

**World Meteorological Organization - Global Atmospheric Watch
QA/SAC-Americas - 41st Laboratory Intercomparison Study
Sample 1 Results**

DESCRIPTION OF RESULTS

This table summarizes measurements reported to the QA-SAC for Sample 1. A total of 77 laboratories reported measurements. Some measurements were missing or below the analytical detection limit (DL). The table lists the target values provided by the reference laboratory. N designates the number of reported values above the DL. Means and standard deviations (Std. Dev.) were calculated after trimming 3-sigma outliers to reduce the effect of extreme values and skewness. Medians are the 'accepted' values, reflecting the central measurements of all participants. Half the reported values occurred in the interquartile range listed in the last two columns. The Sigma of the median is estimated from the interquartile range and can be used to calculate z values, just as Std. Dev. can be used to calculate z scores.

E-mail any questions you have to manager@qasac-americas.org.

Measurement	Units	Target	N	Mean	Std. Dev.	Median	<i>Sigma_{est}</i>	25th	75th
pH	pH units	4.58	71	4.57	0.14	4.57	0.04	4.54	4.60
Conductivity	µS/cm	20.3	67	20.0	2.1	20.0	1.4	18.8	20.8
Acidity (optional)	µeq/L	N/A	7	33.7	12.0	28.5	17.4	24.0	47.6
Sulfate as SO ₄ ²⁻	mg/L	2.006	70	1.994	0.086	1.997	0.068	1.947	2.039
Nitrate as NO ₃ ⁻	mg/L	1.964	72	1.953	0.055	1.960	0.051	1.919	1.988
Ammonium as NH ₄ ⁺	mg/L	0.555	68	0.547	0.048	0.546	0.027	0.529	0.566
Fluoride (optional)	mg/L	0.101	24	0.100	0.011	0.099	0.010	0.094	0.107
Chloride	mg/L	0.330	70	0.321	0.048	0.315	0.017	0.303	0.327
Sodium	mg/L	0.190	72	0.179	0.022	0.182	0.019	0.168	0.193
Potassium	mg/L	0.044	64	0.043	0.010	0.044	0.010	0.038	0.050
Calcium	mg/L	0.305	70	0.287	0.036	0.299	0.031	0.270	0.312
Magnesium	mg/L	0.055	66	0.053	0.008	0.055	0.007	0.050	0.060

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QA/SAC-Americas - 41st Laboratory Intercomparison Study Sample 2 Results

DESCRIPTION OF RESULTS

This table summarizes measurements reported to the QA-SAC for Sample 2. A total of 77 laboratories reported measurements. Some measurements were missing or below the analytical detection limit (DL). The table lists the target values provided by the reference laboratory. N designates the number of reported values above the DL. Means and standard deviations (Std. Dev.) were calculated after trimming 3-sigma outliers to reduce the effect of extreme values and skewness. Medians are the 'accepted' values, reflecting the central measurements of all participants. Half the reported values occurred in the interquartile range listed in the last two columns. The Sigma of the median is estimated from the interquartile range and can be used to calculate z values, just as Std. Dev. can be used to calculate z scores.

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Measurement	Units	Target	N	Mean	Std. Dev.	Median	<i>Sigma_{est}</i>	25th	75th
pH	pH units	4.84	71	4.86	0.18	4.85	0.06	4.81	4.90
Conductivity	µS/cm	8.1	66	8.3	0.7	8.5	0.7	7.9	8.8
Acidity (optional)	µeq/L	N/A	7	19.6	7.5	20.6	9.7	13.2	26.3
Sulfate as SO ₄ ²⁻	mg/L	0.683	70	0.680	0.045	0.679	0.046	0.653	0.715
Nitrate as NO ₃ ⁻	mg/L	0.728	72	0.721	0.043	0.723	0.031	0.698	0.740
Ammonium as NH ₄ ⁺	mg/L	0.146	68	0.148	0.023	0.143	0.018	0.134	0.159
Fluoride (optional)	mg/L	0.005	12	0.014	0.012	0.010	0.004	0.005	0.011
Chloride	mg/L	0.069	62	0.074	0.024	0.070	0.012	0.063	0.080
Sodium	mg/L	0.027	56	0.032	0.013	0.029	0.006	0.025	0.033
Potassium	mg/L	0.012	46	0.017	0.008	0.015	0.007	0.011	0.020
Calcium	mg/L	0.069	64	0.069	0.023	0.070	0.016	0.060	0.082
Magnesium	mg/L	0.013	55	0.015	0.005	0.013	0.005	0.011	0.018

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Sample 3 Results

DESCRIPTION OF RESULTS

This table summarizes measurements reported to the QA-SAC for Sample 3. A total of 77 laboratories reported measurements. Some measurements were missing or below the analytical detection limit (DL). The table lists the target values provided by the reference laboratory. N designates the number of reported values above the DL. Means and standard deviations (Std. Dev.) were calculated after trimming 3-sigma outliers to reduce the effect of extreme values and skewness. Medians are the 'accepted' values, reflecting the central measurements of all participants. Half the reported values occurred in the interquartile range listed in the last two columns. The Sigma of the median is estimated from the interquartile range and can be used to calculate z values, just as Std. Dev. can be used to calculate z scores.

E-mail any questions you have to manager@qasac-americas.org.

Measurement	Units	Target	N	Mean	Std. Dev.	Median	<i>Sigma_{est}</i>	25th	75th
pH	pH units	4.58	71	4.56	0.14	4.56	0.05	4.52	4.60
Conductivity	µS/cm	20.3	67	20.3	2.8	20.4	1.4	19.1	21.0
Acidity (optional)	µeq/L	N/A	7	35.9	15.0	32.3	16.9	24.0	46.8
Sulfate as SO ₄ ²⁻	mg/L	2.006	70	1.998	0.107	2.006	0.080	1.941	2.049
Nitrate as NO ₃ ⁻	mg/L	1.964	72	1.963	0.072	1.969	0.056	1.921	1.996
Ammonium as NH ₄ ⁺	mg/L	0.555	68	0.552	0.049	0.546	0.026	0.528	0.563
Fluoride (optional)	mg/L	0.101	24	0.102	0.013	0.099	0.013	0.092	0.110
Chloride	mg/L	0.330	70	0.319	0.046	0.316	0.018	0.304	0.329
Sodium	mg/L	0.190	71	0.181	0.025	0.187	0.020	0.170	0.198
Potassium	mg/L	0.044	64	0.044	0.009	0.043	0.008	0.039	0.050
Calcium	mg/L	0.305	69	0.293	0.039	0.297	0.027	0.278	0.315
Magnesium	mg/L	0.055	65	0.053	0.009	0.055	0.006	0.050	0.059











