2010-01 Oxygen duplicates - page 1

Precision statement for replicate samples drawn from a single Niskin bottle:
The pooled standard deviation for Oxygen:Dissolved:Bottle:Volume for the range 0.000 to 6.823 ml/l was 0.006,
$\quad$ k = 37 (0 outlier removed) where k is the number of pairs of duplicates.

Precision calculation for duplicate samples:
Precision was determined by analyzing replicate samples drawn from one Niskin.
Pooled standard deviation of pairs of samples (Sp) was calculated by:
$\quad$ Sp = SQRT{sum (d*d)/2k}
$\quad$ where k is the number of pairs and d is the difference between pairs.

Determination of outliers
Outliers are discarded on the basis of Chauvenet's criteria. The statistic is calculated by the difference
$\quad$ between the outlier and the mean, divided by the stdev.
If this absolute value is greater than the critical value of the Chauvenet criterion for the given n,
$\quad$ the datapoint can be discarded

Duplicate samples from a single Niskin bottle

Event Number	Sample Number	Station	Pressure dbar	Oxy:Dis 1 ml/l	Oxy:Dis 2 ml/l	Rejected yes / no	Comment
1	2	Si03	201.4	0.000	0.000		
1	3	Si03	175.8	0.000	0.000		
1	4	Si03	150.8	0.072	0.076		
1	5	Si03	125.2	0.083	0.100		
1	6	Si03	100.5	0.775	0.766		
1	7	Si03	74.8	4.326	4.317		
1	8	Si03	50.7	4.345	4.356		
1	10	Si03	9.4	5.097	5.098		
1	11	Si03	4.6	5.108	5.107		
5	24	P2	108.1	6.252	6.253		
5	25	P2	100.1	6.272	6.268		
5	26	P2	76.0	6.279	6.281		
5	27	P2	75.1	6.278	6.279		
5	28	P2	49.4	6.283	6.286		
5	30	P2	10.5	6.296	6.291		
10	52	P4	401.7	1.492	1.475		
10	62	P4	24.8	6.323	6.328		
22	202	P15	6.1	6.614	6.624		
25	222	P16	3500.2	2.702	2.704		
25	224	P16	2506.9	1.882	1.880		
25	233	P16	249.9	3.499	3.517		
31	999	P17	999.9	0.313	0.305		
34	312	P20	3501.1	2.860	2.858		
34	325	P20	174.4	4.338	4.337		

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Duplicate samples from a single Niskin bottle - continued

Event Number	Sample Number	Station	Pressure dbar	Oxy:Dis 1 ml/l	Oxy:Dis 2 ml/l	Rejected yes / no	Comment
34	329	P20	75.2	6.717	6.736		
34	333	P20	4.8	6.816	6.821		
40	363	P20	199.9	4.138	4.127		
40	372	P20	9.5	6.823	6.818		
48	110	P12	2500.3	1.884	1.881		
48	114	P12	1000.0	0.240	0.253		
48	121	P12	176.5	3.837	3.837		
48	127	P12	24.4	6.650	6.651		
55	432	P8	1998.1	1.391	1.375		
55	443	P8	249.6	2.333	2.338		
55	449	P8	74.0	6.140	6.149		
64	478	LC6	51.2	6.268	6.264		
64	482	LC6	5.2	6.295	6.293		

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Precision statement for samples drawn from duplicate Niskin bottles closed at same pressure:
The mean difference for Oxygen:Dissolved:Bottle:Volume for the range 0.336 to 6.280 ml/l was 0.003,
k = 7 (0 outlier removed) where k is the number of pairs of duplicates.

Duplicate Niskins at the same pressure

Event Number	Sample Number	Station	Nominal Pressure dbar	Oxy:Dis 1 ml/l	Oxy:Dis 2 ml/l	Rejected yes / no	Comment
5	26 / 27	P2	75	6.280	6.279		
10	47 / 48	P4	1250	0.446	0.453		
25	221 / 222	P16	3500	2.699	2.703		
34	311 / 312	P20	3500	2.864	2.859		
48	108 / 109	P12	3000	2.219	2.224		
55	433 / 434	P8	1500	0.689	0.683		
55	438 / 440	P8	600	0.340	0.336		