	KATHMANDU UPATYAKA KHANEPANI LIMITED WATER/WASTE WATER QUALITY ASSURANCE DIVISION Mahankalchaur	SOP Code No:	EC001
	STANDARD OPERATING PROCEDURE Electrical Conductivity	Version No:	
Effective Date:			
Pages:		1 of 5	
Developed by:		Puranjan Nepal	
	Verified by:	Prem Paudyal	
	Approved by:	Shailaja Adhikari	

1. Scope and Objectives

To Determine Electrical Conductivity of Water using Hanna EC meter edge® EC (HI2003).

2. Principle

The ability of water to conduct an electric current is known as conductivity or specific conductance and depends on the concentration of ions in solution. Conductivity is measured in millisiemens per metre ($1 \text{ mS m}^{-1} = 10 \text{ } \mu\text{S cm}^{-1} = 10 \text{ } \mu\text{mhos cm}^{-1}$).

3. Equipment and Materials


- 1) Beaker 100ml
- 2) Tissue paper
- 3) Hanna EC edge® EC (HI2003)

4. Reagents

1. Pure water
2. Calibration Standard $1413 \mu\text{S cm}^{-1}$

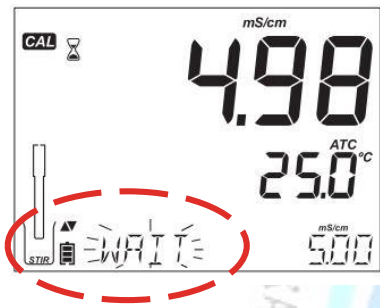
5. Sampling and sample preparation

Sample collection will be done according to the water quality monitoring plan and SOPs for sample collection.

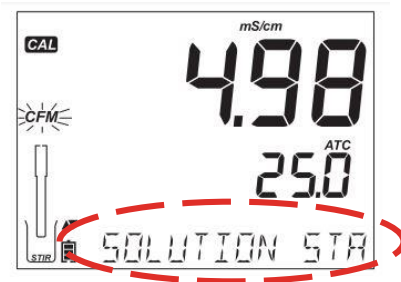
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6. Calibration

1. Rinse the probe with calibration solution or deionized water. Shake off excess solution. Submerge the probe in the calibration solution.
2. Press CAL/MODIFY key.
3. The "⌚" along with "STIR" tag will be displayed and "WAIT" will blink on the LCD until the reading is stable.



4. The "CAL" tag and the recognized standard value will appear on the third LCD line. press ▲▼ the keys to select a different $1413\mu\text{S cm}^{-1}$.
5. When the reading is stable and close to $1413\mu\text{S cm}^{-1}$, "CFM" tag will blink, the message "SOL STD" and the value will be displayed.





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6. Press GLP/CFM key. Then, “Saving” will displayed.



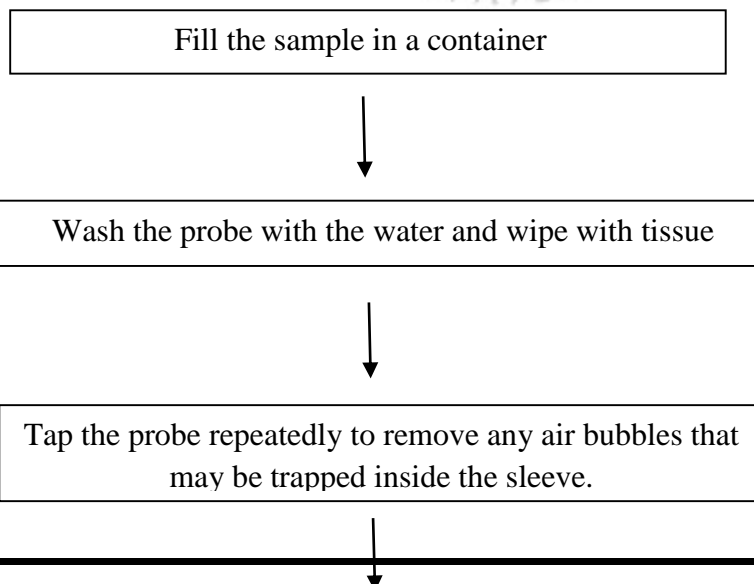
7. Measurement

Reference: Hanna EC edge® EC (HI2003) operation guide, Calibration in standard mode

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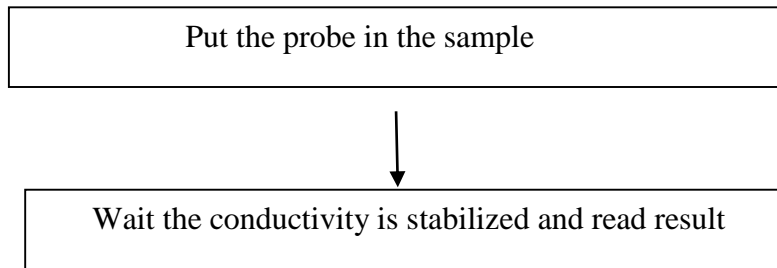
- ✓ Sample measurement should be started after calibration.
- ✓ **At least two measurements on a single sample** should be performed and evaluate the precision of the measured values (**Reference: SOP for Measurement data quality management**).

Measurement procedure



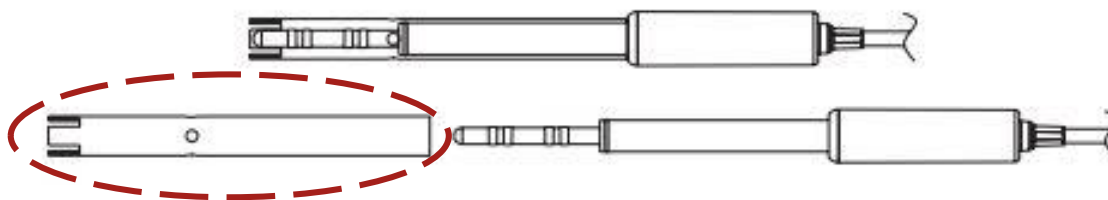


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8. Maintenance (After You Measure)

- ✓ Rinse the probe with clean water after measurements.
- ✓ If a more thorough cleaning is required, remove the probe sleeve and clean the probe with a cloth or a nonabrasive detergent.
- ✓ Make sure to reinsert the sleeve onto the probe properly and in the right direction.
- ✓ After cleaning the probe, recalibrate the instrument



9. Expression of Results

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- Conductivity has many units (mS/m, μ S/m, S/m). Relationship among units are, “1S/m = 1000mS/m = 10000 μ S/cm)
- To report the result, “mS/m” or “S/m” is recommendable units in the International System of Units (SI). However, Potable water has conductivity very less so it often express in μ S/cm.
- Three (3) digits significant figures are recommended.

10. References

- ❖ Hanna EC meter edge® EC (HI2003) Manual
- ❖ Standard Methods for the Examination of Water and Wastewater, APHA, AWWA and WEF, 21st Edition, 2005.
- ❖ SOP for sample collection.
- ❖ SOP for Measurement Data Quality Management