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

The mean difference for Oxygen:Dissolved: Bottle:Volume for the range 0.211 to 8.371 ml/l was 0.006,
 k = 71 (2 outliers removed) where k is the number of duplicates.

Precision analysis and the determination of outliers

Precision was determined by analyzing replicate samples drawn from one Niskin.

Outliers are discarded on the basis of Chauvenet's criteria. The statistic is calculated using the following formula:

$$\sigma = \left[\frac{1}{n-1} \sum_{i=1}^n (x_i - x_m)^2 \right]^{\frac{1}{2}}$$

The maximum deviation, dmax, is compared with the individual residuals from the original concentrations.
 If a replicate's residual is greater than dmax, this reading can be rejected based upon Chauvenet's criterion.

Duplicate samples from a single Niskin bottle

Event Number	Sample Number	Station	Pressure dbar	Oxy:Dis 1 ml/l	Oxy:Dis 2 ml/l	Oxy:Dis 3 ml/l	Oxy:Dis 4 ml/l	Rejected yes / no	Comment
1	8	Si03	50.7	1.748	1.812			yes	
3	14	P2	110.3	1.708	1.708				
10	81	P4	126.1	2.805	2.828				
10	87	P4	5.4	8.371	8.360				
20	132	P8	2002.4	1.339	1.332				
20	135	P8	1001.5	0.214	0.221	0.211	0.215		
20	148	P8	26.1	6.008	6.010				
29	200	P12	3001.7	2.308	2.316				
29	205	P12	1000.5	0.243	0.240	0.244	0.239		
29	213	P12	175.4	4.180	4.175				
29	217	P12	75.9	6.654	6.652				
41	296	P16	3000.7	2.440	2.448				
41	302	P16	1001.3	0.273	0.265	0.268			
41	309	P16	176	3.283	3.277				
41	315	P16	25.8	6.289	6.292				
52	371	P20	3500.5	2.891	2.886				
52	378	P20	999.2	0.354	0.354	0.342	0.344		
52	388	P20	101.7	6.749	6.749				
52	393	P20	5.4	6.259	6.254				
66	508	P26	4001	3.157	3.155				
66	514	P26	1250.4	0.514	0.511				
66	520	P26	249.5	1.952	1.950	1.948			
66	524	P26	125.1	5.170	5.168	5.160			
87	673	P4	1251.5	0.456	0.461				
87	674	P4	1000.8	0.295	0.291				
87	675	P4	802	0.213	0.214				
87	676	P4	601.9	0.397	0.402				
87	682	P4	76.4	5.218	5.234				
87	685	P4	11.1	6.072	6.066				
90	693	LB08	136.5	1.182	1.168				
90	694	LB08	127.5	1.193	1.180				
90	695	LB08	121.8	1.200	1.198				

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Duplicate Niskins at the same pressure

Note: The precision statement for samples drawn from duplicate Niskin bottles is not calculated since these values are not true duplicates. They are presented here as information only, mainly as a way to further identify problem samples.

Event Number	Sample Number	Station	Nominal Pressure dbar	Oxy:Dis 1 ml/l	Oxy:Dis 2 ml/l	Comment
10	69 / 70	P4	1250	0.457	0.456	
29	199 / 200	P12	3000	2.304	2.312	
41	296 / 297	P16	3000	2.444	2.533	
52	372 / 373	P20	3000	2.570	2.562	