PAT PROGRAMS
AIHA PROFICIENCY ANALYTICAL TESTING PROGRAMS

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Report Issue Date: 11/15/2017

Steve Green
AT Labs, a Unit of Assay Technology
250 DeBartolo Place
Suite 2525
Boardman, OH 44512

Participant ID# 100903

Dear Steve Green,

Please find your organization's Industrial Hygiene Proficiency Analytical Testing results for **IHPAT Round 211**. It is the participant's responsibility to thoroughly review results and to immediately contact the AIHA Proficiency Analytical Testing Programs in writing, if any errors are found in your report.

The proficiency demonstrated by the results of this IHPAT round is valid until the results of the retest round are available on January 16, 2018, if the participant chooses to enroll, or until February 15, 2018 when the next IHPAT report will be available. Unacceptable performance may be improved by correctly analyzing a set of retest samples. If you require a retest for the round, you may order one by completing the Retest Order Form available online at www.aihapat.org. The completed form and payment must be received by November 27, 2017. Refer to the PAT Programs Schedule located at www.aihapat.org for important retest round dates.

Please handle, store and analyze your PAT samples in the same manner as routine client samples. To submit results, visit the Proficiency Analytical Testing (PAT) page and click on the PAT Data Entry Portal: www.aihapat.org**. Always print and save the confirmation page** after submitting data via the PAT Data Entry Portal.

Participants shall not describe their proficiency status in a manner that implies accreditation, certification or variations thereof. PAT results pertain only to the participant organization at the location listed on this results report. AIHA PAT Programs makes every effort to ensure that individual participant results are kept confidential and are not made public. Round results are only released to the participant and those entities requiring this information for accreditation, regulatory and contract purposes. New participants are made aware of the arrangement in advance of participation and consent is sought prior to the release of records for participants. PAT reports may not be reproduced or distributed unless copied in its entirety.

Any enrolled participant that is unable to participate in a PT round must request an "Excused Absence" in order to not receive outliers and an unacceptable performance rating. This written request must be received before the PT round closes. Please note that an "Excused Absence" will not be granted for more than two consecutive rounds.

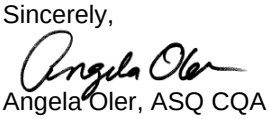
IHPAT Round 212 sample kits will be mailed to participants around January 1, 2018. An email will be sent out upon shipment of the samples. If you do not receive samples within fifteen (15) days after the ship date please contact the AIHA PAT Programs. Your organization's data will be due by 11:59pm ET on February 1, 2018. The analytes for **IHPAT Round 212** are:

- **Metals – cadmium (CAD), lead (LEA), manganese (MNG)**
- **Silica – coal mine dust/talc**
- **Asbestos – amosite**
- **Organics – chloroform(CFM), 1,2-dichloroethane (DCE), 1-Bromopropane (BPP)**
- **Diffusive – benzene (BNZ), o-xylene (OXY), toluene (TOL)**

Samples are generated, characterized, packaged, and shipped by SRI International, Menlo Park, CA 94025 under contract with AIHA Proficiency Analytical Testing Programs. Unless otherwise noted, sample homogeneity and stability criteria were satisfied for all samples.

I encourage you to contact me with any feedback, questions or if you wish to contest your results at aoler@aiha.org.

Sincerely,



Angela Oler, ASQ CQA
Director of Operations, AIHA PAT Programs

Industrial Hygiene Proficiency Analytical Testing Results

This document contains three sub-reports relating to IHPAT Round 211. The first report contains your organization's results listed per contaminant, per sample. The second report contains your current and 2 previous test round performance respectively (where applicable), and the final report contains summary results for all participants for IHPAT Round 211.

Testing Results for IHPAT Round 211

This part of the report contains your organization's results listed per contaminant, per sample.

Contaminant	Units	#	Result	Ref. Value	Lower Limit	Upper Limit	z-Score	Rating
Cadmium (CAD)	mg	1	0.02750	0.02762	0.02411	0.03113	-0.1	A
	mg	2	0.00721	0.00696	0.00612	0.00780	0.9	A
	mg	3	0.01210	0.01197	0.01034	0.01360	0.2	A
	mg	4	0.00195	0.00192	0.00166	0.00218	0.3	A
Chromium (CHR)	mg	1	0.0801	0.0852	0.0722	0.0983	-1.2	A
	mg	2	0.1520	0.1585	0.1378	0.1792	-0.9	A
	mg	3	0.0338	0.0351	0.0307	0.0394	-0.9	A
	mg	4	0.1230	0.1301	0.1144	0.1457	-1.4	A
Lead (LEA)	mg	1	0.1530	0.1623	0.1402	0.1844	-1.3	A
	mg	2	0.0492	0.0503	0.0437	0.0570	-0.5	A
	mg	3	0.0776	0.0817	0.0708	0.0927	-1.1	A
	mg	4	0.1200	0.1264	0.1111	0.1418	-1.3	A
n-Butyl Acetate (BAC)	mg	1	0.2050	0.2320	0.1865	0.2775	-1.8	A
	mg	2	0.7600	0.7764	0.6393	0.9135	-0.4	A
	mg	3	0.3020	0.3290	0.2425	0.4155	-0.9	A
	mg	4	0.4470	0.4496	0.3403	0.5590	-0.1	A
2-Propanol (IPA)	mg	1	0.1490	0.1318	0.0671	0.1965	0.8	A
	mg	2	0.4830	0.4304	0.2547	0.6062	0.9	A
	mg	3	0.3170	0.2848	0.1553	0.4144	0.7	A
	mg	4	0.7760	0.7083	0.4608	0.9557	0.8	A
Ethyl Acetate (EAC)	mg	1	0.5540	0.5946	0.4981	0.6911	-1.3	A
	mg	2	0.2170	0.2264	0.1922	0.2606	-0.8	A
	mg	3	0.8500	0.8918	0.7189	1.0647	-0.7	A
	mg	4	0.1120	0.1168	0.0983	0.1352	-0.8	A

Statistical Analysis Interpretation Note:
Reference value is the mean of the reference group.
Lower limit = reference value - 3 standard deviations; Upper limit = reference value + 3 standard deviations
z-Score = (reported result - reference value)/standard deviation. Note: z-Scores are used to predict trends and to indicate how far a particular score is away from the mean.
A – Acceptable* Analysis; U - Unacceptable Analysis
Fiber data are positively skewed therefore transformations are used to obtain approximately normal distributions.
Both the assigned values and acceptance limits are based on consensus of the reference group. *The acceptability of reported results is based on upper and lower acceptance limits. This is why a reported result may appear unacceptable according to z-Score, but be identified as acceptable.
Any non-participation or non-reporting of PAT data will result in unacceptable results (see PAT Programs Participation Policies, Section 2.1.6.2.).

Overall Performance Summary Concluding with 211

The following table contains your organization's current and 2 previous test rounds performance respectively (where applicable). For more information in regard to the determination of proficiency, please visit: www.aihapat.org.

Sample	Round	Round Score	Round Performance	Proficiency Status -Three Round Score
Metals	209	12/12	Pass	
	210	12/12	Pass	
	211	12/12	Pass	P
Organic Solvents	209	4/4	Pass	
	210	9/12	Pass	
	211	12/12	Pass	P

Interpretation Note:
The denominators represent the total number of samples analyzed.
The numerators represent the number of acceptable results.
Pass: Round Score ≥ 75% Fail: Round Score < 75%
P – Proficient; NP – Non-proficient; I – Indeterminate (not enough rounds to determine proficiency)
A participant is rated proficient for the applicable IHPAT analyte group if the participant has a passing score for the applicable IHPAT analyte group in two (2) of the last three (3) consecutive PT rounds. A participant is rated non-proficient for the applicable PT analyte group if the participant has failing scores for the associated PT analyte group in two (2) of the last three (3) consecutive PT rounds.
The following items are available in the Industrial Hygiene Scheme Plan:
Procedures used to statistically analyze the data, establish any assigned value and standard deviation for proficiency assessment, or other criteria for evaluation; details of the metrological traceability and measurement uncertainty of any assigned value; information about design and implementation of PT scheme. Industrial Hygiene Scheme Plan is available at http://www.aihapat.org/Programs/IHPAT/Documents/IHPAT%20Scheme%20Plan%20R2.pdf
Measurement uncertainty of any assigned value is also available on the respective certificate of analysis for the round.
Technical Comment: No remarkable observations.

Performance of all Participants for IHPAT Round 211

The following table contains aggregate results for all participants IHPAT Round 211.

Contaminant	#	Ref. Value	Ref. Std. Dev.**	RSD (%)	Uncertainty Assigned Value	Total Participants	Total Acceptable	Low*	High*
Cadmium (CAD)	1	0.02762	0.00117	4.2	0.000137	133	130	0	3
	2	0.00696	0.00028	4.0	0.000033	133	131	1	1
	3	0.01197	0.00054	4.5	0.000063	133	130	1	2
	4	0.00192	0.00009	4.6	0.000011	133	131	1	1
Chromium (CHR)	1	0.0852	0.0044	5.1	0.000510	132	124	3	5
	2	0.1585	0.0069	4.4	0.000808	132	124	4	4
	3	0.0351	0.0015	4.2	0.000171	132	127	2	3
	4	0.1301	0.0052	4.0	0.000609	132	123	5	4
Lead (LEA)	1	0.1623	0.0074	4.5	0.000864	135	130	3	2
	2	0.0503	0.0022	4.4	0.000259	135	132	2	1
	3	0.0817	0.0036	4.5	0.000427	135	132	2	1
	4	0.1264	0.0051	4.1	0.000599	135	130	5	0
Silica (SIL)	1	0.0885	0.0122	13.8	0.002091	58	56	2	0
	2	0.0375	0.0041	11.0	0.000705	58	55	1	2
	3	0.1416	0.0153	10.8	0.002620	58	57	1	0
	4	0.0670	0.0104	15.5	0.001785	58	56	1	1
Asbestos / Fibers (ASB)	1	305	61	20.0	5.835805	720	590	54	76
	2	218	44	20.0	4.167222	720	604	62	54
	3	275	55	20.0	5.268569	720	648	57	15
	4	76	15	20.0	1.457965	720	674	30	16
n-Butyl Acetate (BAC)	1	0.2320	0.0152	6.5	0.002237	97	88	8	1
	2	0.7764	0.0457	5.9	0.006738	97	92	3	2
	3	0.3290	0.0288	8.8	0.004252	97	92	3	2
	4	0.4496	0.0364	8.1	0.005373	97	92	3	2
Ethyl Acetate (EAC)	1	0.5946	0.0322	5.4	0.004740	97	89	5	3
	2	0.2264	0.0114	5.0	0.001681	97	92	2	3
	3	0.8918	0.0576	6.5	0.008499	97	93	2	2
	4	0.1168	0.0061	5.3	0.000905	97	90	2	5
2-Propanol (IPA)	1	0.1318	0.0216	16.4	0.003179	97	95	0	2
	2	0.4304	0.0586	13.6	0.008637	97	93	0	4
	3	0.2848	0.0432	15.2	0.006368	97	94	0	3
	4	0.7083	0.0825	11.6	0.012161	97	92	2	3

Note: **The reference group standard deviation is used but is limited to no less than 4% relative standard deviation or no greater than 20% relative standard deviation.
*__Low__ - number of participant results that are less than the Lower Limit; *__High__ - number of participant results that are greater than the Upper Limit.
Reference group/participant data sets for individual methods are not separated out during statistical analysis. Methods used by participants produce comparable data based upon the proficiency samples provided. Methods represented by fewer than eight participant data points are not assessed for comparability.
Additional technical comments or recommendations, when available, shall be shared with participants via the web and participants shall be notified via email.