


CEFAS BIOGEOCHEMICAL PROCESSES STANDARD OPERATING PROCEDURE (SOP)	
S.O.P. No. EQ-BGC-004	Issue: 1 Page 1 of 4

The collection and preparation of samples for salinity analysis

Production Summary

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History of Procedure

Issue	Date Issued	Changes	Changes made by
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Introduction

Samples for high precision salinity analysis should be collected in the approved glass bottle provided by CEFAS staff (see authorised recipients above), sealed with a plastic insert & screw lid then returned to the analyst with a completed log sheet.

Note: High precision determination of salinity

Modern high-precision salinometers are capable of a resolution of approximately 1 part in 40,000.

In oceanic work, salinity differences of 1 part in 4,000 can be highly significant, and with care in sampling as well as in the final measurement, salinity's of 34.12 and 34.13 can be distinguished reliably.

Failure to follow the correct procedure at the point of sample collection negates any point in analysing the sample to 3 decimal places once returned to the laboratory.

Sample collection at source


Above all, the sample must not be filtered. Filtration or any other manipulation that exposes the sample to even the slightest amount of evaporation (or dilution) will invalidate the sample.

Scope

This SOP describes the procedure to be followed by all sample collectors where samples are to be analysed for salinity by CEFAS nutrient chemistry function, using an Autosal 8400B salinometer or Portasal salinometer. (For this, refer to SOP no. EQ-BGC-4A & 4B).

Training

Operator must have been trained thoroughly in the correct use of niskin bottles and the principles of sample collection. The order in which samples are collected from a niskin bottle is of the utmost importance. The correct order is: dissolved oxygen, salinity, nutrients, suspended load or particulate load and phytoplankton. It is advisable for the operator to read this procedure thoroughly before starting the process and run through the first filtration with an experienced operator.


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Apparatus

1. 200ml glass bottle.
2. Plastic insert
3. Screw cap.
4. Tissue

Procedure

1. Choose a bottle from the crate systematically according to bottle number. Try to maintain this consistently throughout the cruise or field trip in relation to station number, as it assists greatly with any subsequent data processing.
2. Always take a duplicate sample for the first and the last bottles in the crate. This enables the analyst to perform self-checks ensuring better data quality.
3. When taking water column profiles, to assist with post data processing, collect samples from niskin bottles in the order of bottom to surface.
4. Fill bottle to approximately 10% capacity with sample; swirl well to ensure complete rinsing of inner walls (without capping the bottle) then empty contents.
5. Repeat step 5.
6. Without delay, fill bottle with sample leaving a 10-20 ml headspace.
7. Without delay, thoroughly wipe dry the top of the bottle, particularly the glass threads, with a clean dry tissue (use a new tissue for each bottle).
8. Without delay insert the flexible plastic insert then secure it with the black screw cap. (Do not pre-rinse either of these items)
9. Without delay, thoroughly wipe the outside of the bottle to remove any traces of sample.
10. If the sample has a known nominal or low-precision salinity obtained from a portable field device, this value should be written clearly on the bottle to enable the analyst to select the appropriate calibration range for the sample.
11. Place sample bottle back in the crate and fill in the log sheet (copy of log sheet contained in Appendix I.) clearly with sample details to assist with efficient processing of the results.
12. Return crate of samples to laboratory 155 and notify analyst in order for the samples to be logged in.

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Appendix I. Sample collection log sheet

Ship
 Cruise
 Contract
 Results to

STN No	WATER DEPTH	LAT.			LONG.			E W	GMT		DATE			Sal bottle	obs depth	Hull PRT			Nutrient	CHL	particulate	particulate
		deg	mins	sec	deg	mins	sec		hr.	m.	dy	mo	yr				cond	salt			N	P
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PLEASE LEAVE COMPLETED FORM IN THE CRATE.
 ANALYSIS WILL NOT BE CARRIED OUT WITHOUT A CONTRACT NUMBER
 CRATE TO BE RETURNED TO ROOM 155, FIRST FLOOR, NORTH EXTENSION