Salinity User Guide

Introduction

Salinity onboard is measured using a Fisher Model S66366 Refractometer. Higher concentration of salt in water results in more refraction of light through water. The amount of refraction of light through a sample on the refractometer can then be used to measure the salinity of the sample. The refractometer has scales for both specific gravity and ppt. The procedure used to measure salinity calibrates the refractometer with a seawater standard (IAPSO) to 35 ppt on the refractometer, although values are typically reported without units.

Calibration

1. Rinse and clean the blue prism surface with ultrapure water onto it and then wiping dry.
2. Add a drop of IAPSO standard seawater onto the blue prism surface. 50 uL from a pipette should work well.
3. Close the clear prism lid and the water should spread over the prism surface.
4. Look through the eyepiece of the refractometer towards a source of light. Sunlight from a window, or a ceiling light.
5. You should see a clear boundary between blue on top and white on bottom.
6. If this boundary is not at 35 (using the ppt scale on the right), then use a small screwdriver to adjust the calibration screw on top of the refractometer until the boundary between blue and white is at 35.
7. Rinse and clean the prism surface and lid with ultrapure water and then wipe dry.

Sample Analysis

1. Add a drop of sample onto the blue prism surface and close the prism lid.
2. Look through the eyepiece towards a source of light.
3. Read the number at the boundary between blue and white as the value for salinity.

Data Available in LIMS

Expanded SALINTY Report:

ANALYSIS	TABLE	NAME	ABOUT TEXT
SALINITY	SAMPLE	Exp	Exp: expedition number
SALINITY	SAMPLE	Site	Site: site number
SALINITY	SAMPLE	Hole	Hole: hole number
SALINITY	SAMPLE	Core	Core: core number
SALINITY	SAMPLE	Type	Type: type indicates the coring tool used to recover the core (typical types are F, H, R, X).
SALINITY	SAMPLE	Sect	Sect: section number

SALINITY	SAMPLE	A/W	A/W: archive (A) or working (W) section half.
SALINITY	SAMPLE	text_id	Text_ID: automatically generated database identifier for a sample, also carried on the printed labels. This identifier is guaranteed to be unique across all samples.
SALINITY	SAMPLE	sample_number	Sample Number: automatically generated database identifier for a sample. This is the primary key of the SAMPLE table.
SALINITY	SAMPLE	label_id	Label identifier: automatically generated, human readable name for a sample that is printed on labels. This name is not guaranteed unique across all samples.
SALINITY	SAMPLE	sample_name	Sample name: short name that may be specified for a sample. You can use an advanced filter to narrow your search by this parameter.
SALINITY	SAMPLE	x_sample_state	Sample state: Single-character identifier always set to "W" for samples; standards can vary.
SALINITY	SAMPLE	x_project	Project: similar in scope to the expedition number, the difference being that the project is the current cruise, whereas expedition could refer to material/results obtained on previous cruises
SALINITY	SAMPLE	x_capt_loc	Captured location: "captured location," this field is usually null and is unnecessary because any sample captured on the JR has a sample_number ending in 1, and GCR ending in 2
SALINITY	SAMPLE	location	Location: location that sample was taken; this field is usually null and is unnecessary because any sample captured on the JR has a sample_number ending in 1, and GCR ending in 2
SALINITY	SAMPLE	x_sampling_tool	Sampling tool: sampling tool used to take the sample (e.g., syringe, spatula)
SALINITY	SAMPLE	changed_by	Changed by: username of account used to make a change to a sample record
SALINITY	SAMPLE	changed_on	Changed on: date/time stamp for change made to a sample record
SALINITY	SAMPLE	sample_type	Sample type: type of sample from a predefined list (e.g., HOLE, CORE, LIQ)
SALINITY	SAMPLE	x_offset	Offset (m): top offset of sample from top of parent sample, expressed in meters.
SALINITY	SAMPLE	x_offset_cm	Offset (cm): top offset of sample from top of parent sample, expressed in centimeters. This is a calculated field (offset, converted to cm)
SALINITY	SAMPLE	x_bottom_offset_cm	Bottom offset (cm): bottom offset of sample from top of parent sample, expressed in centimeters. This is a calculated field (offset + length, converted to cm)
SALINITY	SAMPLE	x_diameter	Diameter (cm): diameter of sample, usually applied only to CORE, SECT, SHLF, and WRND samples; however this field is null on both Exp. 390 and 393, so it is no longer populated by Sample Master
SALINITY	SAMPLE	x_orig_len	Original length (m): field for the original length of a sample; not always (or reliably) populated
SALINITY	SAMPLE	x_length	Length (m): field for the length of a sample [as entered upon creation]
SALINITY	SAMPLE	x_length_cm	Length (cm): field for the length of a sample. This is a calculated field (length, converted to cm).
SALINITY	SAMPLE	status	Status: single-character code for the current status of a sample (e.g., active, canceled)
SALINITY	SAMPLE	old_status	Old status: single-character code for the previous status of a sample; used by the LIME program to restore a canceled sample
SALINITY	SAMPLE	original_sample	Original sample: field tying a sample below the CORE level to its parent HOLE sample
SALINITY	SAMPLE	parent_sample	Parent sample: the sample from which this sample was taken (e.g., for PWDR samples, this might be a SHLF or possibly another PWDR)
SALINITY	SAMPLE	standard	Standard: T/F field to differentiate between samples (standard=F) and QAQC standards (standard=T)
SALINITY	SAMPLE	login_by	Login by: username of account used to create the sample (can be the LIMS itself [e.g., SHLFs created when a SECT is created])
SALINITY	SAMPLE	login_date	Login date: creation date of the sample
SALINITY	SAMPLE	legacy	Legacy flag: T/F indicator for when a sample is from a previous expedition and is locked/uneditable on this expedition
SALINITY	TEST	test changed_on	TEST changed on: date/time stamp for a change to a test record.
SALINITY	TEST	test status	TEST status: single-character code for the current status of a test (e.g., active, in process, canceled)

SALINITY	TEST	test old_status	TEST old status: single-character code for the previous status of a test; used by the LIME program to restore a canceled test
SALINITY	TEST	test test_number	TEST test number: automatically generated database identifier for a test record. This is the primary key of the TEST table.
SALINITY	TEST	test date_received	TEST date received: date/time stamp for the creation of the test record.
SALINITY	TEST	test instrument	TEST instrument [instrument group]: field that describes the instrument group (most often this applies to loggers with multiple sensors); often obscure (e.g., user_input)
SALINITY	TEST	test analysis	TEST analysis: analysis code associated with this test (foreign key to the ANALYSIS table)
SALINITY	TEST	test x_project	TEST project: similar in scope to the expedition number, the difference being that the project is the current cruise, whereas expedition could refer to material/results obtained on previous cruises
SALINITY	TEST	test sample_number	TEST sample number: the sample_number of the sample to which this test record is attached; a foreign key to the SAMPLE table
SALINITY	CALCULATED	Top depth CSF-A (m)	Top depth CSF-A (m): position of observation expressed relative to the top of the hole.
SALINITY	CALCULATED	Bottom depth CSF-A (m)	Bottom depth CSF-A (m): position of observation expressed relative to the top of the hole.
SALINITY	CALCULATED	Top depth CSF-B (m)	Top depth [other] (m): position of observation expressed relative to the top of the hole. The location is presented in a scale selected by the science party or the report user.
SALINITY	CALCULATED	Bottom depth CSF-B (m)	Bottom depth [other] (m): position of observation expressed relative to the top of the hole. The location is presented in a scale selected by the science party or the report user.
SALINITY	RESULT	instrument_used	RESULT instrument used: indication of whether the manual/optical or digital salinometer was used
SALINITY	RESULT	salinity	RESULT salinity (unitless): salinity number of the interstitial water sample (roughly parts-per-thousand salinity, but in the unitless PSU scale)
SALINITY	RESULT	ssup_asman_id	RESULT spreadsheet uploader ASMAN_ID: serial number for the ASMAN link for the spreadsheet uploader file
SALINITY	RESULT	ssup_filename	RESULT spreadsheet uploader filename: file name for the spreadsheet uploader file
SALINITY	SAMPLE	sample description	SAMPLE comment: contents of the SAMPLE.description field, usually shown on reports as "Sample comments"
SALINITY	TEST	test test_comment	TEST comment: contents of the TEST.comment field, usually shown on reports as "Test comments"
SALINITY	RESULT	result comments	RESULT comment: contents of a result parameter with name = "comment," usually shown on reports as "Result comments"

Archived Versions

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