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INHIBITED TRANSFORMER OIL (I) (HIGHER OXIDATION STABILITY & LOW SULPHUR CONTENT)						
1. GENERAL: The oils covered by this specification are un-used Inhibited Transformer Oil (I) having higher oxidation stability and low sulphur content as per Table-2 & Section 7.1 of IEC- 60296-2012 . Oil is manufactured from high naphthenic feedstock with proven oxidation inhibitor having very high oxidation stability, good di-electric strength and excellent low temperature performance. This specification is generally in line with IEC-60296-2012 with additional requirements as per CLW specification CLW/ES/3/0172 Alt-D and RDSO letter no. EL/3.2.1/3 dated 04.9.2.2012. 2. APPLICATION: For use as dielectric and cooling medium in transformers. 3. STANDARDS: IEC-60296-2012 4. TEST METHOD: Unless otherwise specified, the tests shall be conducted in accordance with relevant method as per IEC-60296-2012. 5. SAMPLE FOR TEST: 5 liters of oil shall be supplied for testing and approval. 6. PROPERTIES: Oil shall meet the properties of <i>Inhibited transformer oil</i> as per Table-2 "General Specifications" and Section 7.1 (Higher oxidation stability & low sulphur content) of IEC-60296-2012.						
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7. ADDITIONAL REQUIREMENTS:

7.1 KINEMATIC VISCOSITY

7.1.1 At 40° C – 11.0 mm²/s (Max)

7.1.2 At -30° C – 1800 mm²/s (Max)

7.2 POUR POINT

-45° C Max.

7.3 THERMAL EXPANSION CO-EFFICIENT

7.3.1 At 20° C – 0.0007408 I/K

7.3.2 At 70° C – 0.0007631 I/K

7.4 AGEING PROCESS (164 H / 100° C)

7.4.1 NEUTRALIZATION VALUE

0.4 mg KOH/g, Max.

7.4.2 IMPURITIES

0. 1% g/100g, Max.

7.4.3 DIELECTRIC LOSS FACTOR (TAN DELTA) AT 90° C

0.15 Max.

7.5 ANILINE POINT

63 - 84° C

7.6 CARBON TYPE COMPOSITION

Ca: 4-10%

Cp: 50% Max.

Cn: ≥ 42%

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8. TEST REQUIREMENTS: Oil samples taken after delivery at any place in India shall meet the test requirements as per clause no. 6 & 7 of this specification. 9. TEST CERTIFICATE: Three copies of test certificate shall be supplied with each consignment giving the following information JS – 27199 – Inhibited transformer oil (I) BHEL P.O. no. Manufacturer's / Supplier's name Batch no. / Lot no. Quantity in liters / number of drums Test certificate as per clause no. 8 "Test Requirements". 10. PACKING AND MARKING: Oil shall be delivered in perfectly clean steel drums of 210 liters nominal capacity with flat or dished fixed ends conforming to Grade-A or Grade-B of IS-1783. Inside surface of the drum to be coated with a suitable coating (e.g. epoxy lacquer, phosphate etc) resistant to insulating oil. Outside surface of drum to be coated with suitable primer and finishing paint or be hot dip galvanized to IS-4759 for protection against atmospheric corrosion. The drums used shall be especially reserved for the purpose. Immediately after filling with oil the drums shall be effectively sealed so as to exclude ingress of moisture. When stated in order, oil shall be delivered in road tank wagons (tankers) specially reserved for the purpose and shall be effectively sealed so as to exclude ingress of moisture. The drums / road tankers shall be indelibly marked with the following information:- JS - 27199 – Inhibited transformer oil (I) BHEL P.O. no. Manufacturer's / Supplier's name Batch no. / Lot no Quantity in liters / number of drums							
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