



TRACE MOISTURE ANALYZER

Trace Moisture Analyzer - ToronKFC™ TM-W100

ToronKFC™ TM-W100 is an automatic trace moisture analyzer that employs Karl Fischer coulometric titration to measure moisture levels in solids, liquids, and gases with high precision, speed, and stability. Designed for rapid, benchtop operation, this trace moisture analyzer covers a measurement range of 1 µg to 100 mg with ≤ 3 µg deviation accuracy and 0.1 µg resolution — making it equally capable of ultra-trace and moderate moisture determinations.

The instrument features a 320 × 240 LCD display, an embedded microprocessor with a mini operating system, real-time electrolyte curve monitoring, and wireless LIMS connectivity via Wi-Fi. Its compact host size (300 × 300 × 200 mm) and intuitive large touchscreen interface make the ToronKFC™ TM-W100 trace moisture analyzer an ideal solution for quality control laboratories in the petroleum, chemical, pharmaceutical, food, and agricultural sectors.

APPLICATIONS

Trace Moisture Analyzer - ToronKFC™ TM-W100 Applications

- Rapid moisture testing in alcohols, oils, fats, ethers, esters, acids, and alkanes
- Trace water determination in benzene derivatives, amines, and organic solvents
- Moisture content analysis in pesticides, phenols, and pharmaceutical raw materials
- Quality control in chemical processing, fine chemical manufacturing, and food production
- Petroleum product moisture analysis in field laboratories and satellite quality labs
- Automated liquid addition and drainage workflows requiring enhanced operator safety
- Laboratories requiring LIMS-connected, wireless data transfer with minimal bench footprint



Standards & Compliance

- ASTM D6304 is a standard test method used to determine the exact amount of moisture or trace water in petroleum products, lubricating oils, and additives by using coulometric Karl Fischer titration.

FEATURES

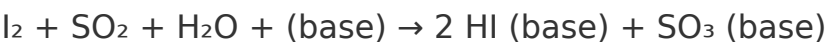
Trace Moisture Analyzer - ToronKFC™ TM-W100 Key Features

- Embedded microprocessor with mini OS for fast, autonomous instrument control without an external computer
- Constant-voltage detection algorithm for high-accuracy, high-speed endpoint determination
- Automated liquid addition and drainage system for improved operator safety and reduced reagent handling exposure
- Real-time electrolyte curve monitoring for continuous assessment of cell condition and titration progress
- User-friendly large touchscreen interface for intuitive, menu-driven operation
- 6-formula data calculation support for flexible, application-specific moisture reporting
- Large internal data storage capacity for comprehensive test record keeping and audit trail compliance
- Wireless data transfer via Wi-Fi with LIMS compatibility for seamless laboratory network integration
- Compact benchtop footprint (300 × 300 × 200 mm) suitable for space-constrained quality control labs
- 320 × 240 LCD display for clear visualization of measurement data and instrument status
- Electrolytic current range 0 – 400 mA with 0.1 µg resolution for ultra-trace moisture detection

THEORY & METHOD

Theory and Method

The ToronKFC™ TM-W100 uses the Karl Fischer coulometric titration method, in which iodine is generated electrochemically in situ within the titration cell from iodide ions in the anolyte reagent. The generated iodine reacts quantitatively with sample water



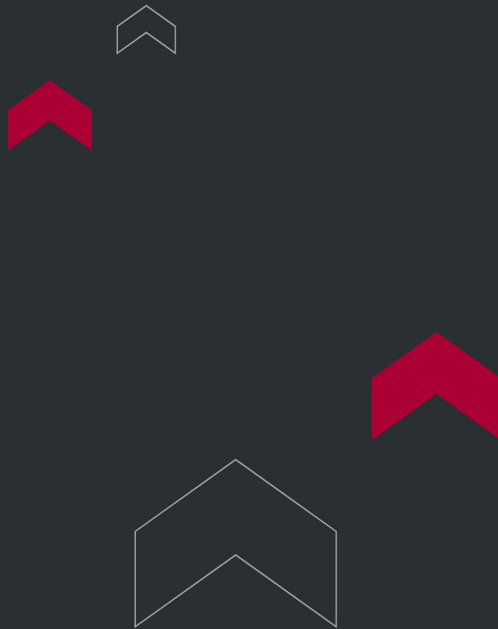
Because iodine generation is governed by Faraday's law, the total electrical charge passed is directly proportional to the amount of water present. This eliminates the need for iodine titrant standardization and enables direct, highly accurate moisture quantification without consumable reagent preparation. The embedded microprocessor with constant-voltage detection ensures high-speed, reproducible endpoint detection. Real-time electrolyte curve monitoring tracks cell condition continuously, while automated liquid addition and drainage minimize operator contact with Karl Fischer reagents, improving laboratory safety.

TECHNICAL SPECIFICATIONS

Trace Moisture Analyzer – ToronKFC™ TM-W100 Technical Specifications

Parameter	Specification
Titration Method	Coulometric Titration (Karl Fischer)
Measurement Range	1 µg - 100 mg
Accuracy	≤ 3 µg deviation for 10 µg - 1 mg samples; ≤ 0.3% deviation for samples > 1 mg
Resolution	0.1 µg
Electrolytic Current	0 - 400 mA

Parameter	Specification
Display	320 × 240 LCD Screen
Power Consumption	≤ 4 W
Main Unit Size (W × D × H)	300 × 300 × 200 mm
Data Transfer	Wi-Fi (LIMS-compatible)
Data Storage	Large internal storage
Voltage	AC 220 V ± 10%, 50 Hz ± 10% (110V is also available)
Relative Humidity	< 80% RH
Ambient Temperature	10 - 25 °C
Other Notes	No strong vibration, airflow, strong electromagnetic interference, or corrosive gases near instrument



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