

# Equipment Reference no.: EQDC/CABLE LAB/28

## Neutral Specification For

### Test Apparatus for Persulphate Test of Conductor

Quantity : One Number

SrNo	Parameters	Required Specifications	Quoted Item's Specification
1	Name & Address of supplier		
2	Make		
3	Model		
4	Name of Item	<b>Test Apparatus for Persulphate Test of Conductor</b>	
5	Quantity	<b>01 [One]</b>	
6	Application & Description about the product required	<p>This apparatus Test Apparatus for Persulphate Test of Conductor shall meet requirements specified in two methods for determination of exposed copper in case of tinned copper wire.</p> <p>Copper wires are tinned for the following reasons:</p> <p>a) To act as a barrier between bare copper conductor and elastomeric insulations to avoid degradation of the latter due to catalytic effect of copper on elastomers.</p> <p>b) To avoid formation of oxide on the copper conductor which reduces the solderability of the material.</p> <p>During tinning there is possibility of formation of pinholes on the conductor, thereby defeating the purpose of application of tin. The persulphate test ascertains the continuity of tin coating on the conductors.</p>	
7	Ref. National/ International Standard	It shall confirm to relevant IS 694: 2010+AMD4, IS:10810 (Part 4): 1984 Latest/ Revised Specifications at the date of tendering	
8	Capability of equipment to perform test method	<p>The product shall comply the following test method -</p> <p>a) Method A -The continuity of tin coating is examined by comparing the persulphate Solution in which the sample has been immersed with an equal volume of reference standard colour reagent for depth of colours.</p> <p>b) Method B -The mass of copper dissolved is expressed as grams of copper per square metre of wire immersed in the persulphate 'solution.</p>	
9	Items covered in test apparatus	<p>Class A Porcelain or borosilicate glass Beaker - Capacity 250 ml with marks</p> <p>Nesslers' Tube - borosilicate glass, Capacity 100 ml with marks</p> <p>Laboratory Grade Pipette Graduated - Capacity 100 ml with marks</p> <p>Balance - Range: Up to 200g, Accuracy 0.1 mg.</p> <p>Laboratory Grade Volumetric Flask-Capacity 1 000 ml.</p> <p>Laboratory Refregerator - 01 Nos. having Storage Capacity of atleast 60 litre, temperatory range: 2°C to 8 °C, Ambient Temperature: 10°C to 32°C, Refridgerant: R600a/ R290, Auto defrost, with digital controller, glass door, alarm system to meet the demanding requirements, Permanently lubricated cooling fan for safety and longevity, Forced- air cooling with optimized air distribution system designed to achieve maximum temperature uniformity and stability, Temperature variation within ±3°C</p>	

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Quantity : One Number

SrNo	Parameters	Required Specifications	Quoted Item's Specification
		Smooth Stainless Steel Mandrels of following diameters: 15mm, 18mm, 22mm, 29mm, 33mm, 38mm, 51mm, 56mm, 64mm, 70mm, 76mm (each one)	
10	Materials to be supplied	analytical grade crystalline ammonium persulphate [(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>8</sub> ] - 1000 gram ammonia solution (specific gravity 0.88 at 27°C ) - 2.5 Litre Distilled Water - 25 Litre Pure copper sulphate ( CuSO <sub>4</sub> 5H <sub>2</sub> O ) - 1000 gram Isopropanol, 99.5+%, extra pure - 2.5 Litre Grease Pensil - 10 Nos.	
11	Calibration	The relevant measuring devices shall be calibrated from accredited laboratory and valid calibration report shall be provided before dispatch of Instruments.	
12	Guarantee/ Warranty	Minimum One Year from the date of installation	

**Additional Terms and Conditions (ATC):**

**1. Director, EQDC's right to accept any bid and to reject any or all bids/Quote:**

The Director, EQDC reserves the right to accept or reject any bid/quote, and to annul the bidding process and reject all bids at time prior to award of contract, any without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Director, EQDC's action.

**2. Standards**

The goods supplied under this Contract shall conform to the Indian/international standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the goods and such standards shall be the latest issued by the concerned institution.

**3. GUARANTEES/WARRANTY & LIABILITIES**

- 3.1. The Bidder shall warrant that the test Equipment/item supplied, in accordance with the technical specification mentioned in bid documents shall be kept free from defects in material/equipment and workmanship for a period of **Twelve (12) calendar months** from date of installation.
- 3.2. If seller is not an OEM, seller shall transfer Guarantee / warranty (in the form of agreement on non-judicial stamp of Rs. 300) in the name of EQDC on behalf of OEM.
- 3.3. The repaired or new parts will be furnished and replaced free of cost by the Bidder.
- 3.4. If any repair is carried out on his behalf at the site, the Bidder shall bear the cost of such repairs.

**4. Time Schedule/Delivery Period:**

- 4.1. The contractual period for execution of the work stated in Bid Document consist of **30 days from the date of Purchase Order/contract.**

**5. PENALTY FOR DELAY:**

The contractual period for execution of the work stated in Bid Document (supply, installation, training and commissioning) of this project consist of **30 days execution** period. On delay of various activities of supply & installation as schedule commission date, **penalty at the rate of 0.5% per month or part thereof, of the delayed work or supply items value.** If the Contractor fails to successfully complete the commissioning within the time fixed under the Contract, the Contractor shall pay to the Director, EQDC as penalty a sum specified for each specified period of delay as specified above.

**6. Presentation of Bills**

- 6.1. Payment for the partly supplied items will not be entertained. For execution of individual or part supply of test set up/ equipment along with required documents for work executed including cost of material consumed is to be prepared in

Quadruplicate and submitted 03 copies to the concern Engineer I/C of EQDC OR in charge of the work, who will in turn process the same and forward it for necessary payment. These bills shall be serially numbered.

- 6.2. The contractor shall submit the final bill along with the material consumption statement and other required data of the Equipment/item within 1 months from the date of successful installation, commissioning, testing and training to EQDC Personal.

## **7. Payment**

- 7.1. Payment will be released as per the terms and conditions mentioned below.
- 7.1.1. **% of product cost payable after successful Installation, commissioning, and Training to EQDC staff = 100%**
- 7.2. Payment will be made through RTGS/NEFT/DD/Cheque against the satisfactory work completion certificate from Competitive authorities.
- 7.3. Bank Charges: All bank charges to be borne by the Contractor/Supplier.
- 7.4. The payment to the Contractor for the performance of the works under the Contract will be made by the Owner as per the guidelines and conditions specified herein.
- 7.5. Detail Abstract sheet of supplied items covering the details of manufacturer, Item code no, Price, quantity and total price should be submitted along with Invoice. The bills shall be serially numbered as mentioned in Abstract sheet.
- 7.6. While claiming payment, the supplier is also to certify in the bill that the payment being claimed is strictly in terms of the contract and all the obligations on the part of the supplier for claiming that payment has been fulfilled as required under the contract.

## **8. Packing, Forwarding and Shipment**

- 8.1. The Contractor, wherever applicable, shall after proper painting, pack and crate all equipment in such a manner as to protect them from deterioration and damage during Air, rail and road transportation to the Site and storage at the Site till the time of installation and erection. The Contractor shall be held responsible for all damages due to improper packing.
- 8.2. The Contractor shall notify the Director, EQDC of the date of each shipment from his works, and the expected date of arrival at the Site for the information of the Director, EQDC.
- 8.3. The Contractor shall also give all shipping information concerning the weight, size and content of each packing including any other information the Director, EQDC may require.
- 8.4. The Contractor shall prepare detailed packing list of all packages and containers, bundles and loose materials forming each consignment dispatched to EQDC, Gandhinagar.

The Contractor shall further be responsible for making all necessary arrangements for loading, unloading and other handling right from his works up to the Site and till the equipment is erected, tested and commissioned. He shall be solely responsible for proper storage and safe custody of all equipment.

**9. Additional Technical Requirements of the Tender:**

- 9.1. Operation Manuals: The manual shall be made on good quality paper and 2 copies suitable for long term usage in laboratory and site shall be provided. It should consist of following:
  - 9.1.1. Description of equipment, Schematic diagram/ Circuit diagrams.
  - 9.1.2. Detailed procedure to operate the equipment (written in easy language for understanding)
  - 9.1.3. Trouble shooting guide
- 9.2. Guarantee/Warranty: The equipment shall be guaranteed for reliable and trouble-free operation for 12 months from commissioning & to replace defective parts/equipment/ materials free of cost within this period.
- 9.3. Training: Complete training by performing the test at EQDC laboratory shall be given to EQDC technical staff in EQDC premises on free of cost basis and for demonstration, necessary arrangement (sample etc.) shall be made available as applicable by supplier.
- 9.4. Calibration: All the items shall be calibrated/tested from Accredited Laboratory with accreditation symbol as per ISO/IEC 17025: 2017 with valid traceability. Each Equipment/standard should be calibrated for all the parameter and its ranges with possible minimum and maximum points for each range. Scan copy of the calibration certificate shall be submitted by email prior to dispatch of equipment.
- 9.5. Supplier will quote for new equipment with options and accessories; spares required for potential failures and enhanced capability. No refurbished equipment shall be quoted.
- 9.6. Detail Operating & Service Manuals shall be provided by supplier on free of cost basis.
- 9.7. Complete Training shall be given by performing the test at our Lab for EQDC technical staff in EQDC premises at free of cost. For demonstration necessary arrangement shall be made by the supplier. Equipment(s) available with EQDC can be used along with product supplied can be used for demonstration.
- 9.8. Installation and commissioning shall be done by supplier at EQDC premises.
- 9.9. Recommended spares shall be provided.
- 9.10. Quotation shall include statement of compliance / non – compliance of each of the above said specifications. In case of non-compliance, please state the actual values / figures of deviation with reference to EQDC laid specification in this enquiry.
- 9.11. If none of the tenders meet all the specifications precisely, EQDC reserves the right to select the nearest appropriate specification quoted.

Hence all prospective firms are requested to quote for their available appropriate equipment.

- 9.12. Quotation shall necessarily include copy of standard / printed specifications of the equipment and its options.
- 9.13. Preference shall be given to Make in India Product.