



Quantitative Drug Analysis 15-505 Summary Report

This test was sent to 65 participants. Each sample set consisted of two items with different concentrations of Methamphetamine HCl. Participants were asked to determine the concentration of Methamphetamine HCl in each item. Data were returned from 55 participants (84.6% response rate) 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 Methamphetamine HCl and Lactose Monohydrate. Participants were requested to analyze each item and report the quantitative determination of Methamphetamine HCl present in the samples.

SAMPLE PREPARATION-

The appropriate amount of Methamphetamine HCl and Lactose Monohydrate for each item were mixed using a mortar and pestle for over an hour to ensure homogeneity.

ITEMS 1 and 2 (PREPARATION): For each Item, approximately 500 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 and heat sealed closed. The heat sealed bag was then placed into a pre-labeled 5 1/2 inch coin envelope.

SAMPLE PACK ASSEMBLY: One of each of the Item 1 and Item 2 envelopes was placed into a larger pre-labeled sample pack envelope.

VERIFICATION: Laboratories that conducted predistribution analysis of the samples reported consistent results that were comparable to the preparation concentrations of Methamphetamine HCl.

<u>Item</u>	<u>Preparation Methamphetamine HCl</u>
1	95%
2	65%

Summary Comments

This test was designed to allow participants to assess their proficiency in the determination of Methamphetamine HCl concentration. Each participant was supplied with a sample set consisting of two items containing Lactose Monohydrate and different concentrations of Methamphetamine HCl. Participants were requested to determine the Methamphetamine HCl concentration for both items. (Refer to the Manufacturer's Information for preparation details.)

The results are separated into two tables, the reported results and the raw analytical data. 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 data shows the results from each determination made by the laboratory to produce their reported result. Blanks shown in the raw data table represent participants that did not report raw data values or raw data that was not reported in the requested units (%).

The raw data was used to calculate the grand mean and the standard deviation for each item. Participants with "extreme" data (± 3 STD from grand mean) have been marked with an "X" and their results were excluded from the calculations of the grand mean and standard deviation. Six participants (10.9%) reported extreme data for Item 1 and four participants (7.3%) reported extreme data for Item 2.

The grand mean and standard deviation are supplied to assist the participants and accrediting bodies in determining the acceptability of the results.

Reported Results

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

TABLE 1

WebCode	Item 1	Item 2	Coverage factor k
Preparation concentration:	95%	65%	
2NWN48	0.46 +/- 0.03 grams	0.31 +/- 0.02 grams	95%
2YF37A	91 +/- 4 %	60 +/- 3 %	2
3WLYQ9	97 +/- 2 %	66 +/- 2 %	2
49JZ47	95.4 +/- 7.3 percent	65.6 +/- 5.1 percent	
6GUJ2B	94.7% +/- 0.76 % wt	67.2% +/- 0.96 %wt	2
73RBW2	92.6 +/- 2.39 %	59.0 +/- 0.61 %	2
782TTA	91.56 +/- 8.44 %	58.42 +/- 8.44 %	2
7R6C7W	95.1 +/- 5.4 %	64.6 +/- 3.5 %	2.571
8BFNA7	83 +/- 9 %	57 +/- 6 %	2.576
9DCT6U	94 +/- 2.7 %	63 +/- 2.7 %	2
9JGNNU	93.64 +/- 2.75 %	64.65 +/- 2.75 %	2
9TBFU6	93 percent	61 percent	
9TCD6Z	95.8 +/- 6.2 %	64.7 +/- 4.2 %	2
9TRTY Y	94.0 +/- 4.7 percent	64.8 +/- 3.3 percent	2
ATA6C8	90.6 +/- 1.8 %	60.1 +/- 1.2 %	2
AXKDEW	95.83 +/- 6.2 %	65.07 +/- 4.2 %	2
B434EW	95.6% +/- 6.2%	65.1% +/- 6.2%	2
BDBFVZ	97.2 +/- 2.5 % w/w	69.3 +/- 1.8 % w/w	3

TABLE 1

WebCode	Item 1	Item 2	Coverage factor k
Preparation concentration:	95%	65%	
BXBKY	97 +/- 6 %	70 +/- 6 %	2
DGKF6W	94.5 +/- 6.1 %	66.1 +/- 4.3 %	2
DHW3PW	95.9 +/- 7.2 Percent weight/weigh[sic]	63.1 +/- 4.7 Percent weight/weigh[sic]	3
DLUPWW	91.7 +/- 1.2 %	58.4 +/- 1.0 %	2
DNWN8P	95 +/- 2.75 %	64 +/- 2.75 *	2
E2HMBW	99 +/- 2 %	65 +/- 2 %	
E48TVU	97.3 +/- 4.6 %	64.4 +/- 3.0 %	2
ECLF6X	92.0 +/- 1.9 %	59.7 +/- 0.8 %	2
EZWMUX	98.3 +/- 2.2 %	64.3 +/- 1.5 %	2.3%
FDPQU	95.4 +/- 4.1 %	65.3 +/- 4.1 %	2
GBQG6Y	94.50 +/- 12.89 %	64.70 +/- 12.89 %	2
GP2GFL	85.41 %	57.42 %	
H98AVR	93 +/- 5 %	64 +/- 5 %	2
JAGGXK	830.0 +/- 15 mg/g	610 +/- 6 mg/g	2
K4DXAP	96.2 +/- 7.4 percent	65.7 +/- 5.1 percent	
KRGU6V	95.46 +/- 8.71 %	65.07 +/- 8.71 %	2
KXZBZN	96 +/- 5 %	65 +/- 5 %	2
LRELEM	96.0% +/- 7.4%	66.3% +/- 5.1%	2
NCDN6M	96.3 +/- 6.2 %	65.9 +/- 4.2 %	2

TABLE 1

WebCode	Item 1	Item 2	Coverage factor k
Preparation concentration:	95%	65%	
NTKKNM	95.3 +/- 6.1 percent	64.5 +/- 4.2 percent	2
PPPW7R	95.62 +/- 0.44 %	66.25 +/- 0.19 %	
PPFHBQ	91 +/- 5 %	62 +/- 5 %	2
QJNR4L	94%(approximately)	64%(approximately)	
RADMTF	94.7 +/- 2.3 % wt	60.5 +/- 1.1 % wt	2
RNA4GK	92 +/- 4 %	60 +/- 3 %	2
RUYJ8L	93.9 +/- 5.8 %	63.6 +/- 4.0 %	
TTPMLG	76.34 +/- 4.11 % w/w	50.91 +/- 3.01 % w/w	2
TYVH6G	74 +/- 7.4 %	54 +/- 5.4 %	2
U3NR6G	93 +/- 16 %	67 +/- 12 %	2
U9WCTE	96.0 +/- 6.2 %	63.5 +/- 4.1 %	
V9QHMD	95.5 +/- 6.2 %	64.1 +/- 4.1 %	
XB27ZC	96.6% +/- 10.8% wt%	75.7% +/- 8.3% wt%	3.6%
XU4R2F	94.90 +/- 8.44 %	61.26 +/- 8.44 %	2
XYP2PB	96 +/- 6 %	65 +/- 6 %	2
Y2HVM9	95.7% +/- 6.2%	65.7% +/- 4.2%	2
Y2Z4C4	41.65 +/- 5 % w/w	15.08 +/- 5 % w/w	
Z9BPXC	95.7% +/- 2.5% wgt/vol	63.3% +/- 1.6% wgt/vol	

Reporting Procedures

TABLE 2

WebCode	Reporting Procedures
2NWN48	The mean of duplicate/several determinations.
2YF37A	The mean of duplicate/several determinations.
3WLYQ9	The mean of duplicate/several determinations.
49JZ47	single point UV quantitation
6GUJ2B	The mean of duplicate/several determinations.
73RBW2	The mean of duplicate/several determinations.
782TTA	The mean of duplicate/several determinations.
7R6C7W	The mean of duplicate/several determinations.
8BFNA7	The mean of duplicate/ several (3) determinations.
9DCT6U	The mean of duplicate/several determinations.
9JGNNU	The mean of duplicate/several determinations.
9TBFU6	Average normalized area ratio of meth: internal standard in five replicates of case sample compared to normalized area ratio of meth: internal standard of five replicates of meth standard
9TCD6Z	Single Determination
9TRTYT	The check sample for curve verification is run in triplicate, but the sample is a single run.
ATA6C8	The mean of duplicate/several determinations.
AXKDEW	Single Point- UV Quant
B434EW	The mean of duplicate/several determinations.
BDBFVZ	The mean of duplicate/several determinations.
BXBKY	The mean of duplicate/several determinations.
DGKF6W	UV quant - single point
DHW3PW	The mean of duplicate/several determinations.
DLUPWW	The mean of duplicate/several determinations.
DNWN8P	The mean of duplicate/several determinations.
E2HMBW	The mean of duplicate/several determinations.
E48TVU	The mean of duplicate/several determinations.

TABLE 2

WebCode	Reporting Procedures
ECLF6X	The mean of duplicate/several determinations.
EZWMUX	The mean of duplicate/several determinations.
FDPQU	The mean of duplicate/several determinations.
GBQG6Y	The mean of duplicate/several determinations.
GP2GFL	The mean of duplicate/several determinations.
H98AVR	Single determination (triplicate injection)
JAGGXX	The mean of duplicate/several determinations.
K4DXAP	single point UV quantitation
KRGU6V	The mean of duplicate/several determinations.
KXZBZN	The mean of duplicate/several determinations.
LRELEM	one run
NCDN6M	one determination
NTKKNM	single point UV quant
PFPW7R	The mean of duplicate/several determinations.
PPFHBQ	The lowest value of duplicate/several determinations.
QJNR4L	The mean of duplicate/several determinations.
RADMTF	The mean of duplicate/several determinations.
RNA4GK	The mean of duplicate/several determinations.
RUYJ8L	The mean of duplicate/several determinations.
TTPMLG	The mean of duplicate/several determinations.
TYVH6G	The mean of duplicate/several determinations.
U3NR6G	The mean of duplicate/several determinations.
U9WCTE	UV Quant - single point
V9QHMD	Single point UV Quant
XB27ZC	The mean of duplicate/several determinations.
XU4R2F	The mean of duplicate/several determinations.

TABLE 2

WebCode	Reporting Procedures
XYP2PB	The mean of duplicate/several determinations.
Y2HVM9	One time run
Y2Z4C4	The mean of duplicate/several determinations.
Z9BPXC	The mean of duplicate/several determinations.

Response Summary		Participants: 55
The mean of duplicate/several determinations:	39	(70.9%)
The lowest value of duplicate/several determinations:	1	(1.8%)
Other:	15	(27.3%)

Raw Data

List of raw data determinations in percent.

TABLE 3 - Item 1

WebCode	Item 1	Preparation target concentration : 95%						Mean	
2NWN48	93.01	91.56						92.29	
2YF37A	90.77	91.53	90.93	91.10				91.08	
3WLYQ9	97.28	98.03	95.01	96.16				96.62	
49JZ47	95.40							95.40	
6GUJ2B	95.36	94.34	94.36	94.73				94.70	
73RBW2	90.85	92.21	94.48	92.72				92.57	
782TTA	92.19	90.52	91.98					91.56	
7R6C7W	96.37	95.71	94.85	94.50	95.12	94.27		95.14	
8BFNA7	84.70	83.02	82.22					83.31 X	
9DCT6U	93.64	93.80						93.72	
9JGNNU	93.45	93.83						93.64	
9TBFU6	93.00							93.00	
9TCD6Z	95.80							95.80	
9TRTYT	94.00							94.00	
ATA6C8	90.80	90.90	90.50	90.30				90.63	
AXKDEW	95.83							95.83	
B434EW	95.60	95.60	95.60					95.60	
BDBFVZ	95.80	98.70						97.25	
BXBXY	97.64	96.86	98.43					97.64	
DGKF6W	94.50							94.50	
DHW3PW	96.97	94.73						95.85	
DLUPWW	92.40	92.42	90.78	91.60	92.41	92.36	91.71	91.06	91.84
DNWN8P	95.08	94.16							94.62
E2HMBW	97.28	98.03	95.01	96.16					96.62
E48TVU	95.50	99.10							97.30
ECLF6X	90.46	92.14	91.33	91.09	90.67	91.59	92.49	92.65	91.55
EZWUX	94.00	93.63							93.82
FDPQU	95.10	94.97	94.92	95.50	96.40	95.61			95.42
GBQG6Y	95.21	94.31	93.97						94.50
GP2GFL	84.34	84.46	85.16	86.40	86.68				85.41 X
H98AVR	94.15	91.53	96.14						93.94
JAGGXK	82.43	80.83	85.08	81.18	83.15	84.94	83.37		83.00 X
K4DXAP	96.20								96.20
KRGU6V	100.2	96.16	90.06						95.46
KXZBZN	96.43	96.55	96.62						96.53
LRELEM	96.00								96.00
NCDN6M	96.30								96.30
NTKKNM	95.30								95.30
PFPW7R	95.91	94.99	96.10	95.71	95.15	95.60	96.19		95.66

TABLE 3 - Item 1

WebCode	Item 1		Preparation target concentration : 95%				Mean
PPFHBQ	92.70	91.90					92.30
QJNR4L	94.00	94.00	94.00	94.00	94.00		94.00
RADMTF	96.70	94.80	93.30	94.20			94.75
RNA4GK	92.29	92.75	91.98	92.10			92.28
RUYJ8L	94.36	94.04	93.81	94.44	93.94	92.80	93.90
TTPMLG	76.31	76.38					76.35 X
TYVH6G	72.50	75.30					73.90 X
U3NR6G	93.50	93.00					93.25
U9WCTE	96.00						96.00
V9QHMD	95.50						95.50
XB27ZC	99.40	93.90					96.65
XU4R2F	95.31	95.16	94.24				94.90
XYP2PB	96.12	97.10	97.57				96.93
Y2HVM9	95.70						95.70
Y2Z4C4	41.65	38.63	44.65				41.64 X
Z9BPXC	96.31	95.10					95.71

Statistical Analysis for Item 1

Grand Mean	94.69	Number of Participants Included	49	Number of Participants without Raw Data or Data that was not reported in g/ 100mL	0
Standard Deviation	1.766	Number of Participants Excluded	6		

TABLE 3 - Item 2

WebCode	Item 2	Preparation target concentration : 65%						Mean	
2NWN48	62.69	60.59						61.64	
2YF37A	60.44	60.65	59.79	59.70				60.15	
3WLYQ9	65.87	65.58	65.95	66.46				65.97	
49JZ47	65.60							65.60	
6GUJ2B	67.34	66.44	67.17	67.91				67.22	
73RBW2	59.40	59.10	58.86	58.50				58.97	
782TTA	58.72	58.67	57.84					58.41	
7R6C7W	64.92	65.02	64.29	64.64	64.36	64.28		64.59	
8BFNA7	55.36	57.07	59.48					57.30	
9DCT6U	62.50	63.65						63.08	
9JGNNU	67.15	62.15						64.65	
9TBFU6	61.00							61.00	
9TCD6Z	64.70							64.70	
9TRTYT	64.80							64.80	
ATA6C8	60.00	60.20	60.00	60.10				60.08	
AXKDEW	65.07							65.07	
B434EW	65.30	65.30	64.80					65.13	
BDBFVZ	70.00	68.60						69.30	
BXBXY	72.63	69.01	68.52					70.05	
DGKF6W	66.10							66.10	
DHW3PW	61.39	64.75						63.07	
DLUPWW	58.89	58.47	58.19	58.05	58.37	59.05	58.03	58.01	58.38
DNWN8P	63.88	64.65							64.27
E2HMBW	65.38	65.34	65.76	65.46					65.49
E48TVU	63.60	65.30							64.45
ECLF6X	59.48	60.00	60.33	59.96	60.12	59.75	59.56	58.95	59.77
EZWUX	64.53	64.15							64.34
FDPQU	65.02	64.71	65.02	66.63	65.68	64.81			65.31
GBQG6Y	65.10	65.60	63.40						64.70
GP2GFL	56.40	57.26	56.99	57.76	58.67				57.42
H98AVR	63.35	66.04	65.25						64.88
JAGGXK	61.77	60.98	61.05	62.03	60.62	59.96	60.31		60.96
K4DXAP	65.70								65.70
KRGU6V	67.91	61.36	65.94						65.07
KXZBZN	65.23	65.24	65.44						65.30
LRELEM	66.30								66.30
NCDN6M	65.90								65.90
NTKKNM	64.50								64.50
PFPW7R	65.94	66.24	66.53	66.33	66.25	66.36			66.28
PPFHBQ	63.00	62.70							62.85
QJNR4L	64.00	64.00	64.00	64.00	64.00				64.00

TABLE 3 - Item 2

WebCode	Item 2		Preparation target concentration : 65%				Mean
RADMTF	60.80	60.70	61.10	59.60			60.55
RNA4GK	60.18	60.26	59.54	60.62			60.15
RUYJ8L	64.05	64.13	63.23	62.64	64.17	63.54	63.63
TTPMLG	51.36	50.47					50.92 X
TYVH6G	53.20	54.10					53.65 X
U3NR6G	63.50	71.00					67.25
U9WCTE	63.50						63.50
V9QHMD	64.10						64.10
XB27ZC	74.80	76.60					75.70 X
XU4R2F	62.55	60.23	60.99				61.26
XYP2PB	63.66	66.60	66.53				65.60
Y2HVM9	65.70						65.70
Y2Z4C4	14.91	15.26					15.09 X
Z9BPXC	62.77	64.13					63.45

Statistical Analysis for Item 2

Grand Mean	63.68	Number of Participants Included	51	Number of Participants without Raw Data or Data that was not reported in g/ 100mL
Standard Deviation	2.874	Number of Participants Excluded	4	

TABLE 3 - Response Summary

Response Summary	Item 1	Item 2
Preparation concentration:	95%	65%
Grand Mean	94.69	63.68
Standard Deviation	1.766	2.874

Method of Analysis

TABLE 4

Method of Analysis

WebCode	GC	LC	FTIR	GC/MS	LC/MS	UV	GC/FID	Other
2NWN48				✓				
2YF37A		✓						
3WLYQ9		✓						
49JZ47						✓		
6GUJ2B				✓				
73RBW2				✓				
782TTA				✓				
7R6C7W		✓						
8BFNA7					✓			
9DCT6U		✓						
9JGNNU		✓						
9TBFU6							✓	
9TCD6Z						✓		
9TRTYT			✓				✓	
ATA6C8							✓	
AXKDEW			✓	✓		✓		
B434EW						✓		
BDBFVZ							✓	
BXBKY		✓						
DGKF6W						✓		
DHW3PW								HPLC/UV
DLUPWW							✓	
DNWN8P		✓						
E2HMBW		✓						
E48TVU							✓	
ECLF6X							✓	

TABLE 4

Method of Analysis

WebCode	GC	LC	FTIR	GC/MS	LC/MS	UV	GC/FID	Other
EZWMUX								
FDPQU						✓		
GBQG6Y				✓				
GP2GFL							✓	
H98AVR							✓	
JAGGXK						✓		
K4DXAP						✓		
KRGU6V				✓				
KXZBZN			✓	✓				chiral derivatization
LRELEM						✓		
NCDN6M						✓		
NTKKNM						✓		
PFPW7R		✓						
PPFHBQ							✓	
QJNR4L	✓							
RADMTF				✓				
RNA4GK		✓						
RUYJ8L		✓						
TTPMLG		✓						
TYVH6G				✓				UPLC
U3NR6G								LC/MS/MS
U9WCTE						✓		
V9QHMD						✓		
XB27ZC				✓				
XU4R2F				✓				
XYP2PB		✓				✓		
Y2HVM9						✓		

TABLE 4

Method of Analysis

WebCode	GC	LC	FTIR	GC/MS	LC/MS	UV	GC/FID	Other
Y2Z4C4				✓				
Z9BPXC		✓						UPLC

Response Summary

Participants	GC	LC	FTIR	GC/MS	LC/MS	UV	GC/FID
	1	14	3	13	1	15	10
Percent	1.8%	25.5%	5.5%	23.6%	1.8%	27.3%	18.2%

Additional Comments

TABLE 5

WebCode	Additional Comments
73RBW2	4 samples taken - each sample analyzed 4 times (both items). Overall average reported (item 1). 95% confidence interval calculated with student's t-test = +/- 2.39% (item 1). Item 2 - average value calculated using the average response factor calculated from the controls analyzed just before & just after each sample. 95% confidence interval calculated with student's t-test => +/- 0.61% (item 2).
9TCD6Z	Verified methamphetamine by GCMS, verified Methamphetamine HCl by FTIR. Purity reported is as HCl salt.
9TRTTY	Check sample was run 3 times prior to casework samples to ensure curve is in proper working order. The check samples were 0.35, 1.07, and 0.31 percent difference from the known value. The check sample is prepared in the same manner as case samples. Known amount of sample, 1 mL of tridecane, add ~2mL of 10% NaOH and ~5mL of methylene chloride, vortex, and filter through sodium sulfate.
ATA6C8	Solvent used is methanol
BDBFVZ	In routine practice concentration (% purity) is calculated based on methamphetamine base, and in the case report the weight of. Methamphetamine base for the whole sample was reported, not the concentration.
DGKF6W	GC/MS, TLC, IR, Marquis all run on samples reported out as Meth HCl
DLUPWW	For each item, 2 weighings are done and solutions prepared. From each solution prepared, 2 gc vials are made and injected in triplicate. Thus, for each item we have 12 raw data values.
ECLF6X	We do two weighings per representative sample. Generate two vials for GC/FID injections - triplicate each. Total of 12 raw values per sample item. Confirmation by FTIR, GCMS, Color Tests.
GP2GFL	A one point calibration level was used at 1.0 mg/ml. Quality control (QC) samples were included in the analysis sequence at 0.5 mg/ml and 2.0 mg/ml. Both QC samples were within 5% (Accuracy) and 3% (Precision). Uncertainty measurements has not been implemented.
H98AVR	average standard purity was 100.93% reported values were corrected by multiplying average value by 0.990753. Precision was not as good as it normally is. Humidity was high this day (~64%). Also identified lactose in Item #2.
KXZBZN	A correction factor of 0.9941 was applied to all raw data.
NCDN6M	Reported as hydrochloride salt.
PPPW7R	The purity of standard was 99.956%. The results take into account the purity of standard (for question 1A of report). Raw data determinations (question 2 of report) don't take into account the purity of standard.
RUYJ8L	This study was conducted as part of validation of a new method.

Appendix: Data Sheet

Collaborative Testing Services ~ Forensic Testing Program Test No. 15-505: Quantitative Drug Analysis

DATA MUST BE RECEIVED BY July 13, 2015 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB and ANAB. 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 and/or ANAB.
(Accreditation Release section on the last page must be completed and submitted.)

This participant's data is NOT intended for submission to ASCLD/LAB or ANAB.

Online Data Entry

Visit www.cts-portal.com to enter your proficiency test results online. If you have any questions please do not hesitate to contact CTS.

Scenario:

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

Note:

- 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 Methamphetamine HCl present in the samples.

Items Submitted (Sample Pack DQT):

Items 1 & 2: Powdered Methamphetamine HCl samples

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

	<u>Reported Concentration</u>		<u>Uncertainty (k= _____)</u>	<u>Units</u>
Item 1:		±		
Item 2:		±		

1b.) Are the values listed above:

- The mean of duplicate / several determinations? The lowest value of duplicate / several determinations?
- Other? (Specify): _____

Please return all pages of this data sheet.

Participant Code:

WebCode:

2.) Please list your raw data determinations below in percent of Methamphetamine 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?

- | | | |
|---------------------------------|---|-------------------------------|
| <input type="checkbox"/> GC | <input type="checkbox"/> LC | <input type="checkbox"/> FTIR |
| <input type="checkbox"/> GC/MS | <input type="checkbox"/> LC/MS | <input type="checkbox"/> UV |
| <input type="checkbox"/> GC/FID | <input type="checkbox"/> Other (specify): _____ | |

4.) Additional Comments

Please return all pages of this data sheet.

Participant Code:

WebCode:

5.) DRUG QUANTITATION SURVEY

CTS is committed to finding new ways to meet your proficiency testing needs. Please provide information below on the drugs **most commonly encountered** in your quantitative casework including the drug name, common concentration range, typical number of cases per year, and common diluents.

(Example: Methamphetamine, 70-90% concentration, 10 cases per year, diluents- lactose, caffeine.)

<p>Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by <u>July 13, 2015</u> to be included in the report.</p>	<p>Participant Code:</p> <p>ONLINE DATA ENTRY: www.cts-portal.com</p> <p>FAX: +1-571-434-1937 or Toll-Free: 1-866-FAX-2CTS (329-2287)</p> <p>MAIL: Collaborative Testing Services, Inc. P.O. Box 650820 Sterling, VA 20165-0820 USA</p>
<p>QUESTIONS? TEL: +1-571-434-1925 (8 am - 4:30 pm EST) EMAIL: forensics@cts-interlab.com www.ctsforensics.com</p>	

Please return all pages of this data sheet.

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **15-505 Quantitative Drug Analysis**

This release page must be completed and received by July 13, 2015 to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

ASCLD/LAB Release

If your lab has been accredited by ASCLD/LAB and you are submitting this data as part of their external proficiency test requirements, have the laboratory's designated individual complete the following.
The information below must be completed in its entirety for the results to be submitted to ASCLD/LAB.

ASCLD/LAB Legacy Certificate _____ ASCLD/LAB International Certificate No. _____

Signature _____ Date _____

Laboratory Name _____

Location (City/State) _____

ANAB RELEASE

If your laboratory maintains its accreditation through ANAB, please complete the following form in its entirety to have your results forwarded.

ANAB Certificate No. _____

Signature and Title _____ Date _____

Laboratory Name _____

Location (City/State) _____

Return Instructions

Accreditation Release

Please submit the completed Accreditation Release at the same time as your full data sheet. See Data Sheet Return Instructions on the previous page.

*Questions? Contact us 8 am-4:30 pm EST
Telephone: +1-571-434-1925
email: forensics@cts-interlab.com*

Please return all pages of this data sheet.

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Supplemental: Bivariate Control Analysis

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 participants 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 the each other. However, because the measurands are similar, there should be a correlation of measurement performance between the two samples. A bi-variate 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. An ellipse is drawn so that 95% of the time a randomly selected laboratory will be included inside.

When considering your lab's position on the plot relative to the ellipse, remember that, generally speaking, if a lab's plotted point falls on the major axis outside of the ellipse, the lab is consistent in its measurements between the two samples but exhibits an offset from the grand mean (systematic bias). If a plotted point falls to the side of the ellipse, it indicates possible differences in the way that the lab tested the two samples or differences in sample behavior (inconsistency in testing).

Systematic Bias

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. Bias is an inherent component of laboratory measurement. When these differences become too large, a laboratory may receive a Data Flag. When the test results for both samples are both high or low compared to the group, a laboratory 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.

Inconsistency in Testing

The participant's results indicate that there are differences in the way the two samples 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 other testing conditions. The inconsistency is reflected in the Comparative Performance Values for the two samples, such as a +1.5 CPV for Item 1 and a -2.2 CPV for Item 2.

Definition of Terms

Participant Mean	The average of the test results obtained by a participant.
Grand Mean	The average of all included participant means. Participants flagged with an X are excluded from the grand mean.
Comparative Performance Value	An indication of how well a participant's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the grand mean. The closer a laboratories CPV is to zero, the more consistent its results are with the other participants' data (and vice versa).
Data Flag	Data flags are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol.

<u>Data Flag</u>	<u>Statistically Included/Excluded</u>	<u>Explanation</u>
*	Included	Results fall outside 95% ellipse, but within a 99% ellipse that is calculated but not drawn
X	Excluded	Results fall outside of 99% ellipse.

Bivariate Control Analysis

WebCode	Data Flag	Item 1			Item 2		
		Participant Mean	Difference from Grand Mean	CPV	Participant Mean	Difference from Grand Mean	CPV
2NWN48		92.29	-2.370	-1.35	61.64	-2.363	-0.90
2YF37A		91.08	-3.573	-2.04	60.15	-3.858	-1.48
3WLYQ9		96.62	1.965	1.12	65.97	1.962	0.75
49JZ47		95.40	0.745	0.43	65.60	1.597	0.61
6GUJ2B		94.70	0.042	0.02	67.22	3.212	1.23
73RBW2		92.57	-2.090	-1.19	58.97	-5.038	-1.93
782TTA		91.56	-3.092	-1.77	58.41	-5.593	-2.14
7R6C7W		95.14	0.482	0.28	64.59	0.582	0.22
8BFNA7	X	83.31	-11.342	-6.48	57.30	-6.699	-2.56
9DCT6U		93.72	-0.935	-0.53	63.08	-0.928	-0.35
9JGNNU		93.64	-1.015	-0.58	64.65	0.647	0.25
9TBFU6		93.00	-1.655	-0.95	61.00	-3.003	-1.15
9TCD6Z		95.80	1.145	0.65	64.70	0.697	0.27
9TRTYT		94.00	-0.655	-0.37	64.80	0.797	0.30
ATA6C8		90.63	-4.030	-2.30	60.08	-3.928	-1.50
AXKDEW		95.83	1.175	0.67	65.07	1.067	0.41
B434EW		95.60	0.945	0.54	65.13	1.131	0.43
BDBFVZ		97.25	2.595	1.48	69.30	5.297	2.03
BXBKY		97.64	2.988	1.71	70.05	6.051	2.31
DGKF6W		94.50	-0.155	-0.09	66.10	2.097	0.80
DHW3PW		95.85	1.195	0.68	63.07	-0.933	-0.36
DLUPWW		91.75	-2.908	-1.66	58.39	-5.617	-2.15
DNWN8P		94.62	-0.035	-0.02	64.27	0.262	0.10
E2HMBW		96.62	1.965	1.12	65.49	1.482	0.57
E48TVU		97.30	2.645	1.51	64.45	0.447	0.17
ECLF6X		92.00	-2.655	-1.52	59.69	-4.318	-1.65
EZWMUX		93.82	-0.840	-0.48	64.34	0.337	0.13
FDPUQU		95.42	0.762	0.44	65.31	1.307	0.50
GBQG6Y		94.50	-0.158	-0.09	64.70	0.697	0.27
GP2GFL	X	85.41	-9.247	-5.29	57.42	-6.587	-2.52
H98AVR		93.94	-0.715	-0.41	64.88	0.877	0.34
JAGGXK	X	83.00	-11.658	-6.66	60.96	-3.043	-1.16

Bivariate Control Analysis

WebCode	Data Flag	Item 1			Item 2		
		Participant Mean	Difference from Grand Mean	CPV	Participant Mean	Difference from Grand Mean	CPV
K4DXAP		96.20	1.545	0.88	65.70	1.697	0.65
KRGU6V		95.46	0.808	0.46	65.07	1.067	0.41
KXZBZN		96.53	1.878	1.07	65.30	1.301	0.50
LRELEM		96.00	1.345	0.77	66.30	2.297	0.88
NCDN6M		96.30	1.645	0.94	65.90	1.897	0.73
NTKKNM		95.30	0.645	0.37	64.50	0.497	0.19
PPPW7R		95.66	1.009	0.58	66.28	2.272	0.87
PPFHBQ		92.30	-2.355	-1.35	62.85	-1.153	-0.44
QJNR4L		94.00	-0.655	-0.37	64.00	-0.003	0.00
RADMTF		94.75	0.095	0.05	60.55	-3.453	-1.32
RNA4GK		92.28	-2.375	-1.36	60.15	-3.853	-1.47
RUYJ8L		93.90	-0.757	-0.43	63.63	-0.376	-0.14
TTPMLG	X	76.35	-18.310	-10.47	50.92	-13.088	-5.00
TYVH6G	X	73.90	-20.755	-11.87	53.65	-10.353	-3.96
U3NR6G	*	93.25	-1.405	-0.80	67.25	3.247	1.24
U9WCTE		96.00	1.345	0.77	63.50	-0.503	-0.19
V9QHMD		95.50	0.845	0.48	64.10	0.097	0.04
XB27ZC	X	96.65	1.995	1.14	75.70	11.697	4.47
XU4R2F		94.90	0.248	0.14	61.26	-2.746	-1.05
XYP2PB		96.93	2.275	1.30	65.60	1.594	0.61
Y2HVM9		95.70	1.045	0.60	65.70	1.697	0.65
Y2Z4C4	X	41.64	-53.012	-30.31	15.09	-48.918	-18.71
Z9BPXC		95.71	1.050	0.60	63.45	-0.553	-0.21

Response Summary		Item 1	Item 2
Preparation Concentration		95%	65%
Grand Mean		94.66	64.00
Standard Deviation		1.749	2.615
Number of Participants Included: 48		Number of Participants Excluded: 7	

Bivariate Control Analysis

Item 1 Grand Mean : 94.66

Item 2 Grand Mean: 64.00

