PSTCL

SECTION –VII

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

Sr. No.	Characteristics	Requirement
A	**FUNCTION:**	
1	Viscosity at 40° C, mm^2/s (Max)	15 mm^2/s
2	Viscosity at 0° C, mm^2/s (Max)	1800mm^2/s
3	Pour Point,° C (Max)	-20°C
4	Water Content in mg/kg (Max)	40mg/kg
5	**BREAKDOWN / VOLTAGE:**	
	5.1. New unfiltered oil, kV (rms) (Min.)	30 KV
	5.2.After filteration, kV (rms) (Min.)	70 KV
6.	Density g/ml (Max)	0.895 at 20°C
7.	DDF (Max.)	0.005 at 90°C
B	**REFINING/STABILITY:**	
8.	Appearance	Clear & Colourless (approx.) & transparent & free from suspended matter or sediments.
9.	Acidity, mg KOH/g (Max.)	0.01mg KOH/g
10.	Interfacial Tension at 27 °C, mN/m (Min.)	40 m N/m
11.	Corrosive Sulphur	Not Corrosive
12.	Potentially corrosive sulphur	Not Corrosive
13.	DBDS	Not Detectable (<5 mg/kg)
14.	Inhibitor according to IS 13631/IEC 60666	Un-Inhibited Oil: Not Detectable (<0.01%)
15.	Metal Passivator additives according to IS 13361/IEC 60666	Not Detectable (<5 mg/kg)
16.	2-Furfural and related compounds content	Not Detectable (<0.05 mg/kg) for each individual compound
C	**PERFORMANCE**	
17.	Oxidation Stability (164 Hrs) as per new IS	
	(a)Total acidity, mg KOH/g (Max.)	1.2 mg KOH/g
	(b)Total sludge value, % by wt (Max.)	0.8%
	(c)Dielectric dissipation factor (tan delta) at 90°C (Max)	0.500 (at the end of oxidation stability test)
D	**HEALTH, SAFETY & ENVIRONMENT**	
18.	Flash Point, °C (Min)	135°C
19.	PCA Content, % (Max.)	3
20.	PCB, mg/kg	Not Detectable (<2 mg/kg)
21.	PNA Analysis	N- More than 46% (Napthenic) P- Less than 46% (Paraffinic)

		A- Less than 8% (Aromatic)
E)	**CHARACTERSTICS OF OIL IN THE TRANSFORMERS**	
	The important characteristics of Transformer oil after it is filled in the Transformer (after 3 months & within one year) shall be as follows:-	
	Characteristics	Permissible Limit for satisfactory use (after energisation)
1	Electric Strength (Breakdown voltage KV) (Min.)	(i) 60 KV min. (Prior to energisation) (ii) 40 KV min (After energisation).
2	Water contents (PPM) Max.)	25 PPM
3	Specific Resistance (Resistively) ohm-cm at 90 ° C. (Min.)	20 x 10^{12} ohm-cm
4	Dielectric dissipation factor (Tan delta) at 90° C (Max.)	0.01
5	Neutralization value (Total acidity (Max.)	0.2 mg KOH/g
6	Sediment and /or precipitable sludge	Absent
7	Flash Point (Min)	135° C
8	Interfacial tension at 27° C (Min)	0.030 N/m