

	PLANT PURCHASE SPECIFICATION JHANSI		PURCHASE SPECIFICATION No. JS 27198	
			Page 1 of 4	
<u>INHIBITED MINERAL INSULATING OIL</u> IS-12463 IS WITHDRAWN AND REPLACED BY IS-335-2018 1. <u>GENERAL:</u> The oils covered by this specification are un-used inhibited low viscosity mineral oils mixed with a suitable oxidation inhibitor. This specification is generally in line with IS-12463 -1988 with additional requirements as per RDSO letter no. TI/PSI/INSOIL/POLICY/07 dated 27.2.2007. 2. <u>APPLICATION:</u> For use as dielectric and cooling medium in transformers. 3. <u>COMPLIANCE WITH NATIONAL STANDARDS:</u> This specification is technically identical to IS-12463-1988 except Cl. no. 8.3 (oxidation stability) & 8.4 (oxidation inhibitor). The oil covered by this specification must meet the requirements as per IS-12463-1988 (latest) in addition to the specification requirements. 4. <u>TEST METHOD:</u> Unless otherwise specified, the tests shall be conducted in accordance with relevant method as per IS-12463-1988 (latest). 5. <u>SAMPLE FOR TEST:</u> 3 liters of oil shall be supplied for testing and approval. 6. <u>PHYSICAL PROPERTIES:</u> 6.1 APPEARANCE Shall be clear, transparent and free from suspended matter or sediments. 6.2 DENSITY AT 29.5° C 0.89 gm/cm³ Max.				
Revision: 01 Date: 22.07.2013	Prepared & Checked by: Neeraj Varshney Approved by: 		Issued By: Standard Section, TRE Jhansi	
			Date of 1 st Issue 02.08.1995	Prepared- N. N. Raman Approved- J. M. Rao

22/7/13



PLANT PURCHASE SPECIFICATION

JHANSI

PURCHASE SPECIFICATION
No. JS 27198

Page 2 of 4

6.3 KINEMATIC VISCOSITY AT 27° C

27 cSt Max.

6.4 INTERFACIAL TENSION AT 27° C

0.04 N/m Min.

6.5 FLASH POINT - PENSKEY MARTEN (CLOSED)

140° C Min.

6.6 WATER CONTENT

50 ppm, by weight Max.

6.7 POUR POINT

-6° C Max.

7. ELECTRICAL PROPERTIES:

7.1 ELECTRIC STRENGTH (BDV)

7.1.1 NEW UNFILTERED OIL

30 KV_{rms} Min.

Note: if the above BDV is not attained, the oil shall be filtered.

7.1.2 AFTER FILTRATION

60 KV_{rms} Min.

7.2 SPECIFIC RESISTANCE (RESISTIVITY)

At 90° C – 35 X 10¹² Ohm-cm, Min

At 27° C – 1500 X 10¹² Ohm-cm, Min.

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PLANT PURCHASE SPECIFICATION

JHANSI

PURCHASE SPECIFICATION
No. JS 27198

Page 3 of 4

7.3 DIELECTRIC DISSIPATION FACTOR (TAN DELTA) AT 90° C

0.002 Max.

8. CHEMICAL PROPERTIES:

Following tests shall be carried out on the oil in 'As Received' condition

8.1 NEUTRALIZATION VALUE (TOTAL ACIDITY)

Total acidity: 0.03 mg KOH/g, Max.

Inorganic acidity / alkalinity: Nil

8.2 CORROSIVE SULPHUR

Non-Corrosive

8.3 OXIDATION STABILITY

(METHOD OF TEST: IS-12422)

8.3.1 NEUTRALIZATION VALUE AFTER OXIDATION

0.2 mg KOH/g, Max.

8.3.2 TOTAL SLUDGE AFTER OXIDATION (BY WEIGHT)

0.05% by mass, Max.

8.4 OXIDATION INHIBITOR

The value of oxidation inhibitor (DBPC-2, 6 Di-tertiary-Butyl-Para-cresol) content shall be 0.25% - 0.3% by mass. Method of test as per IS-13631 Sec-II Quantitative method by IR Spectro photometer.

9. TEST REQUIREMENTS:

Oil samples taken after delivery at any place in India shall meet all test requirements stipulated in this specification.

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PLANT PURCHASE SPECIFICATION

JHANSI

PURCHASE SPECIFICATION

No. JS 27198

Page 4 of 4

10. TEST CERTIFICATE:

Three copies of test certificate shall be supplied with each consignment giving the following information

JS-27198 – Low viscosity type Inhibited Insulating oil

BHEL P.O. no.

Manufacturer's / Supplier's name

Batch no. / Lot no.

Quantity in liters / number of drums

Test values obtained and certificate of compliance with clause 6 to 8.

11. 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-27198 – Low viscosity type Inhibited Insulating oil

BHEL P.O. no.

Manufacturer's / Supplier's name

Batch no. / Lot no.

Quantity in liters / number of drums

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