

New Technical specification with GTP- Transformer Oil

Sheet No.1

PART A

Sr. No.	Characteristics of transformer oil	As per CPRI requirement
1	Appearance	The oil shall be clear transparent & free from Suspended matter or sediments.
2	Density Max	0.89 gm/cm ³ at 29.50° C
3	Kinematic viscosity cSt at 27° C	27 cSt Maximum
4	Interfacial tension at 27° C Newtons/M	0.04 Minimum
5	Flash point Pensky-Marten (Closed)	140° C Min.
6	Pour point	-6° C Maximum
7	Neutralization value	
	a) Total acidity mg	0.03 mg KOH/gm Max.
	b) Inorganic acidity / Alkalinity	Nil
8	Corrosive Sulphur (In terms of classification of copper strips)	Non-corrosive
9	Electric strength (Break down voltage)	
	a) New untreated oil	30 kV Minimum (RMS)
	b) After treatment	60 kV Minimum (RMS)
10	Dielectric Dissipation factor (Ten delta) at 90° C	0.002 Max
11	Specific resistance (Resistivity)	
	A) at 90° C	35x10 ¹² Ohm-cm Minimum
	B) at 27° C	1500x10 ¹² Ohm-cm Minimum
12	Oxidation stability	
	A) Neutralization value after oxidation for 164hrs at 100° C	0.40mg KOH/gm maximum
	B) Total sludge after oxidation for 164hrs at 100° C	0.10% by weight maximum
13	Presence of oxidation inhibitor	The oil shall not contain anti-oxidant additives
14	Water content (PPM)	50 PPM Maximum
15	Ageing characteristics after accelerated ageing (open breaker method with copper catalyst)	
	a) Specific resistance (Resistivity)	
	1) at 90° C	2.5x10 ¹² Ohm-cm Minimum
	2) at 27° C	1500x10 ¹² Ohm-cm Minimum
	b) Dielectric Dissipation vector (Ten-delta at 90° C)	0.2 Max
	c) Total acidity	0.05mg KOH/gm max
	d) Total sludge value	0.05% by weight maximum

Date:

Seal & Signature of Tenderer

Sheet No.2

Proforma to be filled in for the confirmation and agreeability in respect of Transformer Oil offered.

Sr. No.	Description of Goods with details of specification	Tenderer should state here agreed /or not agreed /or enclosed as applicable.
1 (i) (ii)	EHV Grade transformer oil conforming to CPRI specification as per sheet no.1 attached in 209/210 liters non-returnable new steel barrels. (Ref Sr. No.4 below) Quantity offered (Total)	
2 a (i) (ii) (iii)	Laboratory facilities for carrying out test as per IS 335/1993 with latest amendment if any Copy of 'ISI Mark' license should be attached ISI Mark License No.	
2 b (i) (ii)	Test certificate got approved in last one year from NTPC, CPRI, and REC etc for all tests as per IS 335/1993 for EHV Grade oil to be utilized for 400kv/220kv/132kv class power transformer. Please state name Test certificate No. /date please attached photocopy for verification.	
2 c. (i) (ii)	The test as per specification sheet no.1 attached must be offered at the time of factory testing before dispatch of oil The oil must be offered within two weeks of demand. Capacity to offer the oil at a time must be indicated	
3	Please agree for- 1 drum will be randomly selected for Quantity verification from entire lot received by consignee duly sealed and approved by PGVCL/UGVCL/MGVCL/DGVCL inspector. Gross weight of said drum will be done. The net weight of the oil will be worked out after deducting the tare weight of the drum (Tare weight of drum to be provided by supplier during lot inspection & submit with inspection report). Quantity in liters will be worked out considering the density of the oil as per NABL/ Government approved laboratory test results. The shortage of oil if found during verification will be applicable to the whole lot on pro-rata basis and amount of shortage will be deducted from your bill.	
4	Packing of the transformer oil shall be in sealed barrels. The drum shall conform to IS-1783 / 1988 part-II type grade B with latest amendment if any	
5	List of testing instrument / equipment	
6	Brand Name	

Date:

Seal & Signature of Tenderer

7	Marking of oil drum as per IS 335:1993 clause 8 with latest amendment if any	
	<i>8.1 Each drum shall be indelibly marked with the following: a)Manufacturer's name or trade mark, b)Quantity in liters, c)New mineral insulating oils, and d)Identification in code or otherwise to enable the date and lot of manufacture to be tracked back to the factory records. 8.1.1 The containers may also be marked with the Standard Mark.</i>	
8	Acceptance tests as per IS 335:1993 clause 9.1 with latest amendment if any	
9	Sampling of oil should be done in accordance with IS: 6855/1973 with latest amendment if any	
	<i>Drums :</i> Samples should be taken as described in below table. Test shall be conducted separately on each lot for ascertaining its conformity to the requirements of the specification. The number of drums to be selected at random from a lot for this purpose shall depend on the size of the lot and shall be as given below:	
	Selection of Samples from Drums	
	<i>No. of Drums in a Batch</i>	<i>No. of Drums from Which Samples to be Taken</i>
	2 to 5	2
	6 to 20	3
	21 to 50	4
	61 to 100	7
	101 to 200	10
	201 to 400	15
	401 and more	20

Date:

Seal & Signature of Tenderer