AISCT® Sal™

GETTING THE MOST FROM THE SYSTEM

There Is No Model to Hide Behind

Sal measures the chloride itself, so there is no correlation to build and no threshold to guess. The number arrives in the same units as your limit, on the first sample of the programme. **What is left to get right is the procedure — and the record that proves you followed it.**

THE SIXTY-SECOND VERSION

the whole guide, before the crew leaves the truck

- ☐ **1 Enter the criterion first** — per parameter, per sample location
- ☐ **2 Act on the first sample** — no model to calibrate, no waiting on the lab
- ☐ **3 Let the bath do the work** — extraction enforced at 25 °C
- ☐ **4 Condition the probes** — when the App prompts — treat it as a stop
- ☐ **5 Do not skip the QA/QC** — calibration, conditioning logs, blanks, replicates
- ☐ **6 Do not modify the SOP** — consumables, volumes, conditioning — all fixed
- ☐ **7 Match the tube to the matrix** — soil is extracted, water is read directly
- ☐ **8 Log soil type, depth and moisture** — entered with every sample
- ☐ **9 Screen densely** — clean ground and impacted alike
- ☐ **10 Run duplicates** — the spread is what builds the probability
- ☐ **11 Resolve borderline on the spot** — re-test or step out before the crew leaves
- ☐ **12 Confirm your flags** — under half confirmed caps the rating
- ☐ **13 Enter every certificate** — the unit gets sharper each time
- ☐ **14 Deploy on day one** — and keep it running through to closure

AT THE SAMPLE • ONE AND TWO

None of these need new equipment or a bigger budget. They are decisions the crew makes in the first ten minutes of a programme, and they set the ceiling on everything measured afterwards.

1 Enter the criterion before you read

Sal has no threshold to derive. You select the applicable criterion for the parameter at each sample location, and every result is classified against it — in the same units, at the moment it is recorded. Get it right at set-up and every reading after it sorts itself.

✕ A wrong criterion does not bias a model. It mis-sorts the sample in front of you.

2 Act on the first sample

There is no model to calibrate and no waiting on the laboratory before the first decision. The comparison against the criterion is available at the instrument on sample one, so make the call while the excavator is still standing there.

✕ Banking readings to interpret later throws away the whole advantage.

AT THE SAMPLE • THREE TO EIGHT

Direct measurement removes the model, not the discipline — everything here keeps one reading comparable to the next.

3 Let the bath do the work — 25 °C, every sample

A controlled dry bath holds the extraction at an enforced 25 °C so that soil type and weather stop being variables. **This is the mechanism that makes one sample comparable to the next** — not a warm-up to be trimmed when the day runs long.

> ✕ Shorten it and you have measured the conditions, not the soil.

4 Condition the probes when the App asks

Ion-selective probes are sensitive instruments, and their preparation cycles are driven by how hard the unit has been worked that day and that week. The application prompts them. **Treat the prompt as a stop, not a suggestion.**

> ✕ Skipped conditioning shows up as drift, degraded performance or a damaged probe.

5 Do not skip the QA/QC

Daily calibration against certified standards, probe conditioning logs, standard checks, step-downs, blanks and replicates. **An instrument out of compliance does not give a conservative answer — it gives an unknown one.** Park it until it passes.

> ✕ Data from an uncalibrated probe cannot be defended later.

6 Do not modify the SOP

Compliance is judged sample by sample, not signed off once for the programme. Non-approved consumables, non-standard extraction volumes and alternative probe conditioning each invalidate comparability — including the TRIUM-supplied ionic strength adjustment, which is what gives the electrode its matrix independence.

> ✕ One substituted consumable takes the comparability of every sample around it.

7 Match the tube to the matrix

Soil runs through the extraction path; water is measured directly, with the appropriate tube configuration. Both report in the same units family — mg/kg and mg/L — so soil and water results sit alongside each other in one record.

> ✕ Water is not soil. It does not need extracting, and should not get it.

8 Log soil type, depth and moisture

The App captures field metadata against every sample under an enforced procedure, and it is what makes the vertical chloride profiles and the spatial summaries work. Enter it with the sample and the record stays sorted for the life of the project.

> ✕ Metadata not captured at the sample cannot be reconstructed afterwards.

A conductivity meter answers a different question — how well does this soil conduct? — and minerals, moisture and matrix all move that number. **Sal responds to the chloride ion, in the units of your criterion.**

ALSO WORTH KNOWING

Keep the unit above freezing — the kit must not be exposed to freezing conditions.

Below 50 mg/kg it reports not detected — that is the reporting floor for the method.

Sodium is coming — a sodium module is being introduced alongside chloride.

Consumables and calibration solutions come from TRIUM — data from any other instrument is not compatible with the platform.

Changing the criterion is a setting, not a rebuild — set it in the App and every probability of exceedance recalculates against it.

Run the AI report, then sign it — post-processing drops from days to minutes; review and professional sign-off stay with you.

ACROSS THE PROGRAMME • NINE TO FOURTEEN

9 Screen densely, clean ground and impacted

In fast-draining ground, clean soil sits directly beside impacted soil — which is exactly where the line has to be drawn. Only density resolves a boundary, and up to forty samples an hour is what makes that density affordable.

10 Run duplicates — they build the probability

Field duplicates are separate physical grabs, so the spread between them measures how variable the soil actually is at that location. **That measured spread is what the probability of exceedance is computed from**, and it sets a floor no method can beat.

11 Resolve borderline readings on the spot

Every result carries a probability of exceedance, so a borderline sample announces itself while the crew is still on site. Re-test it, duplicate it or step out — do not meet it again in the report.

12 Confirm your flags, not just your passes

Confirmation coverage is scored. Send fewer than half of your flagged samples for analysis and the rating is capped at Moderate however well the nine measures score — which is exactly what happened below. Pick the samples carrying the highest-consequence decisions.

13 Enter every certificate — the unit learns from each one

Confirmation documents the decision rather than unlocking it, but every confirmed outcome is also fed back to the instrument. The accumulated experience of one programme sharpens the decision performance of the next; certificates left in an inbox sharpen nothing.

14 Deploy on day one and run it to closure

Go out on discovery of the release, not after the first laboratory round. The analytical value compounds as the record grows, and the same criterion then carries delineation, remediation tracking and closure without a change of method.

WHAT THE SCORECARD ACTUALLY MEASURES

SCREENING EFFECTIVENESS — standardised procedure • 28 laboratory-paired samples • one ground type, one criterion

MODERATE SCORE **15 / 18**

CATCH	RESTRAINT	PASS TRUST	FLAG TRUST	SEPARATION	TRACKING	FIT	RANKING	CLOSENESS
1.00	0.96	1.00	0.50	0.96	0.89	0.79	0.69	1.06
≥ 0.90	≥ 0.80	≥ 0.95	≥ 0.80	≥ 0.70	≥ 0.70	≥ 0.50	≥ 0.70	≤ 1.00

Six of the nine measures rate Effective and three rate Moderate. The score of 15 clears the Effective floor of 13. The **rating** is held at Moderate because two coverage rules fired: only 2 of the 18 flagged samples were sent for confirmation, and the paired set holds 1 confirmed exceedance against a rule that asks for five.

28
paired samples
field reading and accredited laboratory result

1 of 1
exceedance caught
nothing over the limit was passed as clean

26 of 26
passes confirmed
every sample it cleared came back clean

1.06×
closeness
its gap to the lab, against two grabs of the same soil

2 of 18
flags sent for confirmation

THE BOTTOM LINE

The field work was not the problem here. Nothing over the limit was passed, every sample the instrument cleared came back clean, and the single classification error sat inside the grey zone around the criterion. What held the rating at Moderate was verification coverage: too few flags confirmed, and too few confirmed exceedances to judge flagging on. A tool that caps its own rating on what was checked is one you can put your name to — and habit twelve exists because of this panel.