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POTENTIOMETRIC TITRATOR

Potentiometric Titrator – ToronAPT™ 2000 (Automated)

Potentiometric Titrator (ToronAPT™ 2000) is a fully automatic system built for fast, precise, and repeatable titrations across many analytical workflows. It uses high-resolution potential (mV) measurement and automated reagent delivery to identify endpoints without visual indicators, reducing operator subjectivity and improving result consistency.

Designed as a compact all-in-one platform, ToronAPT™ 2000 combines a high-precision syringe burette, intelligent endpoint detection, and a large 10-inch capacitive touchscreen. It supports multiple titration modes and chemical methods, making it a strong fit for routine QC testing and advanced analytical labs that want dependable potentiometric titration with minimal manual steps.

APPLICATIONS

Potentiometric Titrator – ToronAPT™ 2000 (Automated) Applications

TorondAPT™ 2000
Potentiometric Titrator
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Potentiometric Titrator – ToronAPT™ 2000 is suitable for a wide range of titrations, including:

- Acid–Base Titrations: Measure acidity, alkalinity, and concentration for chemical, pharmaceutical, and industrial samples.
- Redox Titrations: Evaluate oxidation–reduction reactions used in environmental, metallurgical, and chemical analysis.
- Complexometric Titrations: Quantify metal ions with chelating agents for water hardness testing, alloy analysis, and industrial QC.
- Precipitation Titrations: Determine halides and other ions through precipitation reactions.
- Non-Aqueous Titrations: Accurately titrate weak acids/bases using non-aqueous solvents.
- Potentiostatic (Constant pH) Titrations & pH Measurement: Maintain continuous pH control and perform direct pH measurement using calibrated electrodes.

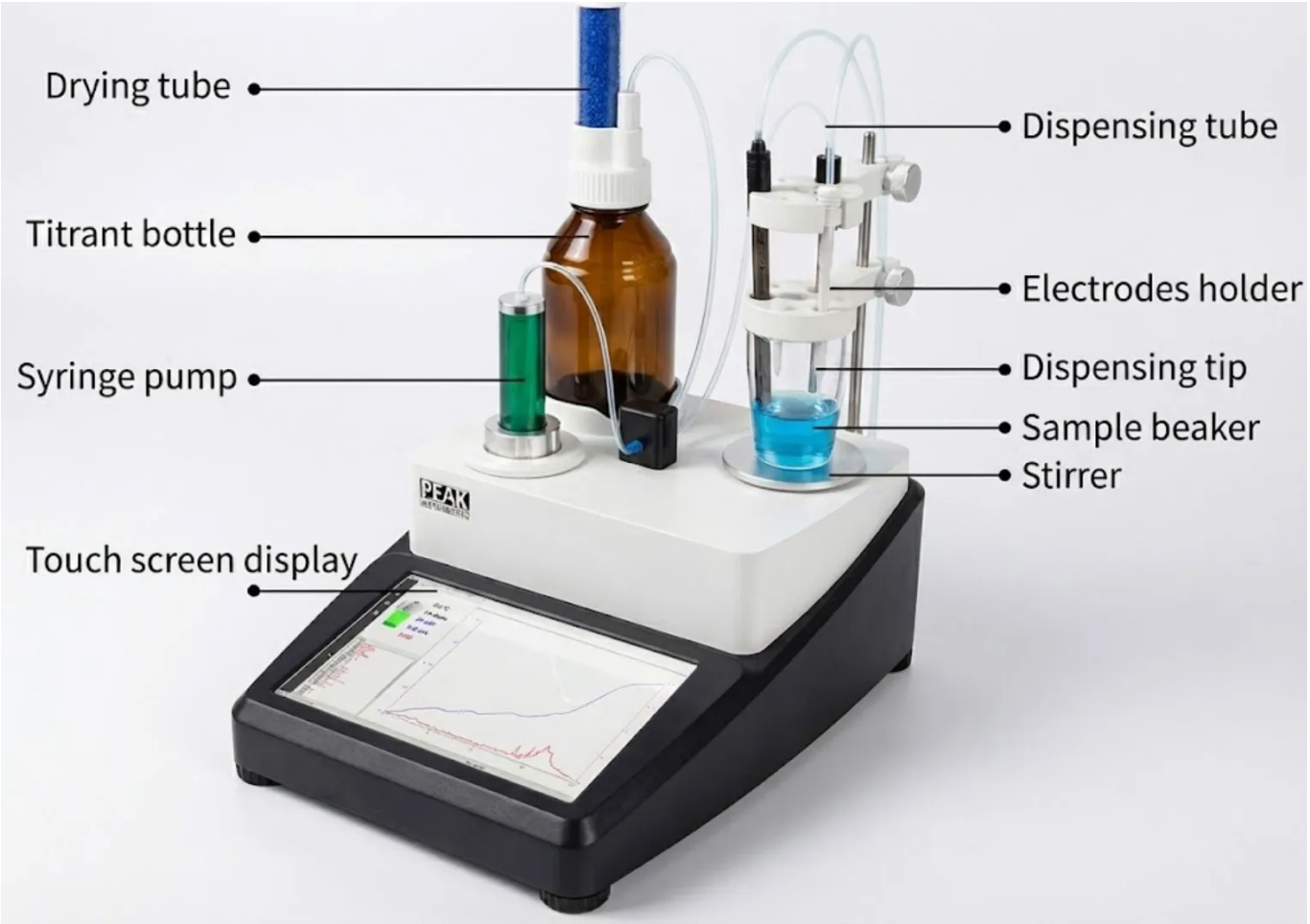
Standards

- ASTM D1067: Procedures for measuring acidity or alkalinity in water by potentiometric titration.
- ASTM D664: Potentiometric method for acid number in petroleum products, lubricants, and biodiesels to evaluate acidic constituents and oil degradation.
- ISO 750: Potentiometric method for chloride content in water and aqueous solutions.
- ISO 11285: Potentiometric titration method for sulfuric acid content in industrial chemicals.

FEATURES

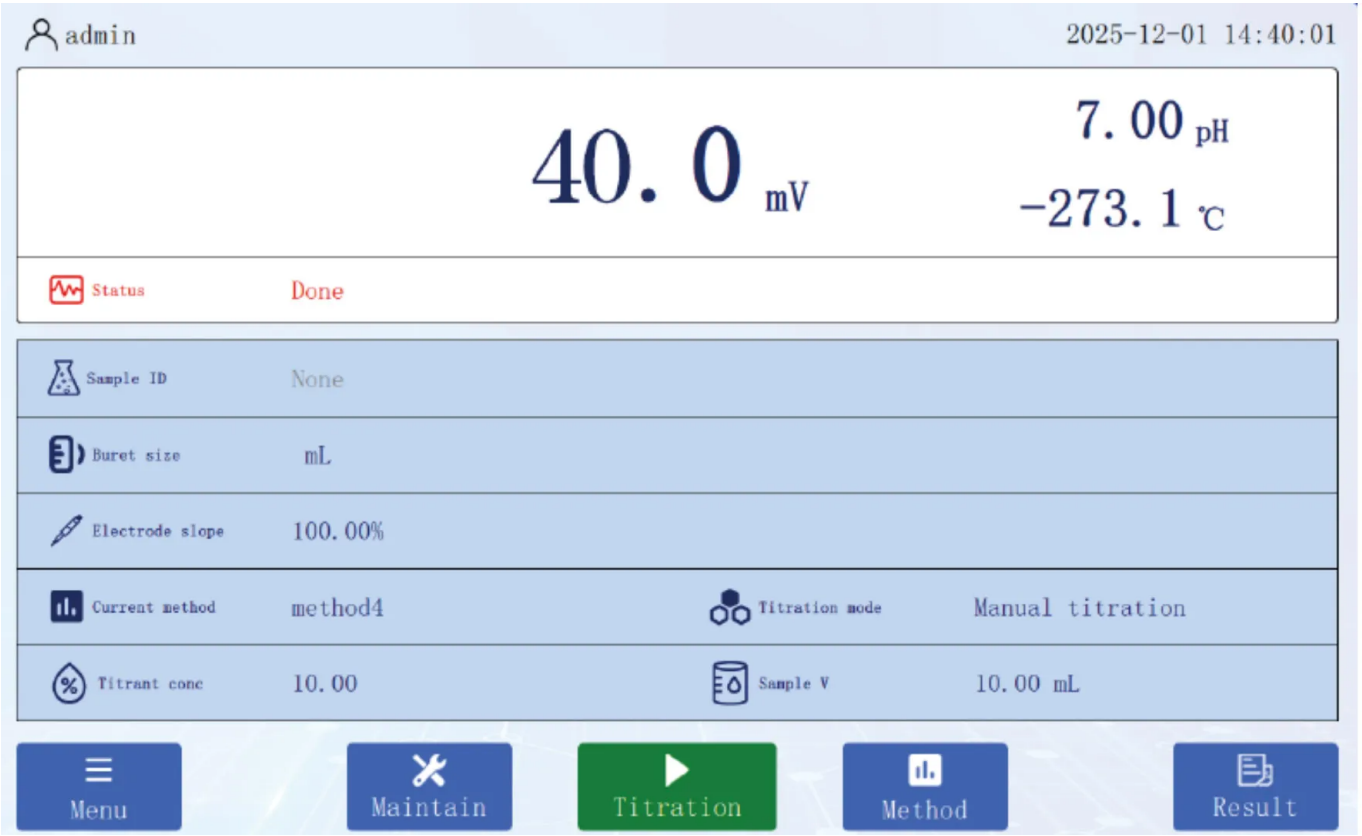
Potentiometric Titrator – ToronAPT™ 2000 (Automated) Key Features

- 10-Inch Capacitive Touchscreen: Real-time method display, titration curves, and results with intuitive operation.
- Robust Chemical Resistance: Chemically resistant housing and fluid paths compatible with strong acids, bases, and organic solvents.
- Comprehensive Data Management: Automatic recording, storage, and printing for traceability, analysis, and compliance needs.
- Fully Automatic Potentiometric Titrator: Automates reagent dosing, endpoint detection, calculations, and result storage for consistent outcomes.
- Multiple Titration Modes: Supports dynamic titration, endpoint titration, equivalence titration, and manual titration.
- High-Precision Syringe Burette: Built-in 10 mL burette with ultra-fine resolution (1/96,000) for accurate, repeatable delivery.
- Automatic Endpoint Determination: Electronic endpoint detection improves repeatability and reduces human error.
- Integrated Cleaning & Reagent Handling: Automated cleaning, rinsing, and reagent replenishment help reduce cross-contamination; pipelines are cleaned and rinsed multiple times.

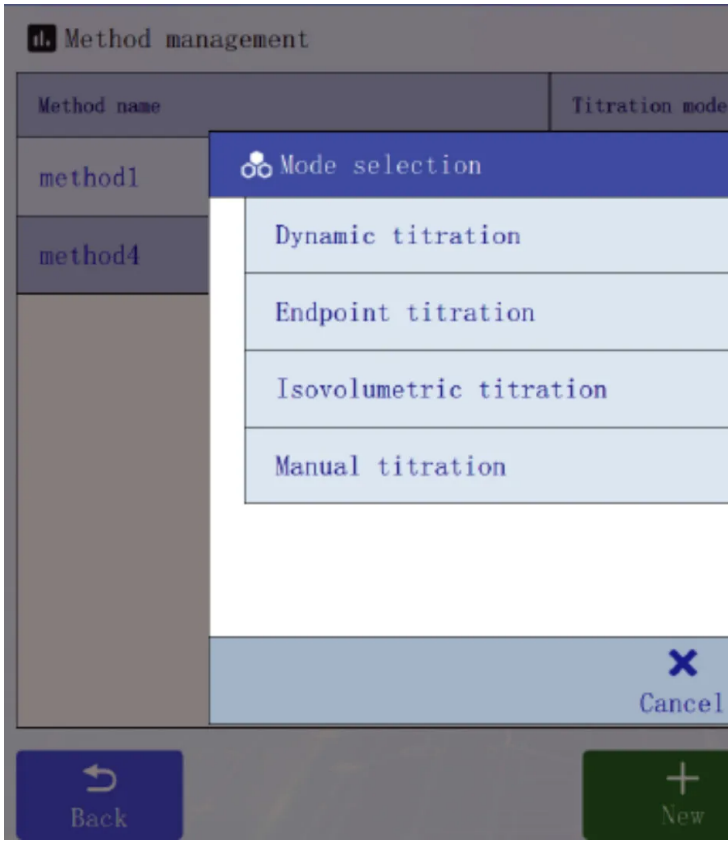

Drying tube
Titrant bottle
Syringe pump
Touch screen display
Dispensing tube
Electrodes holder
Dispensing tip
Sample beaker
Stirrer
PEAK

The titration bottle is well sealed

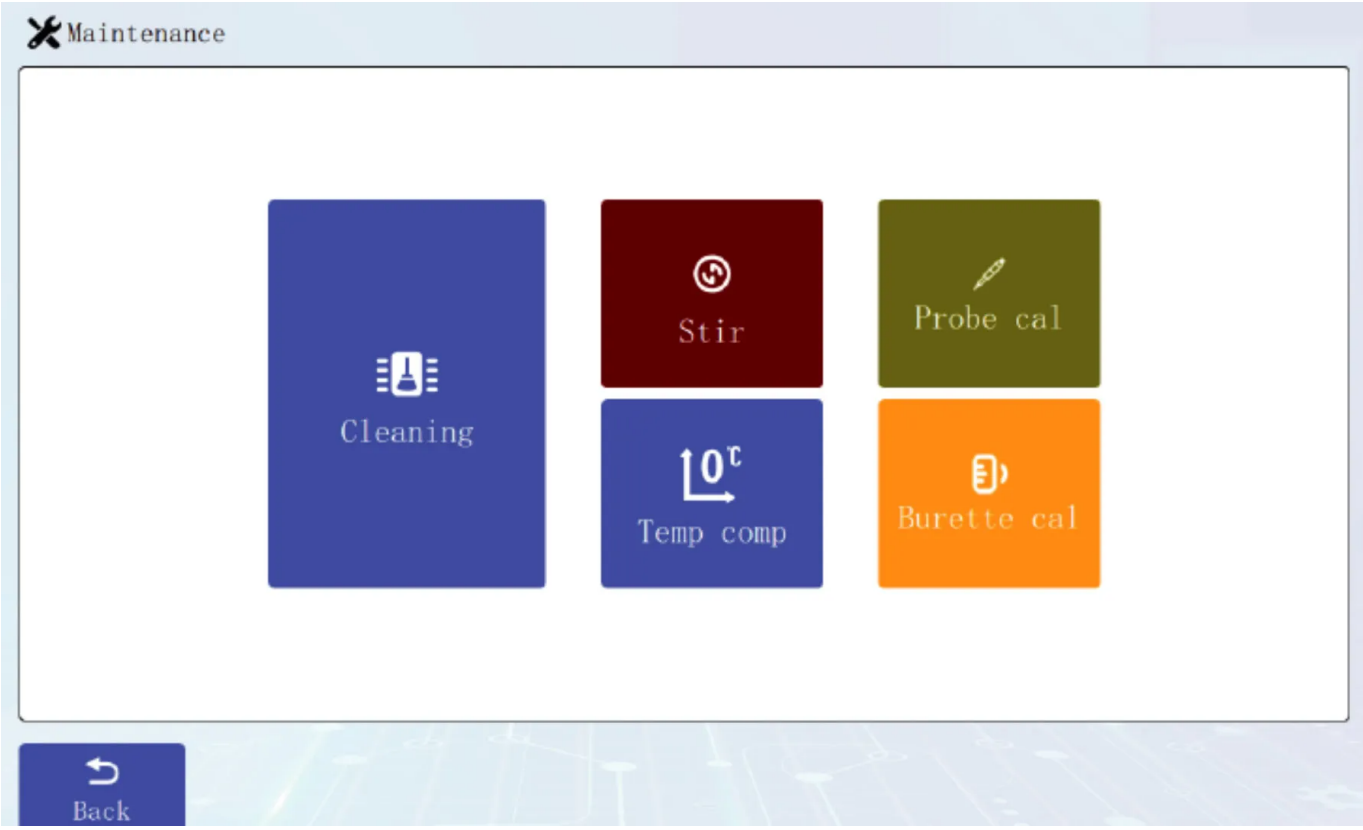
Automatic endpoint determination



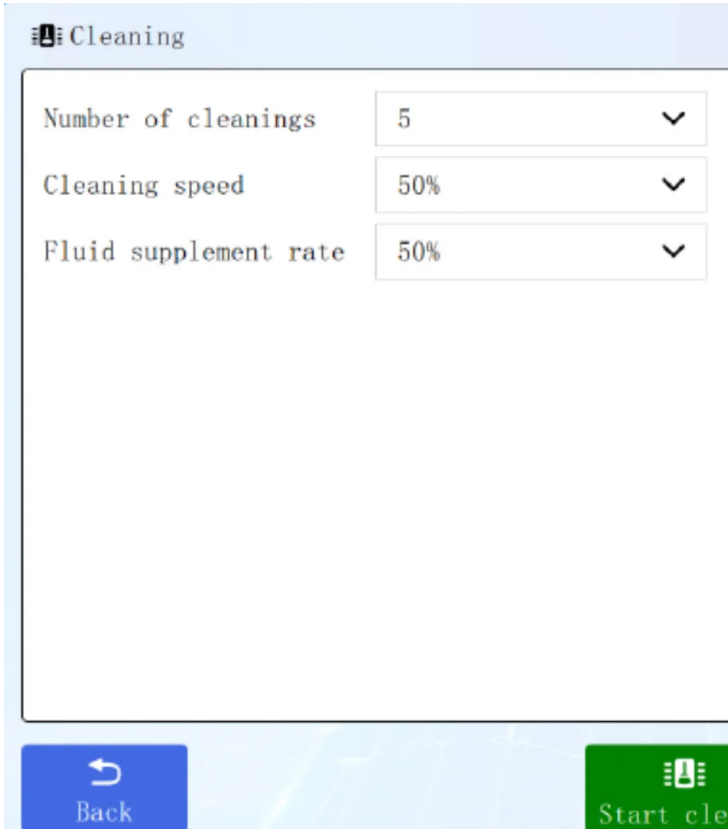
Real-time display of results



Multiple titration methods



Probe and Burette Calibration



Automatic cleaning and fluid replenishment

TECHNICAL SPECIFICATIONS

Potentiometric Titrator – ToronAPT™ 2000 (Automated) Technical Specifications

Model		ToronAPT™ 2000
Instrument Type		Automatic Potentiometric Titrator
Display		10-inch color capacitive touch screen
Measuring Range	Measurement Range (mV)	-2000.0 to +2000.0 mV
	pH Range	-2.00 to 16.00 pH
	Temperature Range	-5 to 120 °C
Resolution		0.1 mV / 0.01 pH / 0.1 °C
Accuracy	Measurement Range (mV)	±0.1 mV, ±0.03% FS
	pH Range	pH ±0.01
	Temperature Range	± 0.1°C, excluding probe error
Titration Repeatability		≤0.2%
Electronic Stability		±0.3 mV / 3 h
Burette Volume		10 mL
Burette Resolution		1 / 96,000
Voltage		110–240 V AC, 50/60 Hz
Operating Environment		10–37 °C, up to 70% RH
Stirrer Speed		10–100% (10% increments)
Shipping Size & Weight		560 × 490 × 410 mm, 11 kg
Weight		11 kg

Standards configuration:

- Unit & Support: Titrator, Rod, 2 Holders
- Electronics: Power Adapter, Power Cable, USB Manual
- Probes: pH Electrode, Temp Probe, Short-circuit Connector
- Vessels: 150 mL Beaker, 500 mL Bottle & Cap
- Chemistry: 3x pH Buffers, 100g Desiccant, Drying Tube
- Small Parts: 2 Dispensing Tips, Stirrer Bead, Micron Filter

Electrode Application Guide

Application / Analysis Method	Recommended Electrode Configuration
Acid-Base Titration	pH Composite Electrode or Separate Electrodes
Water Quality: Determination of alkalinity, bicarbonate, and carbonate	pH Composite Electrode or Separate Electrodes
Food Analysis: Determination of total acid (Automatic Potentiometric Titration)	pH Composite Electrode or Separate Electrodes
Fats & Oils: Determination of acid number and acidity (Potentiometric Method)	pH Composite Electrode or Separate Electrodes
Petroleum Products: Determination of acid number (Potentiometric Method)	pH Composite Electrode or Separate Electrodes
Dairy Products: Determination of acidity	pH Composite Electrode or Separate Electrodes
Industrial Cooling Water: Determination of total alkali and phenolphthalein alkalinity	pH Composite Electrode or Separate Electrodes
Industrial Cooling Water: Determination of carbonate alkalinity	pH Composite Electrode or Separate Electrodes
Water Analysis: Standard Test Method for Acidity or Alkalinity	pH Composite Electrode or Separate Electrodes
Volatile Organic Liquids: Determination of acidity (Titration Method)	pH Composite Electrode or Separate Electrodes
Plasticizers: Determination of acid value and acidity	pH Composite Electrode or Separate Electrodes
Industrial Glyoxal: Determination of acidity	pH Composite Electrode or Separate Electrodes

Application / Analysis Method	Recommended Electrode Configuration
Seawater: Determination of alkalinity (pH Potentiometric Titration)	pH Composite Electrode or Separate Electrodes
Water Quality: Determination of chloride (Silver Nitrate Potentiometric Titration)	Ag (Silver) Composite Electrode or Ag Indicator Electrode + Reference Electrode
Water Quality: Determination of chloride (Mercuric Nitrate Titration)	Mercury Composite Electrode or Mercury Indicator Electrode + Reference Electrode
Silver Ion Titration: Titration with Thiocyanate	Ag (Silver) Composite Electrode or Ag Indicator Electrode + Reference Electrode
Water Quality: Determination of barium (Potentiometric Titration)	Tetraphenylborate Ion Electrode & Double Junction Reference Electrode
Arsenic Content: Ammonium ferrous sulfate titrimetric method	Platinum Electrode + Saturated Calomel Electrode
Groundwater Quality: Determination of sulfide (Iodometric Method)	Platinum Electrode + Saturated Calomel Electrode
Tin Concentrates: Determination of iron content (Cerium Sulfate Titimetric Method)	Platinum Electrode + Saturated Calomel Electrode
Water Quality: Determination of Chemical Oxygen Demand (COD) (Dichromate Method)	Platinum Electrode + Saturated Calomel Electrode
Iron Ores: Determination of total iron content (Titration after Titanium Trichloride Reduction)	Platinum Electrode + Saturated Calomel Electrode
Vitamin C Analysis: Determination by Iodometry	Platinum Electrode + Saturated Calomel Electrode
Food Analysis: Determination of calcium	Calcium Ion Selective Electrode & Saturated Calomel Electrode
Water Quality: Determination of calcium (EDTA Titrimetric Method)	Calcium Ion Selective Electrode & Saturated Calomel Electrode
Waste Acid: Determination of Chloride Ion Content	Ag (Silver) Composite Electrode or Ag Indicator Electrode + Reference Electrode
Water Treatment: Determination of chloride	Platinum Electrode + Saturated Calomel Electrode
Oil Analysis: Determination of mercaptan sulfur	Ag-S (Silver-Sulfide) Composite Electrode
Petroleum: Determination of Base Number	pH Composite Electrode or Separate Electrodes

Application / Analysis Method	Recommended Electrode Configuration
Chemical Analysis: Determination of titanium dioxide content	Platinum Electrode + Saturated Calomel Electrode
Food Analysis: Determination of peroxide value in curry paste	Platinum Electrode + Saturated Calomel Electrode
Food Analysis: Determination of acid value in curry pastes	pH Composite Electrode or Separate Electrodes
Pharmaceuticals: Determination of Calcium Content in Compound Calcium Granules II	Copper Composite Electrode
Edible Oils: Determination of acid value in soybean oil	pH Composite Electrode or Separate Electrodes
Chemical Analysis: Determination of citric acid	Platinum Electrode + Saturated Calomel Electrode
Water Analysis: Determination of chloride / Non-volatile residual chlorine	Platinum Electrode + Saturated Calomel Electrode
Battery Electrolytes: Determination of carbonate content in alkaline electrolytes	pH Composite Electrode or Split Electrodes
Pharmaceuticals: Determination of ferrous gluconate content	Platinum Electrode + Saturated Calomel Electrode
Chemical Reagents: Determination of total chromium content in chrome-manganese reagents	Platinum Electrode + Saturated Calomel Electrode
Metallurgy: Determination of Total Iron Content in High Titanium Slag	Platinum Electrode + Saturated Calomel Electrode
Supplements: Determination of Taurine content	pH Composite Electrode or Split Electrode

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