinations.
4JVZJG	Single sample quantitation
4UDGCN	The mean of duplicate/several determinations.
4ZXLZH	The mean of duplicate/several determinations.
6EJCJK	The mean of duplicate/several determinations.
6EXV4H	The mean of duplicate/several determinations.
6KFDCJ	The mean of duplicate/several determinations.
6M8CQG	The mean of duplicate/several determinations.
6WHDCH	The purity of a sample is determined by comparison with a standard solution, using a 1-point calibration curve (one determination).
7AHMFH	The mean of duplicate/several determinations.
7GKRB9	The mean of duplicate/several determinations.
7N43HH	The mean of duplicate/several determinations.
7R3DEH	The mean of duplicate/several determinations.
7VHL3G	The mean of duplicate/several determinations.
88APP8	The mean of duplicate/several determinations.
8VWU4G	The mean of duplicate/several determinations.
9ZKJFD	The mean of duplicate/several determinations.
ALYQ6C	The mean of duplicate/several determinations.
B2D9KJ	mean of singlet at ~2.9 ppm from four replicates per item
B4F8VC	The mean of duplicate/several determinations.
C4UT6D	The mean of duplicate/several determinations.

TABLE 2

WebCode	Reporting Procedures
D8TQTB	The mean of duplicate/several determinations.
DE8D3E	mean of triplicate determinations
DXZKPC	The mean of duplicate/several determinations.
E2G3TE	The mean of duplicate/several determinations.
EFG2FB	The mean of duplicate/several determinations.
FLXWW7	single sample
FQD6K6	single sample
G7JXG8	The mean of duplicate/several determinations.
GXRDL8	The mean of duplicate/several determinations.
H3ZFK8	The mean of duplicate/several determinations.
H8C4K4	Single sampling
HKJW64	The mean of duplicate/several determinations.
J2JJT9	The mean of duplicate/several determinations.
JAWGE7	The mean of duplicate/several determinations.
JAX8T2	single sample
JKYTT9	The mean of duplicate/several determinations.
K7WJPY	Single Sample
KAT877	The mean of duplicate/several determinations.
KMWF24	The mean of duplicate/several determinations.
KW4B69	The mean of duplicate/several determinations.
L3M3KZ	The mean of duplicate/several determinations.
LGA3L2	Our laboratory does not report Cocaine HCl. We report cocaine base based of the average of 3 aliquots each of which are injected 4 times.
LMXQG7	The mean of duplicate/several determinations.
NAFU7Y	The mean of duplicate/several determinations.
NMKDGY	The mean of duplicate/several determinations.
NXML8X	From Predistribution [Participant Code], Item 1 Specimen A and B averaged; Item 2 Specimen C and D averaged

TABLE 2

WebCode	Reporting Procedures
NZY22X	Single Sample
PF8EV2	The mean of duplicate/several determinations.
PL4FPZ	The mean of duplicate/several determinations.
PQJNDY	The mean of duplicate/several determinations.
PRVEM4	The mean of duplicate/several determinations.
QAEPUN	The mean of duplicate/several determinations.
QQKYT3	The mean of duplicate/several determinations.
T9TZFZ	The mean of duplicate/several determinations.
TEYTAV	The mean of duplicate/several determinations.
WEM4XU	The mean of duplicate/several determinations.
XF9E2R	The mean of duplicate/several determinations.
Y83MHP	The mean of duplicate/several determinations.
YBEUJU	The mean of duplicate/several determinations.
YJCMRN	The mean of duplicate/several determinations.
YM7GPP	The mean of duplicate/several determinations.
YRMNDN	The mean of duplicate/several determinations.
ZDZYQR	The mean of duplicate/several determinations.

Response Summary		Participants: 69
The mean of duplicate/several determinations:	56	(81.2%)
The lowest value of duplicate/several determinations:	0	(0.0%)
Single determination:	6	(8.7%)
Other:	7	(10.1%)

Raw Data & Statistical Analysis

List of raw data determinations in percent.

TABLE 3 - Item 1

WebCode	Preparation concentration : 50%								Mean
24M9HK	49.60	49.00	49.60						49.40
2M4HJL	48.01	48.99							48.50
3B2GJM	50.47	50.51	51.24	51.31					50.88
3C28XH	50.72								50.72
3GDHNP	49.47	49.29	49.24	50.13					49.53
3K9AWN	47.60	47.40							47.50
4JVZJG	48.80								48.80
4UDGCN	48.30	45.20							46.75
4ZXLZH	49.00	49.00							49.00
6EJCJK	50.60	49.60							50.10
6EXV4H	45.40	45.40							45.40
6KFDCJ	45.60	45.80	44.10	43.70	47.60	47.80	43.10	43.10	45.10
6M8CQG	48.90	45.50							47.20
6WHDCH	42.13								42.13
7AHMFH	49.32	50.60	50.13	50.29	51.09	50.25			50.28
7GKRB9	47.18	47.76							47.47
7N43HH	49.91	50.44	49.94	48.96	50.28	50.18			49.95
7R3DEH	52.12	51.19	51.38						51.56
7VHL3G	44.46	45.49							44.98
88APP8	50.30	52.60							51.45
8VWU4G	48.39	49.06							48.73
9ZKJFD	49.00	49.00							49.00
ALYQ6C	49.00	49.00							49.00
B2D9KJ	48.80	48.40	48.00	47.90					48.28

TABLE 3 - Item 1

WebCode	Preparation concentration : 50%							Mean	
B4F8VC	43.63	46.63						45.13	
C4UT6D	40.30	41.20						40.75	
D8TQTB	49.01	48.95	49.26	49.22	49.42	49.28		49.19	
DE8D3E	50.10	48.40	48.60					49.03	
DXZKPC	56.80	57.10	56.70	56.10				56.68	
E2G3TE	49.00	49.60	49.10	48.70				49.10	
EFG2FB	44.60	44.00						44.30	
FLXWW7	51.53							51.53	
FQD6K6	47.65							47.65	
G7JXG8	51.82	50.40	52.09	47.95	51.09	50.18	50.00	50.24	50.47
GXRDL8	49.44	51.07							50.26
H3ZFK8	45.80	45.80							45.80
H8C4K4	46.87								46.87
HKJW64	50.00	49.00							49.50
J2JIT9	49.45	49.25	49.19	50.08					49.49
JAWGE7	50.48	50.12	50.44	48.95	49.07	49.01			49.68
JAX8T2	48.49								48.49
JKYTT9	51.70	53.20							52.45
K7WJPY	51.42								51.42
KAT877	49.60	50.70							50.15
KMWF24	48.80	49.00	46.50	47.60					47.98
KW4B69	50.03	49.13	49.29	49.55					49.50
L3M3KZ	49.00	48.30							48.65
LGA3L2	48.70	50.00							49.35
LMXQG7	48.40	49.40							48.90
NAFU7Y	47.60	49.60							48.60

TABLE 3 - Item 1

WebCode	Preparation concentration : 50%						Mean
NMKDGY	50.88	50.94	50.44				50.75
NXML8X	48.63	48.31					48.47
NZY22X	49.87						49.87
PF8EV2	49.35	49.53	50.37	47.46			49.18
PL4FPZ	43.43	47.52					45.48
PQJNDY	47.97	48.10					48.03
PRVEM4	50.40	49.00					49.70
QAEPUN	41.52	41.23					41.38
QQKYT3	50.70	51.10					50.90
T9TZFZ	50.60	52.10	50.60	51.10			51.10
TEYTAV	48.80	48.30					48.55
WEM4XU	46.90	46.60					46.75
XF9E2R	58.60	59.00					58.80
Y83MHP	56.00	56.13	58.60				56.91
YBEUJU	49.57	49.37	49.73	48.52			49.30
YJCMRN	51.23	50.64					50.94
YM7GPP	47.12	48.22	47.65	50.06	48.26	46.78	48.02
YRMNDN	43.10	43.00	43.00	43.00			43.03
ZDZYQR	47.74	47.56	47.43	47.25	46.88	47.19	47.34

Statistical Analysis for Item 1		Participants: 69
Preparation Concentration:	50%	Number of Participants Included: 69
Grand Mean:	48.80	Number of Participants Excluded: 0
Standard Deviation:	3.044	Number of Participants without Raw Data: 0

TABLE 3 - Item 2

WebCode	Preparation concentration : 69%								Mean
24M9HK	62.00	61.40	61.30						61.57
2M4HJL	67.78	67.46							67.62
3B2GJM	71.26	71.24	70.02	70.06					70.64
3C28XH	65.07								65.07
3GDHNQ	68.46	68.15	68.53	67.72					68.22
3K9AWN	64.90	65.60							65.25
4JVZJG	69.00								69.00
4UDGCN	66.50	64.30							65.40
4ZXLZH	69.00	70.00							69.50
6EJCJK	68.80	68.70							68.75
6EXV4H	62.60	64.20							63.40
6KFDCJ	68.80	69.00	69.90	69.70	66.50	66.80	69.80	69.70	68.78
6M8CQG	69.70	69.40							69.55
6WHDCH	57.88								57.88
7AHMFH	67.29	67.99	68.52	68.16	69.18	68.68			68.30
7GKRB9	66.29	66.35							66.32
7N43HH	70.43	68.09	67.89	68.64	67.02	66.72			68.13
7R3DEH	68.21	69.49	70.40						69.37
7VHL3G	65.17	64.08							64.63
88APP8	72.10	73.60							72.85
8VWU4G	67.99	68.66							68.33
9ZKJFD	69.00	68.00							68.50
ALYQ6C	69.00	68.00							68.50
B2D9KJ	65.90	66.90	66.10	66.00					66.23
B4F8VC	64.86	65.64							65.25
C4UT6D	58.70	57.90							58.30

TABLE 3 - Item 2

WebCode	Preparation concentration : 69%							Mean	
D8TQTB	68.12	68.39	68.53	68.51	68.74	68.12	68.40		
DE8D3E	67.20	64.60	67.70				66.50		
DXZKPC	73.90	74.60	74.50	74.80			74.45		
E2G3TE	66.00	66.60	67.40	68.10			67.03		
EFG2FB	61.80	61.70					61.75		
FLXWW7	71.18						71.18		
FQD6K6	68.59						68.59		
G7JXG8	69.68	69.38	68.46	66.35	66.56	67.42	68.03	66.85	67.84
GXRDL8	70.91	69.83						70.37	
H3ZFK8	61.90	59.50						60.70	
H8C4K4	66.33							66.33	
HKJW64	68.00	66.00						67.00	
J2JJT9	68.30	68.56	69.67	69.71				69.06	
JAWGE7	71.54	71.30	71.48	69.87	69.84	69.94		70.66	
JAX8T2	68.06							68.06	
JKYTT9	69.20	68.50						68.85	
K7WJPY	67.57							67.57	
KAT877	67.60	68.00						67.80	
KMWF24	66.50	66.70	68.50	68.40				67.53	
KW4B69	67.08	67.37	67.85	67.47				67.44	
L3M3KZ	64.80	66.90						65.85	
LGA3L2	69.00	69.10						69.05	
LMXQG7	65.86	65.60	63.84	64.19				64.87	
NAFU7Y	75.40	65.60						70.50	
NMKDGY	68.69	69.90	70.42					69.67	
NXML8X	68.77	68.64						68.71	

TABLE 3 - Item 2

WebCode	Preparation concentration : 69%						Mean
NZY22X	68.87						68.87
PF8EV2	68.59	67.32	69.03	68.04			68.25
PL4FPZ	60.48	63.55					62.02
PQJNDY	69.00	64.05					66.52
PRVEM4	66.20	66.10					66.15
QAEPUN	58.40	58.41					58.41
QQKYT3	69.40	68.10					68.75
T9TZFZ	67.60	69.40	68.40	67.40			68.20
TEYTAV	66.80	65.60					66.20
WEM4XU	65.30	66.50					65.90
XF9E2R	75.70	78.40					77.05
Y83MHP	75.69	73.43	71.64				73.59
YBEUJU	67.58	67.60	68.09	67.71			67.75
YJCMRN	71.10	71.50					71.30
YM7GPP	64.63	64.63	64.31	65.65	64.20	61.43	64.14
YRMNDN	60.70	60.40	60.40	60.20			60.43
ZDZYQR	64.74	64.51	66.53	66.77	65.98	66.03	65.76

Statistical Analysis for Item 2		Participants: 69
Preparation Concentration:	69%	Number of Participants Included: 69
Grand Mean:	67.25	Number of Participants Excluded: 0
Standard Deviation:	3.523	Number of Participants without Raw Data: 0

TABLE 3 - Response Summary

Response Summary	Item 1	Item 2
Preparation concentration	50%	69%
Grand Mean	48.80	67.25
Standard Deviation	3.044	3.523

Method of Analysis

TABLE 4

WebCode	GC	GC/MS	GC/FID	LC	LC/MS	NMR	Other
24M9HK			✓				
2M4HJL			✓				
3B2GJM			✓				
3C28XH				✓			
3GDHNQ							1H-NMR
3K9AWN			✓				
4JVZJG				✓			
4UDGCN		✓	✓				
4ZXLZH		✓					
6EJCJK			✓				
6EXV4H			✓				
6KFDCJ				✓			
6M8CQG				✓			
6WHDCH		✓					
7AHMFH			✓				
7GKRB9				✓			
7N43HH			✓				
7R3DEH					✓		
7VHL3G			✓				
88APP8				✓			
8VWU4G			✓				
9ZKJFD		✓					
ALYQ6C		✓					
B2D9KJ						✓	
B4F8VC					✓		
C4UT6D		✓	✓				
D8TQTB			✓				Weight Measurement
DE8D3E				✓			
DXZKPC		✓	✓				test of coloration
E2G3TE						✓	
EFG2FB		✓	✓				
FLXWW7				✓			Electronic Balance
FQD6K6				✓			Electronic Balance

TABLE 4

WebCode	GC	GC/MS	GC/FID	LC	LC/MS	NMR	Other
G7JXG8				✓			
GXRDL8			✓				
H3ZFK8			✓				
H8C4K4				✓			Balance
HKJW64		✓					
J2JJT9				✓			
JAWGE7			✓				
JAX8T2				✓			
JKYTT9						✓	
K7WJPY							HPLC
KAT877		✓	✓				
KMWF24							HPLC UV/DAD
KW4B69						✓	
L3M3KZ						✓	
LGA3L2							HPLC
LMXQG7					✓	✓	
NAFU7Y					✓		
NMKDGY							HPLC-diode array
NXML8X				✓			Electronic Balance
NZY22X				✓			Electronic Balance
PF8EV2						✓	
PL4FPZ				✓			
PQJNDY			✓				
PRVEM4						✓	
QAEPUN				✓			
QQKYT3			✓			✓	
T9TZFZ						✓	
TEYTAV			✓				
WEM4XU		✓	✓				
XF9E2R		✓					
Y83MHP					✓		
YBEUJU						✓	
YJCMRN			✓				
YM7GPP			✓				
YRMNDN			✓				

TABLE 4

WebCode	GC	GC/MS	GC/FID	LC	LC/MS	NMR	Other
ZDZYQR			✓				
Analysis Methods Response Summary							Participants: 69
Method:	GC	GC/MS	GC/FID	LC	LC/MS	NMR	
Participants:	0	12	27	17	5	11	
Percent:	0%	17%	39%	25%	7%	16%	

Additional Comments

TABLE 5

WebCode	Additional Comments
24M9HK	Lidocaine detected for both Item 1 and Item 2
4ZXLZH	Cocaine purity routinely reported as base form.
6KFDCJ	Both samples are mixed with lidocaine. Cocaine hydrochloride mixed with lidocaine (both samples). Both samples identified with Raman and GCMS.
6WHDCJ	Lignocaine was present in both samples (confirmed by FT-IR and GC-MS). Purity results at this site are reported as a 20% range, by rounding the initial value to the nearest 5% (converting to salt form first, if required), then adding and subtracting 10%. For item 1, the reported range would be 30% - 50%. For item 2, the reported range would be 50% - 70%
9ZKJFD	Cocaine purity routinely reported as base form.
ALYQ6C	Cocaine purity routinely reported as base form.
DXZKPC	the powders are cut by Lidocaine
G7JXG8	Both items contained lidocaine as "adulterant".
HKJW64	Cocaine purity routinely reported as base form.
J2JJT9	Lidocaine was also detected.
JKYTT9	Lidocaine also detected
L3M3KZ	Lidocaine also detected
LMXQG7	Lidocaine also detected
NXML8X	Data are from pre-distribution [Participant Code] which contained two specimen for each item (item 1 and item 2). Item 1, Specimen A and Specimen B were averaged together for final result. Item 2, Specimen C and Specimen D were averaged together for final result.
NZY22X	All digits did not fit in box for item 1: $1: (\text{purity}\% \text{ FB}) \times (339.816) / (303.358) (44.52325\%) \times (339.816) / (303.358): 49.87411811127447\%$ cocaine HCl 2: $(\text{purity}\% \text{ FB}) \times (339.816) / (303.358) (61.47799\%) \times (339.816) / (303.358): 68.866503108011\%$ cocaine HCl
PRVEM4	Lidocaine also detected
QAEPUN	Item 1: Lidocaine is also present in item approx. 48.28%. Item 2: Lidocaine is also present in item approx. 28.69%.
QQKYT3	Lidocaine also detected
YM7GPP	There was an indication of Lidocaine present in both samples.

Supplemental: Hotelling T-Squared Bivariate Control Analysis

Hotelling T-Squared Bivariate Control Analysis is used in many other industries to examine results. Although not typically used in forensic science, CTS is presenting an introduction to this type of statistical data analysis. A laboratory may choose to delve deeper in a participant's results by studying both sets of statistics available in this report. The statistics presented in Table 3 (Raw Data) of this report examine the results of each item independently of each other. However, because the same materials are chosen for both samples, there should be a correlation of measurement performance between the two samples. A bivariate analysis technique judges measurement performance on both samples simultaneously, represented as an ellipse. For each participant, the mean of Item 1 (x-axis) is plotted against the mean of Item 2 (y-axis). The horizontal and vertical cross-hairs are the grand means for each Item. When 20 or more participants are included in the statistics, an ellipse is drawn so that 95% of the time a randomly selected participant will be included inside.

When considering your participant's position on the plot relative to the ellipse, remember that, generally speaking, if a participant's plotted point falls on the major axis outside of the ellipse, the participant is consistent in its measurements between the two samples but exhibits an offset from the grand mean (systematic difference). If a plotted point falls to the side of the ellipse, it indicates possible differences in the way that the participant tested the two samples or differences in sample behavior (consistency difference). The two-sample plot enables you to see which sample, if either, is "extreme" and to ascertain the nature of the "extreme" data.

Systematic Difference

Bias is illustrated in the control ellipse on the two sample plot. If a particular analysis/sample combination did not show bias, the control ellipse would become a circle. Differences in procedures, conditions, instrumentation and sample preparation all contribute to the bias of a participant. When these differences become too large, a participant may receive a Data Flag. When the test results for both samples are both high or low compared to the group, a participant has a fixed set of factors on which to focus to identify a cause. Furthermore, since additional testing on similar samples should produce similar high or low results, it is possible to determine that a systematic error has been successfully corrected.

Consistency Difference

The participant's results indicate that there are differences in the way the two samples are tested (the plotted point falls to the side of the ellipse). This type of error may be attributed to the analyst deviating from the procedure when testing one of the samples or a material interaction occurrence with the instrument or room conditions. The inconsistency is reflected in the Comparative Performance Values (CPV) for the two samples, such as a +1.5 CPV for Item 1 and a -2.2 CPV for Item 2. CPV is the number of standard deviations a value is from the grand mean.

Key for Data Flags		
<u>Data Flag</u>	<u>Statistically Included/Excluded</u>	<u>Explanation</u>
*	Included	Results fall outside 95% ellipse, but within a 99% control limit (ellipse) that is calculated.
X	Excluded	Results fall outside of 99.5% control limit.
M	Excluded	Data is missing for at least one item.

Bivariate Control Analysis

WebCode	Data Flag	Item 1			Item 2		
		Participant Mean	Difference from Grand Mean	CPV	Participant Mean	Difference from Grand Mean	CPV
24M9HK	*	49.40	0.602	0.20	61.57	-5.684	-1.61
2M4HJL		48.50	-0.298	-0.10	67.62	0.369	0.10
3B2GJM		50.88	2.084	0.68	70.64	3.393	0.96
3C28XH		50.72	1.917	0.63	65.07	-2.186	-0.62
3GDHNQ		49.53	0.734	0.24	68.22	0.964	0.27
3K9AWN		47.50	-1.298	-0.43	65.25	-2.001	-0.57
4JVZJG		48.80	0.002	0.00	69.00	1.749	0.50
4UDGCN		46.75	-2.048	-0.67	65.40	-1.851	-0.53
4ZXLZH		49.00	0.202	0.07	69.50	2.249	0.64
6EJCJK		50.10	1.302	0.43	68.75	1.499	0.43
6EXV4H		45.40	-3.398	-1.12	63.40	-3.851	-1.09
6KFDCJ		45.10	-3.698	-1.22	68.78	1.524	0.43
6M8CQG		47.20	-1.598	-0.53	69.55	2.299	0.65
6WHDCH		42.13	-6.668	-2.19	57.88	-9.371	-2.66
7AHMFH		50.28	1.482	0.49	68.30	1.052	0.30
7GKRB9		47.47	-1.328	-0.44	66.32	-0.931	-0.26
7N43HH		49.95	1.153	0.38	68.13	0.881	0.25
7R3DEH		51.56	2.765	0.91	69.37	2.116	0.60
7VHL3G		44.98	-3.823	-1.26	64.63	-2.626	-0.75
88APP8		51.45	2.652	0.87	72.85	5.599	1.59
8VWU4G		48.73	-0.073	-0.02	68.33	1.074	0.30
9ZKJFD		49.00	0.202	0.07	68.50	1.249	0.35
ALYQ6C		49.00	0.202	0.07	68.50	1.249	0.35
B2D9KJ		48.28	-0.523	-0.17	66.23	-1.026	-0.29
B4F8VC		45.13	-3.667	-1.20	65.25	-2.005	-0.57

WebCode	Data Flag	Item 1			Item 2		
		Participant Mean	Difference from Grand Mean	CPV	Participant Mean	Difference from Grand Mean	CPV
C4UT6D		40.75	-8.048	-2.64	58.30	-8.951	-2.54
D8TQTB		49.19	0.392	0.13	68.40	1.151	0.33
DE8D3E		49.03	0.235	0.08	66.50	-0.751	-0.21
DXZKPC		56.68	7.877	2.59	74.45	7.199	2.04
E2G3TE		49.10	0.302	0.10	67.03	-0.226	-0.06
EFG2FB		44.30	-4.498	-1.48	61.75	-5.501	-1.56
FLXWW7		51.53	2.730	0.90	71.18	3.929	1.12
FQD6K6		47.65	-1.148	-0.38	68.59	1.340	0.38
G7JXG8		50.47	1.673	0.55	67.84	0.590	0.17
GXRDL8		50.26	1.457	0.48	70.37	3.119	0.89
H3ZFK8		45.80	-2.998	-0.99	60.70	-6.551	-1.86
H8C4K4		46.87	-1.932	-0.63	66.33	-0.920	-0.26
HKJW64		49.50	0.702	0.23	67.00	-0.251	-0.07
J2JJT9		49.49	0.694	0.23	69.06	1.809	0.51
JAWGE7		49.68	0.881	0.29	70.66	3.411	0.97
JAX8T2		48.49	-0.310	-0.10	68.06	0.810	0.23
JKYTT9		52.45	3.652	1.20	68.85	1.599	0.45
K7WJPY		51.42	2.623	0.86	67.57	0.317	0.09
KAT877		50.15	1.352	0.44	67.80	0.549	0.16
KMWF24		47.98	-0.823	-0.27	67.53	0.274	0.08
KW4B69		49.50	0.702	0.23	67.44	0.191	0.05
L3M3KZ		48.65	-0.148	-0.05	65.85	-1.401	-0.40
LGA3L2		49.35	0.552	0.18	69.05	1.799	0.51
LMXQG7		48.90	0.102	0.03	64.87	-2.379	-0.68
NAFU7Y		48.60	-0.198	-0.07	70.50	3.249	0.92
NMKDGY		50.75	1.954	0.64	69.67	2.417	0.69
NXML8X		48.47	-0.331	-0.11	68.71	1.457	0.41

WebCode	Data Flag	Item 1			Item 2		
		Participant Mean	Difference from Grand Mean	CPV	Participant Mean	Difference from Grand Mean	CPV
NZY22X		49.87	1.076	0.35	68.87	1.615	0.46
PF8EV2		49.18	0.379	0.12	68.25	0.994	0.28
PL4FPZ		45.48	-3.323	-1.09	62.02	-5.236	-1.49
PQJNDY		48.03	-0.764	-0.25	66.52	-0.728	-0.21
PRVEM4		49.70	0.902	0.30	66.15	-1.101	-0.31
QAEPUN		41.38	-7.423	-2.44	58.41	-8.846	-2.51
QQKYT3		50.90	2.102	0.69	68.75	1.499	0.43
T9TZFZ		51.10	2.302	0.76	68.20	0.949	0.27
TEYTAV		48.55	-0.248	-0.08	66.20	-1.051	-0.30
WEM4XU		46.75	-2.048	-0.67	65.90	-1.351	-0.38
XF9E2R	*	58.80	10.002	3.29	77.05	9.799	2.78
Y83MHP		56.91	8.112	2.67	73.59	6.336	1.80
YBEUJU		49.30	0.499	0.16	67.75	0.494	0.14
YJCMRN		50.94	2.137	0.70	71.30	4.049	1.15
YM7GPP		48.02	-0.783	-0.26	64.14	-3.109	-0.88
YRMNDN		43.03	-5.773	-1.90	60.43	-6.826	-1.94
ZDZYQR		47.34	-1.459	-0.48	65.76	-1.492	-0.42

Response Summary		Item 1	Item 2	Participants: 69
Preparation Concentration		50%	69%	
Grand Mean		48.80	67.25	
Standard Deviation		3.04	3.52	
Participants Included: 69	Participants Excluded: 0	Participants without Raw Data for both items: 0		

Test No. 24-5061: Quantitative Drug Analysis - Cocaine HCl

DATA MUST BE SUBMITTED BY **Dec. 09, 2024, 11:59 p.m. EST** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: WGUEVJ

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.

Test Description:

Investigators have submitted two powdered cocaine HCl samples from separate cases to be quantitatively examined. Using your laboratory's procedures, analyze each sample and report the quantitative determination of cocaine HCl present in the samples.

-Please follow your laboratory's policies and procedures for sample homogenization.

-This is not intended as a qualitative test but rather as a quantitative examination of the cocaine hydrochloride present in the samples.

Items Submitted (Sample Pack DQ2):

Items 1 and 2: Powdered cocaine HCl samples

1a.) What is the concentration of cocaine HCl in each of the samples? (Results should be reported using your laboratory reporting criteria for decimal places, uncertainty, and units.)

Reported Concentration	Uncertainty (k= <input type="text"/>)	Units
Item 1: <input type="text"/>	± <input type="text"/>	(<input type="text"/>)
Item 2: <input type="text"/>	± <input type="text"/>	(<input type="text"/>)

1b.) Are the values listed above:

The mean of duplicate / several determinations?

The lowest value of duplicate / several determinations?

Other? (Specify):

2.) Please list your raw data determinations below in percent of cocaine HCl. (Results not reported in % will be excluded from statistical calculations.)

Item 1 (%) Item 2 (%)

3.) What methods were used to quantitatively examine the items?

GC

GC/MS

GC/FID

LC

LC/MS

Other (specify):

NMR

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

A2LA Certificate No.

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

Authorized Contact Person and Title

Laboratory Name

Location (City/State)