ADDENDUM 3

Tender for Laboratory Reagents and Medical Consumables
NO: MOH/85/2026

To all bidders under Tender No. MOH/85/2026

30th October 2026

1. The Ministry of Health wishes to inform all bidders that for clarification regarding the below

- **Lot 4** - **manufacturer requires further information - do you have further specs or application detail?**
  - M088 Portable Ohmeter (for distilled water QC)
  - M089 TDS Meter (for ditilled water QC)
  - M090 Surface Probe (for pH QC)
- **Lot 7**
  - MO21 DIGITAL THERMOMETER - **is this a room thermometer?**
  - MO22 DIGITAL WEIGHING SCALE (BENCH SCALE) - **any specs? Max weight, decimal accuracy etc?**
- **Lot 8**
  - L082 AUTOCLAVE TAPES - **any specs or width length?**
  - L083 STAINLESS STEEL SIEVE - **what size?**
  - L098 Gauze - any specs? **What size, length, mesh?**

Has been outline below:

- **Lot 4** - **manufacturer requires further information - do you have further specs or application detail?**
  - M088 Portable Ohmeter (for distilled water QC)

Pen-Style Pocket Tester Specifications

Feature Requirement	Technical Specification	Importance for Media Prep
Waterproof Rating	**IP67 Rating** (Dust-tight and fully waterproof)	Essential because pocket testers routinely slip out of hands and fall completely into sample beakers.
Measurement Range	~~**0.00 to 20.00 µS/cm** (or up~~ to 10.0 MΩ·cm)	Must feature a dedicated ultra-low range. Standard multi-use pens do not have the resolution for pure water.

Resolution & Accuracy	**0.01 µS/cm** resolution; **±1% Full Scale** accuracy	Critical for detecting tiny ion breakthroughs that signify distillation or DI column exhaustion.
Sensor / Electrode	Built-in, non-leaching **Graphite or Platinum** pins	Eliminates polarization errors. The sensor housing must be easy to rinse to prevent media residue buildup.
Temperature Control	**Automatic Temperature Compensation (ATC)** (0 to 50°C)	Adjusts the reading to 25°C dynamically, ensuring accuracy even if the distilled water is warm from a recent cycle.
Power & Battery	**CR2032 Lithium** or **AAA batteries** with Auto-Off	Ensures longevity in the lab; auto-off prevents battery drain when left on a lab bench.

OR

- **Fixed Benchtop Resistivity Meter Specifications**

Specification Category	Benchtop Laboratory Standard	Purpose & Benefit for Media Prep
Power Infrastructure	**AC Line Powered (100–240V, 50/60 Hz)** via power adapter	Eliminates battery degradation. Steady voltage prevents polarization and sensor signal drift over long testing windows.
Primary Measurement Unit	**Resistivity (MΩ·cm)** & **Conductivity (µS/cm)**	Direct display of water resistance up to 20.0 MΩ·cm to easily check for pure water compliance.
Measurement Resolution	**0.001 µS/cm** and **0.01 MΩ·cm**	**10x higher precision** than portable units. Catches micro-breakthroughs of ions long before they ruin a batch of agar.
Accuracy Class	**±0.5% of full scale** or better	Meets strict clinical audit requirements (CAP, ISO 17025) for high-accuracy media preparation.
Temperature Compensation	**Linear or Pure Water (Non-Linear)** normalized to 25 °C	**Critical.** High-end benchtop meters use a specific "pure water matrix" curve, recognizing that pure water changes resistance differently than tap water when warm.
Display & Form Factor	5-inch to 7-inch Backlit LCD or Color Touchscreen	Allows simultaneous viewing of resistivity, temperature, calibration status, and GLP time stamps.
Data & Integration	**RS-232, USB, or RJ45 Ethernet** ports	Allows direct connection to a laboratory printer or LIMS (Laboratory Information Management System) to log water quality automatically.

- M089 TDS Meter (for ditilled water QC)

- **High-Resolution TDS Meter Specifications (for Distilled Water)**

Specification Category	Required Standard / Setting	Importance for Media Prep
Measurement Range	**0.00 to 10.00 ppm (mg/L)**	**Critical.** Do not use standard meters that read 0–9990 ppm. We need a meter that measures tiny fractions below 1 ppm.
Resolution	**0.01 ppm** or **0.1 ppm**	Allows us to see the difference between 0.05 ppm (excellent) and 0.80 ppm (indicates the distillation system needs maintenance).

Target Limit for Media	**< 1.0 ppm** (Ideally **0.00 ppm**)	Anything consistently above 1.0 ppm indicates ion breakthrough that could alter media osmotic pressure or introduce heavy metals.
TDS Factor (Conversion)	Adjustable or set to **Linear / NaCl (approx. 0.50)**	Pure water ionic behavior is distinct from tap water. An adjustable TDS factor ensures accurate mathematical conversion from electrical signals.
Temperature Control	**Automatic Temperature Compensation (ATC)**	Vital because temperature alterations change the apparent solubility and conductivity of trace ions.
Waterproof Rating	**IP67**	Protects the unit from moisture damage when working near high-steam autoclaves and distillation units.

- M090 Surface Probe (for pH QC)

Core Handheld Meter Specifications

Feature / Category	Technical Standard	Importance for Media Prep
Main Electrode Connection	**Standard Universal BNC Socket**	Provides a universal locking system. Compatible with diverse third-party specialized probes.
Temperature Connection	**RCA / 4-Pin / 8-Pin Socket** (or integrated)	Runs parallel to the BNC line to supply real-time Automatic Temperature Compensation (ATC).
Waterproof Rating	**IP57 or IP67 Casing** with sealed silicone socket caps	The meter body survives complete submersion or accidental fluid drops on busy media prep counters.
Memory & GLP Standards	**500 Data Sets** with time/date stamps & USB output	Crucial for auditing. Tracks exact water values and agar validation for every media batch.
Power Infrastructure	AA Batteries / USB Power with Auto-Off	Ensures mobility around carboys but can be plugged into a PC to download validation logs.

- The system must have a Swappable Probe Specifications (The Media Prep Toolkit)

To maximize this modular system, you populate the universal BNC port with two highly targeted probes:

1. The Water Purity Probe (Low-Range Conductivity/Resistivity)

- **Sensor Type:** Glass-body or Titanium concentric plates.
- **Cell Constant: K = 0.1 cm^{-1}** (Mandatory for pure/distilled water).
- **Measurement Threshold:** High-precision resolution down to **0.01 µS/cm** or **0.1 MΩ·cm**.
- **Why it's needed:** Ensures your source water matches the strict ISO 11133 standard (<5 µS/cm) before you mix nutrients. [1]

2. The Final Media Validation Probe (Flat-Surface pH)

- **Sensor Type:** Flat glass membrane with an open polymer/teflon junction.
- **Measurement Range: 0.00 to 14.00 pH** with **±0.01 pH accuracy**.
- **Operating Limits:** Heat-stabilized up to **80 °C**.
- **Why it's needed:** Flat-tip glass presses completely flat against a solidified agar plate or gelatin surface without slicing or clogging the delicate interior junction

- **Lot 8**
  - L082 AUTOCLAVE TAPES - any specs or width length?

Core Autoclave Tape Specifications

Feature / Category	Technical Standard	Importance for Media Prep

Classification Type	**ISO 11140-1 Class 1** (Process Indicator)	Differentiates processed media from unprocessed media. It is an exposure indicator, not a validation of biological sterility.
Color Transition	White/Beige to **Dark Brown or Jet Black**	Distinct, unambiguous contrast change. Faded or incomplete transitions indicate a faulty heat cycle.
Sterilization Compatibility	**Steam Autoclave Only** (Typically 121 °C for 15–20 minutes at 15 psi)	Built to withstand high-pressure saturated steam. Do not use dry-heat or gas-sterilization tape.
Backing Material	**Saturated Crepe Paper** (High tensile strength)	Stretches slightly under high steam pressure to expand with expanding glass bottles, preventing the tape from snapping.
Adhesive Base	**Pressure-Sensitive Rubber-Based** Adhesive	Aggressively binds to borosilicate glass (Pyrex), metal caps, and plastic flasks, yet peels off clean without leaving a gummy residue after cooling.
Chemical Safety	**Lead-Free / Heavy Metal-Free** indicator ink	Eliminates hazardous waste disposal concerns. Older formulations used lead matrix ink, which is unsafe near open media.
Standard Dimensions	Widths: **19 mm (3/4 inch)** or **24 mm (1 inch)**	Standard laboratory width fits all standard benchtop tape dispensers.

Technical Considerations for Media Preparation

- **Ink Performance:** The diagonal indicator stripes should change color dynamically only when moisture **and** heat are present. Dry heat alone should not fully activate the chemical ink.
- **Peel Clean Verification:** The tape must be rated to peel off clean from laboratory flasks *after* cooling down to room temperature. This prevents adhesive baking onto your glassware, which could trap dirt or harbor unwanted microbes in future media cycles.
- **Storage Requirements:** Unused tape rolls must be stored in a cool, dry place (15 °C to 30 °C, 30–60% Relative Humidity) away from direct sunlight to prevent premature aging of the chemical stripes or adhesive breakdown.

Yours faithfully

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