



Tarangnan Community Hospital
Clinical Laboratory

Document No.: WI-C-004-A-V0

Parent Document: SOP-C-004, Sections 5.2–5.7 | Version: V0

CONTROLLED COPY
Do not copy or remove

Applies to: Medical Technologists | Effective Date: MM-DD-YYYY | Supersedes: None

Sensa Core ISE Electrolyte Analyzer Operation & Daily Cleaning Bench Card

Clinical Chemistry Section | Direct Potentiometric Serum Na⁺ / K⁺ / Cl⁻ Protocol

STOP — CRITICAL SPECIMEN REJECTION RULES (PREVENT PSEUDOHYPERKALEMIA)

NEVER USE: Lavender EDTA (K2/K3), Blue Citrate, or Gray Fluoride tubes — EDTA causes catastrophic false K⁺ > 15 mmol/L!

GROSS HEMOLYSIS: Reject visible pink/red serum (free Hgb > 100 mg/dL) — request urgent recollection immediately.

ACCEPTABLE: Plain Red-Top or Gold SST serum, or lithium-heparin plasma (green-top) per SOP-C-004; serum clotted 20–30 min upright, centrifuged at 1500–2000 × g, separated within 1–2 hours.

1 Reagent Pack & System Fluidic Check

Inspect snap-in closed reagent module: verify Cal A and Cal B > 5% remaining; verify waste bag is NOT full (< 95% full). Check peristaltic pump tubing and verify Ag/AgCl reference line is primed without air bubbles.

SOP-C-004, Section 5.3.1, 5.3.2

2 Two-Point Slope Calibration Verification

Verify automated 2-point calibration (Calibrator A & B). Confirm electrode slopes: **Na⁺ & K⁺: 50.0 to 62.0 mV/decade; Cl⁻: 40.0 to 58.0 mV/decade**. If slope fails or is unstable, testing locks automatically; clean and recalibrate.

SOP-C-004, Section 5.4.1

3 Daily Two-Level Quality Control (IQC) Run

Analyze Level 1 (Normal) and Level 2 (Abnormal) aqueous/serum electrolyte controls every morning before patient samples. Apply Westgard rules — 1:2s = warning only (investigate); 1:3s / 2:2s / R:4s = reject: halt patient testing and troubleshoot. No patient results until QC passes. Document in Daily QC Logbook.

SOP-C-004, Section 5.4.3

4 Stepwise Patient Sample Aspiration

Ensure screen reads **READY**. Uncap unhemolyzed serum tube; present tube to the sample probe. Analyzer automatically aspirates **65 to 100 µL**, withdraws probe, and displays Na⁺, K⁺, Cl⁻ concentrations within 45–60 seconds.

SOP-C-004, Section 5.5.1–5.5.7

⌚ 45–60 s

5 Critical Value Verification & Telephone Protocol

If result breaches critical limits (K⁺ < 2.8 or > 6.2; Na⁺ < 120 or > 160; Cl⁻ < 80 or > 120 mmol/L): repeat run immediately to confirm; inspect tube; phone physician/ward within 15 min; require verbal read-back; log on F-QM-POST-002-A-V0.

SOP-C-004, Section 5.6.1, 5.6.2

⌚ ≤ 15 min

6 Daily End-of-Shift Pepsin Deproteinization Cleaning

At end of shift, present Sensa Core Daily Cleaning Solution (pepsin deproteinizer) to sample probe. The proteolytic solution soaks the electrode chamber for exactly **3 minutes** to remove serum proteins, followed by automated Cal A flush.

SOP-C-004, Section 5.4.4

⌚ 3 min soak

7 Weekly Sodium Electrode Conditioning

Once weekly, aspirate dedicated Sodium Conditioning Solution (ammonium bifluoride) into the electrode chamber to revitalize the hydrated glass capillary membrane. Wear gloves and eye protection; see SDS — corrosive / fluoride source. Execute automated 2-point calibration immediately following conditioning.

SOP-C-004, Section 5.4.5

WEEKLY

ELECTRODE SLOPE CRITERIA & REFERENCE INTERVALS

Electrode	Acceptable Slope	Adult Reference Interval
Sodium (Na ⁺)	50.0 to 62.0 mV/decade	135 to 145 mmol/L
Potassium (K ⁺)	50.0 to 62.0 mV/decade	3.5 to 5.1 mmol/L
Chloride (Cl ⁻)	40.0 to 58.0 mV/decade	98 to 107 mmol/L

CRITICAL VALUES (F-QM-POST-002-A-V0)

Electrode	Critical Low	Critical High
Sodium (Na ⁺)	< 120 mmol/L	> 160 mmol/L
Potassium (K ⁺)	< 2.8 mmol/L	> 6.2 mmol/L
Chloride (Cl ⁻)	< 80 mmol/L	> 120 mmol/L

Action: Repeat run → Call ward within 15 min → Verbal read-back → Record on F-QM-POST-002-A-V0.

Prepared by: Chief Medical Technologist Signature: _____ Date: _____	Reviewed by: Pathologist Signature: _____ Date: _____	Approved by: Hospital Director Signature: _____ Date: _____
--	---	---