

Oil Spec. for W0 - 72090A, 160MVA, PSTCL Spec.

SECTION-VII

**SCHEDULE OF GUARANTEED CHARACTERISTICS OF NEW TRANSFORMER OIL
(IN DRUMS)**

<u>S. No.</u>	<u>Characteristics</u>	<u>Requirements</u>
1	Appearance	Oil shall be clear & colour less (approx.) & transparent & free from Suspended matter or sediments
2.	Density at 29.5 deg.C(Max.)	: 0.89 g/cm ³
3.	Kinematics viscosity at 20 deg.C (Max.)	: 40 CST
4.	Interfacial tension at 27deg.C (Min)	: 0.04 N/M
5.	Flash point (Min.)	148 deg.C
6.	Pour point(Mix.)	- 30 deg.C
7.	Neutralization value	
	a) Total acidity (Max.)	0.03 mg KOH/g.
	b) Inorganic acidity/alkalinity	Nil
8.	Corrosive sulphur	Non-corrosive
9.	Electric strength (Break down Voltage) Min.	
	a) New unfiltered oil	30KV (rms) (Min.)
	b) After filtration	If the above value is not obtained the oil shall be filtered. 60KV (rms) (Min.)
10	Dielectric dissipation factor (Tan-delta) at 90deg.C	0.002(Max.)
11	SK value (Max.)	0-8%
12	Water content(Max.)	50 PPM
13	Specific resistance (resistively)	12
	a) At 90deg.C (Min.)	150x10 ohm-cm
		12
	b) At 27 deg.C (Min.)	2500x10 ohm-cm
14	Oxidation stability(after Oxidation for 164 Hours @ 100deg.C)	
	a) Neutralist ion value after oxidation (Max.)	0.40 mg KOH/g.
	b) Total sludge after oxidation (Max.)	0.10% by weight
15	Ageing characteristics after Accelerated ageing(open Beaker method with copper Catalyst.) 96 Hours @ 115 deg.C	
	a) Specific resistance(resistively)	12

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i) At 27 deg.C (Min.)	2.5x10 ohm-cm 12
ii) At 90deg.C (Min.)	0.2x10 ohm-cm
b) Dielectric dissipation factor (Ten delta) at 90deg.C	0.20 Max.
c) Total acidity, mg KOH/g	0.05 Max.
d) Total sludge value percent by weight	0.05 Max.
16 PNA Component analysis	N- More than 46%(Nepthenic) P- Less then 46% (Paraffinic) A- less than 8%(Aromatic)
17 Presence of oxidation Inhibitor	Absent

B) CHARACTERISTICS OF OIL IN THE TRANSFORMERS

The important characteristics of the transformer oil after it is filled in the transformer (after 3 months & within one year of filling) shall be as follows:-

<u>S.No.</u>	<u>Characteristics</u>	<u>Permissible limit</u> <u>Satisfactory for use</u>
1.	Electric strength (Breakdown voltage KV)	60KV/min. (Prior to energisation) 40 KV/min. (After energisation)
2	Water contents (PPM)	25 PPM (Max.)
3	Specific resistance (Resistively) ohm-cm at 90deg.C	12 20x10 ohm-cm (Min.)
4	Dielectric dissipation factor (Ten Delta) at 90 deg. C	0.01 (Max.)
5	Neutralization value (Total acidity)	0.2 mg KOH/gm (Max.)
6	Sediment and/or perceptible sludge	Absent
7	Flash point	140 deg.C (Min.)
8	Interfacial tension at 27deg.C	0.030 N/m (Min.)

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