

**SCHEDULE-III****TECHNICAL SPECIFICATION OF TINNED COPPER  
FUSE WIRE AGAINST TN-2595****3.01 SCOPE**

This specification is intended to cover the design, manufacture and testing before despatch, supply and delivery of Tinned Copper Fuse Wire at sites. Tinned copper fuse wire shall be used for rewirable type electric fuses at various sites of Jaipur Vidyut Vitran Nigam Limited for protection of lines and transformers.

**3.02 STANDARD:-**

The Tinned Copper Fuse wire shall be generally comply in all respect to the requirement of relevant IS:9926/1981 amended upto date except wherever modified in this specification.

Consideration may be given to alternative which the supplier consider advisable by reasons of his own manufacturing requirements and experiences, provided descriptive matter is submitted and recommended device of arrangement is equal to or superior to that required by the accompanying specification and if the purchaser is convinced of the quality and/ or superiority of the material.

**3.03 TECHNICAL SPECIFICATION:-**

The Tinned Copper Fuse wire shall be conforming to the IS:9926/1981 with latest amendments, if any. The Tinned Copper fuse wire shall comply with the following requirements:-

- a) The fuse wire shall be made from electrolytic tough pitched (ETP) copper (tinned) conforming to IS:8130/1984 amended upto date.
- b) The fuse wire shall be circular and shall have a uniform cross section and free from pits, draw marks or any other harmful surface defects.
- c) The tin coating layer shall be uniform, smooth, continuous and firmly adherent to the base copper material.
- d) The electrical properties of the material used for making the fuse wires shall be as given hereunder:-

i.	Resistivity at 20 deg. C.	0.017241 ohm mm Sq./m
ii.	Density at 20 deg. C.	8.89 gm/cub cm.
iii.	Constant mass temp. deficient of resistance at 20	0.00393/deg

	deg.C.			.C.
iv.	Coefficient of linear expansion			$17 \times 10^{-6} /$ Deg.C.
v.	Diameter & maximum allowable Resistance			
	Rated Current of fuse wire	Nominal diameter	Tolerance (+/-) t	Permissible resistance in Ohm per meter at 20 Deg.C.
	1	2	3	4
	A	mm	mm	Max.
	10	0.35	0.004	0.1834
	25	0.75	0.008	0.0400
	40	1.25	0.011	0.0143
	50	1.375	0.013	0.0121
	80	1.80	0.018	0.0069
	100	2.0	0.020	0.0056
				5
				Min.
				0.1730
				0.0376
				0.0136
				0.0115
				0.0065
				0.0053

#### 3.04 TEST CERTIFICATE:-

The bidder must furnish type test reports along with bid as specified in IS:9926-1981 with latest amendments, from the testing house as specified in the Qualification Requirement of the Tender Documents (Schedule-III-A).

#### 3.05 TESTS

The samples of all ratings/ sizes will be tested as per sampling plan of ISS at your works free of cost in presence of our inspecting officer for compliance to the requirement of guaranteed technical particulars and relevant IS:9926/1981 for acceptance of offered lot.

#### Acceptance Tests

The following tests shall be carried out as Acceptance Tests on the samples to be selected as per sampling plan:-

- i) Visual examination.
- ii) Dimensional Check.
- iii) Resistance Check.

#### 3.06 PACKING:

The wire shall preferably be supplied in spools weighing 10 gms to 50 gms. The spools shall be so packed that the fuse wire are adequately protected against damages in ordinary handling and transit. The net weight of fuse wire of one spool should be 500 gms.

### 3.07 MARKING:

Each packing containing spools/ reels/ coils of fuse wire shall be clearly marked with the following informations:-

- i. Manufacturer's name or trade mark.
- ii. Purchaser's TN No., PO No. & date.
- iii. The material of fuse wire i.e. copper.
- iv. Length and weight of each spool.
- v. ISI certification mark.
- vi. The rated current.

### 3.08 SCHEDULE OF REQUIREMENT

The approximate requirement for following ratings of Tinned Copper Fuse Wire is as under:

<b>S. No.</b>	<b>Ratings</b>	<b>Approx. qty. (Kg.)</b>
1	10 A	150
2	25 A	200
3	40 A	300
4	50 A	150
5	80 A	100
6	100 A	100
	<b>Total</b>	<b>1000</b>

Nigam reserves the right to increase/ decrease the quantity of any rating to any extent at the time of finalization.

### 3.09 ADDITIONAL ORDER

Repeat orders for additional quantities, upto 50% of original ordered quantities, may be placed by the Nigam, on the same rates, terms and conditions given in the contract.

### 3.10 QUALITY ASSURANCE PLAN :

- 1) The Bidder shall invariably furnish following information along with his offer, failing which the offer shall be liable for rejection. Information shall be separately given for individual type of equipment offered.
- i) Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw material are tested, list of tests normally carried out on raw material in the presence of Supplier's representative, copies of test certificates.

- ii) Information and copies of test certificates as in (i) above in respect of bought out items.
- iii) List of manufacturing facilities available.
- iv) Level of automation achieved and list of areas where manual processing exists.
- v) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
- vi) Special features provided in the equipment to make it maintenance free.
- vii) The bidder should have adequate facilities to carry out accurately all required tests during manufacturing and routine/acceptance tests as per relevant ISS/IEC standards at the final end routine/acceptance. The supplier will ensure that all testing/measuring instruments/apparatus are calibrated at regular periodicity from reputed test house as per relevant standards and a certificate of testing authority is made available to purchaser's inspector at the time of inspection. Such calibration certificates, in any case shall not be older than one year on the date of such tests".
- viii) List of testing instruments and apparatus along with their last date of calibration, available with the Bidder for testing of equipment specified and test plant limitation, if any, vis-a-vis the type, special, acceptance and routine tests testing during manufacture specified in the relevant standards. These limitations shall be very clearly brought out in "Schedule of Deviations".

**2) The Supplier shall also submit the following information to the Purchaser, along with drawings/GTPs/BOM of ordered material, within 15 days of placement of order for purchaser's approval:-**

- i) Name of the raw material as well as bought out accessories and the names of sub-suppliers selected from those furnished along with the offer.
  - ii) Type test certificates of the raw material and bought out accessories/items.
  - iii) Quality Assurance Plan (QAP) withhold points for Purchaser's inspection. The QAP and Purchaser's hold points shall be discussed between the Purchaser and the Supplier before the QAP is finalized.
- 3) The Supplier shall submit the routine test certificates of bought out items and raw material at the time of routine testing of the fully assembled equipment.

**3.11 Purchasing on the Risk & cost of supplier, in case of non-execution of order/delay in delivery.**

As per field requirement, as it is, material (s) / equipment (s) is /are urgently required to Nigam and for which final notice has been given to supplier but supplier is being breach of agreement against stipulated delivery schedule, if at any time during the currency of the contract, the performance in whole or in part be prevented or delayed by more than the three months of the delivery schedule, the purchaser reserves the right to procure the

material/equipment on order or part thereof from any other source at the risk and cost of the contractor/ supplier.

-----