



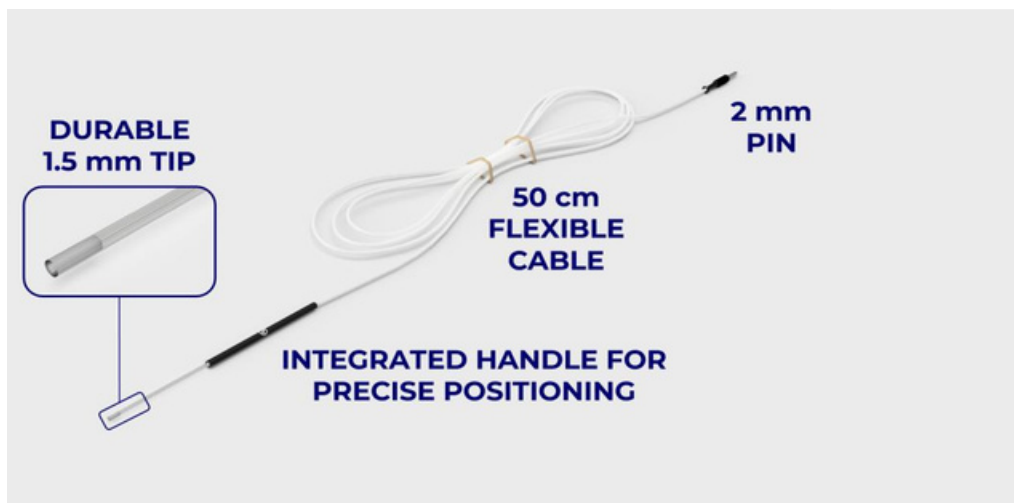
TECHNICAL DATA SHEET

PRODUCT NAME:

MilliRef

PRODUCT TYPE:

Reference Electrode



PRODUCT DESCRIPTION



QUALITY REFERENCE MICROELECTRODES

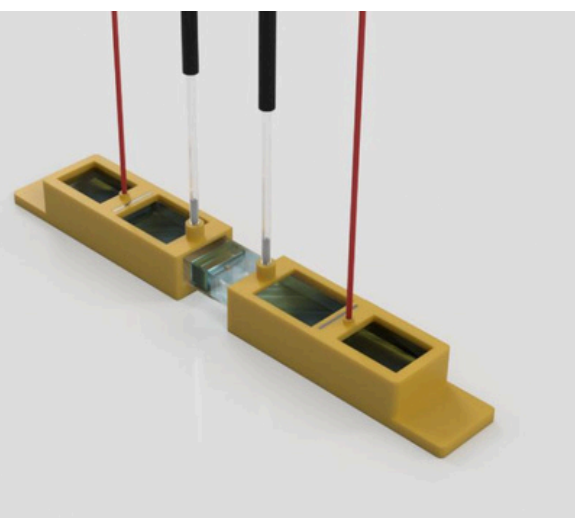
TrueRef™ Ag/AgCl reference electrodes are robust, precisely engineered microelectrodes designed to deliver exceptional stability and reliability in demanding applications. They provide:

- Stable electrode potential for accurate and reproducible measurements
- Low internal resistance ensuring high quality measurements.
- Extremely low electrolyte leakage, achieved through a porous junction developed by TrueRef engineers

The electrode consists of an Ag/AgCl-coated silver wire immersed in 3 M KCl solution, housed within a durable body that incorporates the porous junction. Each electrode is equipped with a plastic handle, a flexible connecting cable, and a standard 2 mm banana pin connector for easy integration into laboratory setups.

PRODUCT APPLICATIONS

TrueRef™ Ag/AgCl reference electrodes are versatile tools suitable for a wide range of electrochemical applications. They are particularly effective in electrochemical microfluidic systems, but their stability and robustness make them equally valuable in classical laboratory, environmental, and biomedical setups.



Typical areas of use include:

- Electrochemical microfluidic applications
- Reference potential in electrochemical measurements
- Electrochemical sensors
- Electrochemical cells in aqueous systems
- Lab-on-a-chip systems
- Biosensors

STANDARD TECHNICAL SPECIFICATION

Electrode OD	Electrode Length	Lead Length	Filling Solution	Connector Type	Resistance (typical)
1.5 mm	50 mm	500 mm	3 M KCl	2 mm pin	~ 1-10 kΩ

CAUTION

The Ag/AgCl reference electrodes are recommended for use only in aqueous solutions and are not suitable for non-aqueous solvents, organic media, or environments that may degrade the porous junction. They are intended primarily for short-term measurements; continuous use longer than 24 hours is not recommended and long-term stability cannot be guaranteed. For best measurement performance, the electrochemical setup should be operated inside a Faraday cage whenever possible to reduce electrical noise and interference. The electrodes are not intended for use as current leads. Short-term tests at pH 0 and 14 and in concentrated salt mixtures showed no measurable changes in resistance or potential, but durability under such conditions is not guaranteed.

UNPACKING

Inspect your TrueRef electrode immediately upon delivery. Remove the storage vessel from the tip of the electrode, rinse the electrode with distilled water, and gently dry it with Kimwipes. The electrode is then ready for use. If not used immediately, store the electrode with the tip immersed in 3 M KCl in a cool, dark place.

STORAGE

When not in use, the electrode must be stored in 3 M KCl, protected from direct sunlight and at a low temperature. Follow the guidelines for handling reference electrodes. Do not expose the electrode to air longer than necessary when placing it into the system or returning it to the storage solution.

CLEANING

Before and after each use, rinse the electrode with distilled water or electrolyte matching the sample's ionic strength.

TROUBLESHOOTING

If readings are unstable:

- Test against a known reference electrode in good condition.
- Allow the electrode to stabilize in the 3 M KCl storage solution for at least 24 hours.

WARRANTY STATEMENT

Coverage

TrueRef Systems warrants to the original purchaser that this equipment, including its components and parts, will be free from defects in materials and workmanship for 30 days from the date of receipt. During the warranty period, TrueRef Systems will, at its discretion, repair or replace defective equipment or components if returned to the contact address in Prague, Czech Republic. If the inspection concludes that the issue was caused by the buyer (e.g., misuse, neglect, improper handling, or unauthorized modifications), the buyer will be responsible for covering all shipping costs for returning the repaired or replaced item.

Conditions and Limitations

This warranty applies only under normal use and does not cover:

- Products modified without TrueRef Systems written approval
- Equipment subjected to unusual physical or electrical stress
- Products with removed or altered original identification marks
- Damage caused by accident, neglect, misuse, power failure, or environmental factors (e.g., air conditioning, humidity control issues)

For equipment supplied by another manufacturer, coverage is limited to the warranty provided by that manufacturer.

Exclusions

TrueRef Systems makes no other warranties, express, implied, or statutory, including but not limited to warranties of merchantability or fitness for a particular purpose. TrueRef Systems is not liable for direct, indirect, special, or consequential damage resulting from product performance or failure, loss of data or damage to property caused by product use.

Claims and Returns

Contract for the supply of goods shall be governed by and construed in accordance with the laws of the Czech Republic. Any disputes arising out of or in connection with this delivery of goods shall be submitted to the exclusive jurisdiction of the courts of the Czech Republic, with the court in Prague having local jurisdiction.

Shipment Inspection and Claims

Inspect all shipments upon arrival. Record any missing cartons or visible carton damage on the delivery receipt before signing. Report concealed damage or loss immediately to the carrier and request an inspection. File claims for shortages or damage within 10 days of receipt. Claims for lost shipments must be filed within 30 days of invoice or other shipment notification. Retain damaged or tampered cartons until the claim is resolved. In some cases, photographic documentation may be required. For time-sensitive items, TrueRef Systems offers no extended warranty or liability for use beyond the specified date stated in the documentation of the product.

Shipping to TrueRef Systems

TrueRef Systems is not responsible for damage incurred while shipping items to us. Use the original shipping container to protect items from handling damage, and insure the shipment.

Returns and RMAs

Do not return goods without prior approval and instructions (RMA) from TrueRef Systems Returns Department. Clearly display the RMA# on the outside of the package with the product serial number, or it will not be accepted. Contact TrueRef Systems for a request form and always reference your RMA for status updates. Unauthorized returns or collect shipments may be refused.

Condition of Returned Goods

Items returned for repair must be clean and free of hazardous materials. A handling fee up to 25% of the sale price may apply for exchanges or credits, depending on the item's condition. Goods ordered in error are subject to the same handling fee.

Warning

This product is intended for research purposes only. It must be handled exclusively by qualified personnel. Not for use on humans or in clinical applications.