

Technical Specification of Moisture Titrator Equipment used for Testing of Transformer oil

1. Scope: Supply, Installation, commissioning of Moisture Titrator used for testing of Transformer oil as per IEC/IS 13567

The bidder shall provide:

- a) Operation and maintenance manual including drawings in English language.
- b) Software in a CD in English language.
- c) Training to KPTCL personnel on all aspects of operation, maintenance and calibration.
- d) Continued technical support during guarantee period(2 years) and also during extended warranty period(3 years).
- e) The bidder must have trained Engineers dedicated for trouble shooting and Technical support, permanently posted in India preferably in Bangalore.

2. Applicable Standards:

Unless otherwise specified separately in this specification, the equipment shall comply with the requirements of IEC and any other standards relevant IEC, BS, ASTM, etc (ASTM D1533, BS EN 60814:1998, IEC 60814:1997). Over and above to this, all special requirements specified in the specification shall be complied.

3. Operating Conditions:

- a) Voltage (Mains) : 90 to 270V AC (–10% to +10%)
- b) Frequency (Mains) : 50Hz \pm 5%
- c) Environment : Laboratory use, Indoor
- d) Humidity : less than 85%
- e) Operating Temp : 5-40°C.

4. Essential Features:

- a) Power Supply : 90 – 364 VAC, 47-63Hz 12 V
DC car adapter/internal battery
- b) Electrolysis control : “ACE” control system
- c) End point detection : AC polirization
- d) Measuring Range : 1microgram to 10 milligram
- e) Moisture Range : 1 ppm – 100%
- f) Max. Sensitivity : 0.1 μ g
- g) Max. Titration speed : 2 mg per minute
- h) Max. Current : 400mA
- i) Drift compensation : Automatically controlled
- j) Precision : Precision 10-100 μ g \pm 3 μ g,
100 μ g – 1mg \pm 5 μ g, above
1mg \pm 0.5%

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k) Stirrer speed	Microprocessor controlled
l) Calendar/ Clock	Analysis time and date printout
m) Keypad/ User controls	Non tactile membrane
n) Display	40 character alphanumeric backlit display
o) Battery life	8 hours running time
p) Calculation modes	Weight/ weight volume/density Weight/dilution ratio Preset values Volume/volume Volume/density User programmable
q) Display format	µg, mg/kg, ppm, %mg/kg
r) Print format	µg + mg/kg, ppm, %
s) Weight	Should be less than 3.5kg
t) Statistics	Upto 99runs Preset upto 99runs User programmable
u) Start delay time	0 – 30mins selectable Preset
v) Min. Titration time	0 – 30mins selectable
w) Software	Free data capture and retrieval

5. Other Accessories:

- a) Electronic digital Balance with automatic weight input to the instrument range: 0-200g
 - a. Resolution : 0.0001g.
- b) Suitable Branded desktop having latest operating system suitable to run the instrument software. The detailed technical configuration of the desktop shall be indicated clearly in the quotation

6. GUARANTEE PERIOD

The whole equipment along with accessories shall be guaranteed for a period of minimum **36** months from date of successful demonstration **at site/Laboratory**.

7. Installation and Training

The bidder shall install the equipment at the location specified by the KPTCL and provide training to at least 2 personnel about the operation, maintenance and calibration of the equipment.

Two sets of Instruction Manual with circuit diagrams shall be provided.

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8. Test Certificates:

The equipment shall be supplied along with the valid calibration certificate and test certificate.

9. Mandatory Spares and Consumables:

Recommended spares and consumables to be supplied along with the equipment.

Electrode Sets : 2 Nos.

Reagent: 2 bottles

Septa: 100 Nos.

Vacuum grease: Three Packs

Titration Vessel Assembly: Consisting of Vessel, Sensing Electrode, Generator Electrode & Cathode etc.

Sample Injection Syringes: 25 Nos.