



PLANT PURCHASE SPECIFICATION
JHANSI

PURCHASE SPECIFICATION
No. JS 27197
PREFACE SHEET
REV-04

SILICONE INSULATING LIQUID

FOR INTERNAL USE ONLY
REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIER

Comparable Standards:- IEC-60836-2005

Probable Suppliers:-

1. Dow Corning
2. Momentive Performance Materials
3. Shin-Etsu

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SILICONE INSULATING LIQUID

1. GENERAL:

This Standard covers the specifications and test methods for unused Silicone Type T-1 transformer liquid (polydimethyl siloxane, without additives) intended for use in transformers.

2. APPLICATION:

For use as dielectric and cooling medium in HVR transformers for ESP.

3. COMPLIANCE WITH NATIONAL/INTERNATIONAL STANDARDS:

IEC-60836: 2005 "Specifications for unused silicone insulating liquids for electro technical purposes" with additional requirement at Cl. no. 6.4.

4. TEST METHOD:

Unless otherwise specified, the tests shall be conducted in accordance with relevant method as per IEC-60836: 2005

5. SAMPLE FOR TEST:

Sampling for test shall be in line with IEC-60475. 5 liters liquid shall be supplied for testing and approval purpose.

6. PROPERTIES:

6.1 APPEARANCE

Shall be clear and free from suspended matter & sediment.

6.2 DENSITY AT 20° C (Kg/dm³)



0.955 - 0.970

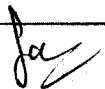
6.3 KINEMATIC VISCOSITY AT 40° C (mm²/s)


40 ± 4

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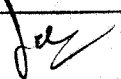
Revision: 04 Date: 09 th Dec, 2014	Issued By: Standard Section, TRE Jhansi		
	Ageing test deleted and generally updated in line with IEC-60836:2005	Prepared- N. Varshney 	Approved- B. Naik 




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- 6.4 FLASH POINT (° C)**
 a) Pensky Martens Closed cup method : Min. 240
 b) Cleveland Open cup method : Min. 300
- 6.5 FIRE POINT (° C)**
 Min. 340
- 6.6 REFRACTIVE INDEX AT 20° C**
 1.404 ± 0.002
- 6.7 POUR POINT (° C)**
 Minus 50 or below
- 6.8 WATER CONTENT (mg/kg)** (For untreated liquid, as received)
 Max 50
- 6.9 NEUTRALIZATION VALUE (mg KOH/g)** (For untreated liquid, as received)
 Max. 0.01
- 6.10 BREAKDOWN VOLTAGE (kV)** (For untreated liquid, as received)
 Min. 40
- 6.11 DIELECTRIC DISSIPATION FACTOR (DDF) AT 90° C & 50 Hz** (For untreated liquid, as received)
 Max. 0.001
- 6.12 PERMITTIVITY AT 90° C** (For untreated liquid, as received)
 2.55 ± 0.05
- 6.13 DC RESISTIVITY AT 90° C (GΩ x m)** (For untreated liquid, as received)
 Min. 100

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7. TEST REQUIREMENTS:

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

8. TEST CERTIFICATE:

Unless otherwise stated, three copies of test certificate shall be sent along with each consignment giving the following information :-

- JS-27197 – Silicone Insulating Liquid
- BHEL P.O. no.
- Manufacturer's / Supplier's name
- Batch no. / Lot no.
- Quantity in liters / number of drums
- Test values / Certificate of analysis & certificate of compliance for clause 6.

9. PACKING AND MARKING:


Liquid 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. Silicone liquid in 1050 liters IBC containers with steel cage is also acceptable. The drums/container used shall be especially reserved for the purpose. Immediately after filling with oil the drum/container shall be effectively sealed so as to exclude ingress of moisture.

The drums / containers shall be indelibly marked with the following information:-

- JS-27197 – Silicone Insulating Liquid
- BHEL P.O. no.
- Manufacturer's / Supplier's name
- Batch no. / Lot no.
- Quantity in liters / number of drums/ number of containers

10. SHELF LIFE:

Should be at least 36 months when stored in original sealed container/drum.

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