Automatic Potentiometic and Karl Fischer Volumetric Titration

Test Method

For determination of Total Acid Number (TAN), Total Base Number (TBN) and Karl Fischer Water Content of petroleum products, lubricants and transformer insulating oils. Titration is the fundamental chemical analysis procedure whereby the concentration of a chemical substance in solution is determined by reacting it with a measured amount of another chemical. The Auto titrator performs this analysis using a motor driven dispenser, stirred reaction vessel and electrodes which sense the completion of reaction by measuring the potential difference between two electrodes. Automatic Titration increases accuracy, repeatability and reproducibility as well as minimizing errors in calculation and documentation.

Automatic Titrator

The Automatic Titrator is capable of performing a wide range of Titrations:

- Acid-base or aqueous titration
- Redox titration
- Complexometric titration or EDTA titration
- Blank titration
- Silver Assay titrations
- Non-aqueous titration
- Argentometric or Precipitation titration
- Voltametric / KF Titration
- Back titration

The Automatic Titrator is provided with two-point auto calibration and standardization (zero offset). The instrument is capable of displaying pH and mV of the sample, with temperature compensation. The Automatic Titrator can accept a variety of electrodes to cater to various applications in different fields. The liquid path is comprised of Teflon tubing, a Teflon lined valve and gas tight burette with a Teflon plunger head. It creates a chemically inert system for any sensitive analysis. The instrument is supplied with high speed vortex stirrer with digital speed indication. This specially designed stirrer provides excellent homogenous mixing of samples. An optional magnetic stirrer is also available.

Ordering Information

Catalog No.	
K90500	Automatic Titrator, 115V 60Hz
K90590	Automatic Titrator, 230V 50Hz
	Accessories
K90500-1	Karl Fischer Titrator Burette Assembly
K90500-2	Filter Desiccant Dryer Tube
K90500-3	Magnetic Stirrer with Holding Ring
K90500-4	Magnetic Stirrer with Electrode Arm
K90500-5	Vessel Heating / Cooling Accessory
K90500-6	pH Checker

Specifications

Conforms to the Specifications of:
ASTM D664, D2896, D4739
Principle: Volume determination by equivalence point, end point or pH STAT.
Control: Microcontroller based
mV range: ± 3200 mV.
TAN Range: 0.01 to 260 mg KOH/g
Accuracy: ± 0.1 mV (± 0.0016 pH).
Amplifier input impedance: > 10 ohms
Burette Resolution: 1/5000(5ml),1/10000(10ml),1/5000(25 ml)
Filling time: Less than 20 seconds
Keyboard: Alphanumeric splash waterproof polyester
Display: 40 x 2 line back lighted liquid crystal display (LCD).
Titration Head: Manual stand with swiveling arm.
Stirrer System: Microcontroller based variable speed, high torque vortex stirrer with digital indication. (Magnetic Stirrer optional)
Sensors:
Electrodes for Potentiometric titration - (pH, Ion, Redox, Argentometric).
a) Any combination electrode. b) Differential Electrode System comprising sensing (Indicator) Electrode with BNC Connector and Reference Electrode with 4mm Banana Connector.
Electrode for KF/Voltametric titration with BNC/TNC Connectors.
Temperature sensor (PRT/PT100)
Calibration: 3-point Calibration with user entered buffer values and standardization with 7 pH buffer.
End Point detection: a) Potentiometric, b) Voltametric, c) Thermometric and Photometric.
Cut-off criteria: a) Volume b) End point c) mV/pH.
Methods:
Titrations:
a) Acid base, b) Nonaqueous. c) Redox d) Preciptiation e) Complexometric f) back titration
KF titration (Optional)
Results: a) Molarity b) % Assay(wt), c) % volume (ml) d) ppm e) mg/l f)mg/g g)g/l h) meq/l i) mol/kg j) TAN and TBN for oil samples.
Method Storage: 50 methods with parameters.
Titrant Molarity storage: 20 values
Electrical Requirements:
115V, 60Hz or 230V, 50Hz

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