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Nitrate_plus_Nitrite: Bottle

Precision statement for replicate samples drawn from a single Niskin bottle:

The pooled standard deviation for Nitrate_plus_Nitrite: Bottle for the range 0.0 to 46.6 µmol/l was 0.23, k = 19 (1 outlier removed) where k is the number of pairs of duplicates.

The pooled standard deviation of pairs of samples (Sp) was calculated by:

$$S_p = \text{SQRT}\{\text{sum}(d^2)/2k\}$$

where k is the number of pairs and d is the difference between pairs.

Accuracy of the stock standard batch was determined by using commercially available standards from WAKO Chemicals (Sagami Chemical Company of Japan).

The values were within 0.76 % of the 20 µmol/l Nitrate Standard.

26 August 2013 Nitrate stock standard solution was used for this cruise analyses.

Duplicate samples from a single Niskin bottle

Event Number	Sample Number	Station	Pressure dbar	Nitrate 1 µmol/l	Nitrate 2 µmol/l	Rejected yes / no	Comment
3	11	P2	100.4	35.8	35.8		
5	30	P2	24.6	27.0	27.0		
7	61	P4	9.2	0.0	0.0		
9	91	P4	124.6	26.4	26.7		
9	84	P4	600.2	44.9	45.0		
23	155	P8	148.8	27.7	27.6		
23	146	P8	1249.4	46.7	46.4		
29	176	P12	174.5	26.9	27.6		
31	220	P12	99.6	17.3	17.3		
31	206	P12	2500.4	42.6	42.3		
42	313	P16	50.0	12.5	12.5		
42	299	P16	1499.7	46.4	46.4		
44	331	P16	175.2	28.8	29.2		
59	426	P20	125.0	17.7	17.8		
59	413	P20	2499.7	42.6	42.8		
60	435	P20	175.3	29.4	30.0		
67	469	P22	600.0	43.1	44.1	yes	
77	517	P26	175.3	36.4	37.2		
89	609	P26	75.2	17.5	17.5		
89	599	P26	800.0	45.7	45.8		

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Phosphate: Bottle

Precision statement for replicate samples drawn from a single Niskin bottle:

The pooled standard deviation for Phosphate: Bottle for the range 0.31 to 3.33 $\mu\text{mol/l}$ was 0.020, $k = 20$ (0 outlier removed) where k is the number of pairs of duplicates.

The pooled standard deviation of pairs of samples (S_p) was calculated by:

$$S_p = \text{SQRT}\{\text{sum}(d^2)/2k\}$$

where k is the number of pairs and d is the difference between pairs.

July 24 2013 Phosphate stock standard solution (July 24 secondary) was used for this cruise analyses. The Phosphate values were within 0.10% of the previous (Feb 2013, secondary) stock solution.

Duplicate samples from a single Niskin bottle

Event Number	Sample Number	Station	Pressure dbar	Phosphate 1 $\mu\text{mol/l}$	Phosphate 2 $\mu\text{mol/l}$	Rejected yes / no	Comment
3	11	P2	100.4	2.72	2.74		
5	30	P2	24.6	2.11	2.11		
7	61	P4	9.2	0.31	0.31		
9	91	P4	124.6	1.95	1.96		
9	84	P4	600.2	3.22	3.24		
23	155	P8	148.8	2.02	2.00		
23	146	P8	1249.4	3.34	3.31		
29	176	P12	174.5	2.00	2.01		
31	220	P12	99.6	1.47	1.46		
31	206	P12	2500.4	2.98	2.95		
42	313	P16	50.0	1.21	1.21		
42	299	P16	1499.7	3.18	3.16		
44	331	P16	175.2	2.07	2.07		
59	426	P20	125.0	1.41	1.41		
59	413	P20	2499.7	2.89	2.90		
60	435	P20	175.3	2.23	2.15		
67	469	P22	600.0	3.16	3.10		
77	517	P26	175.3	2.68	2.65		
89	609	P26	75.2	1.54	1.47		
89	599	P26	800.0	3.24	3.22		

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Silicate: Bottle

Precision statement for replicate samples drawn from a single Niskin bottle:

The pooled standard deviation for Silicate: Bottle for the range 2.5 to 178.6 $\mu\text{mol/l}$ was 0.17,
k = 19 (1 outlier removed) where k is the number of pairs of duplicates.

The pooled standard deviation of pairs of samples (S_p) was calculated by:

$$S_p = \text{SQRT}\{\text{sum}(d^2)/2k\}$$

where k is the number of pairs and d is the difference between pairs.

Accuracy of the stock standard batch was determined by using commercially available standards from
WAKO Chemicals (Sagami Chemical Company of Japan).

The values were within 0.57 % of the 100 $\mu\text{mol/l}$ Silicate standard that was analyzed while running these samples.

4 October 2013 Silicate stock standard solution was used for this cruise analyses.

Duplicate samples from a single Niskin bottle

Event Number	Sample Number	Station	Pressure dbar	Silicate 1 $\mu\text{mol/l}$	Silicate 2 $\mu\text{mol/l}$	Rejected yes / no	Comment
3	11	P2	100.4	64.1	64.0		
5	30	P2	24.6	40.2	40.2		
7	61	P4	9.2	2.5	2.5		
9	91	P4	124.6	32.8	32.9		
9	84	P4	600.2	96.5	97.1		
23	155	P8	148.8	35.0	34.7		
23	146	P8	1249.4	150.8	150.1		
29	176	P12	174.5	39.0	39.3		
31	220	P12	99.6	23.2	23.2		
31	206	P12	2500.4	179.4	177.8	yes	
42	313	P16	50.0	16.9	16.8		
42	299	P16	1499.7	161.9	162.0		
44	331	P16	175.2	43.9	44.0		
59	426	P20	125.0	24.2	24.2		
59	413	P20	2499.7	172.9	173.0		
60	435	P20	175.3	49.4	49.4		
67	469	P22	600.0	114.6	114.5		
77	517	P26	175.3	68.0	67.9		
89	609	P26	75.2	24.7	24.7		
89	599	P26	800.0	144.8	144.8		