Amendment EHV TRF Reactor Nov'24

Following revision/amendment shall be considered in all Technical specification of EHV (132KV and above) class Transformers and Reactors.

a) Frequency Domain Spectroscopy (FDS) Test:

The Frequency Domain Spectroscopy (FDS) test is to be conducted at factory for all EHV (except 66KV) class Transformers and Reactors. The limit values are as under,

Insulation condition	% Moisture by dry weight in paper	% water saturation of oil (Oil Cond, @ 25°C, pS/m)
Dry (At Comm.)	0.5-1.0%	<0.37 pS/m
Normal in operation (up to GP)	< 2%	0.37 to 3.7 pS/m

However, the Karl Fischer test is not to be carried out now onwards.

b) Guarantee Period:

The Guarantee period of all class/rating Transformers and Reactor along with its accessories (including NIFPS, Online DGA, Aircell, etc.) revised from 03 years (36/42 months) to ***05 years (60/66 months).***

c) Tan delta and Capacitance for Transformers & Reactors:

Following acceptable criteria is to be considered;

Parameter	Description
Bushing & Winding	**(a). Tan Delta** **(During pre-commissioning)** < 0.005, i.e. 0.5% Site Value should be equal to Factory Value or ± 0.1% change allowed w.r.t. to FAT (i.e. if Factory Value 0.3% then 0.2% to 0.4% can be allowed) **(In operation/during GP)** <0.7% or change of Tan delta value not more than 0.1% w.r.t. previous year value (i.e. If previous year value 0.3% then >0.4% cannot be allowed) **(b). Capacitance** Variation in Capacitance ± 5% ***Note:*** *Crossing of prescribed limits of Tan Delta & Capacitance value, Refurbishment or Replacement action to be initiated by OEM for 'within Guarantee period cases'.*

d) All auxiliaries like PRV, OSR, SPRR, MOG & Buchholz Relay of all class/rating Transformers and Reactors having terminal boxes shall have ingress protection of IP67 (instead of IP55).

e) The Limit for mineral insulating oils after filling in New electrical equipment prior to energization:

Sr No	Property	Permissible limits (132kV & above class transformer)
1	Appearance	Clear, free from sediment & suspended matter
2	Break Down Voltage(kV)	>70
3	Water Content (mg/kg)	<5 (Main Tank) <10 (OLTC)
4	Acidity (mg KOH/g)	Max. 0.03
5	Dielectric Dissipation factor at 90°C and 40Hz to 60Hz	Max. 0.010
6	Resistivity at 90 °C (Gohm*m)	Min. 60
7	Corrosive Sulphur	Non Corrosive
8	Interfacial Tension(mN/m)	Min. 35
9	Total PCB content(mg/kg)	Not detectable(< 2 mg/kg total)
10	Flash point	Min. 135^0C

***Test methods as specified in IS 1866: 2017 are applicable**