



IDEMITSU TRANSFORMER OIL SERIES (E)

~High-performance Electrical Insulating Oil ~

1. Application

The series of Idemitsu Transformer oils are suited to broad range of applications from ultra-high voltage transformers to distribution-line transformers.

2. Description

Idemitsu Transformer Oil Series (E) is a mineral-oil-based electrical insulating oils refined using proprietary technology. A range of grades are available that conform to JIS C2320, IEC60296, ASTM D3487, and other standards.

3. Characteristics

1. Electrical Insulating Properties

The impurities are completely removed during the refining process. Therefore, the series possesses high resistivity and excellent dielectric breakdown voltage.

2. Thermal Stability

Due to its high resistance to heat and oxidation, Idemitsu Transformer oil can be used for extended periods without deterioration in its performance as an insulating oil.

3. Statics Electrification

Idemitsu Transformer oil has extremely low conductivity, a result of our unique refining process and the stringent standards by which oil is selected.

4. Packing

Bulk, 200Liters drum

5. Typical Specifications

| Test Items | | Units | IDEMITSU TRANSFORMER OIL Typical Spec | | | | JIS C2320-99 (Japanese Standard) | | IEC 60296-03 (European Standard) | | ASTM 3487-00 (U.S. Standard) | |
|-------------------------------|----------------------------------|-------------------|--|---------------|---------------|---------------|-------------------------------------|----------------|---|----------------|---------------------------------|----------------------------------|
| | | | G(E) | H(E) | A(E) | S(E) | Test Method | Limit | Test Method | Limit | Test Method | Limit |
| Colour (ASTM) | | - | L0.5 | L0.5 | L0.5 | L0.5 | - | - | - | - | D 1500 | max. 0.5 |
| Density | 15 °C | g/cm ³ | 0.8790 | 0.8870 | 0.8970 | 0.8870 | K 2249 | max. 0.91 | - | - | D 1298 | max. 0.91 |
| | 20 °C | | 0.8758 | 0.8838 | 0.8938 | 0.8838 | | | | | | |
| Kinematic Viscosity | -30 °C | | 457.5 | 584.5 | 649.6 | 584.5 | - | - | ISO 3104 | max. 1800 | - | - |
| | 0 °C | | 44.86 | 50.52 | 53.73 | 50.52 | K 2283 | max. 13 | ISO 3104 | max. 12 | D 445 (D 88) [*5] | max. 76.0 max. 12.0 max. 3 |
| | 40 °C | 8.250 | 8.650 | 8.950 | 8.650 | | | | | | | |
| 100 °C | 2.230 | 2.250 | 2.290 | 2.250 | - | max. 4 | - | - | | | | |
| Pour Point | | °C | -32.5 | -37.5 | -47.5 | -37.5 | K 2269 | max. -27.5 | ISO 3016 | Max. -40[*3] | D 97 | max. -40 |
| Flash Point (PM) | | °C | 144 | 144 | 142 | 144 | K 2265 | min. 130 | ISO 2719 | min. 135 | D 92 | min. 145 |
| Acidity | | mgKOH/g | <0.01 | <0.01 | <0.01 | <0.01 | C 2101 | max. 0.02 | IEC 62021-1 | max. 0.01 | D 974 | max. 0.03 |
| Copper Strip Corrosive | 140 °Cx19hrs | - | Non-Corrosive | Non-Corrosive | Non-Corrosive | Non-Corrosive | C 2101 | Non-Corrosive | DIN 51353 | Non-Corrosive | D 1275A | Non-Corrosive |
| | 150 °Cx19hrs | - | Non-Corrosive | Non-Corrosive | Non-Corrosive | Non-Corrosive | - | - | - | - | D 1275B | Non-Corrosive |
| Oxidation Stability | JIS 120 °Cx75hrs | Sludge | wt% | 0.10 | 0.10 | 0.10 | 0.02 | C 2101 | max. 0.4 | - | - | - |
| | | Acid Value | mgKOH/g | 0.20 | 0.20 | 0.20 | 0.10 | | max. 0.6 | - | - | - |
| | IEC 120 °Cx164hrs (S:500hrs)[*5] | Sludge | wt% | 0.10 | 0.10 | 0.10 | 0.20 | - | - | max. 0.8 | - | - |
| | | Acid Value | mgKOH/g | 0.20 | 0.20 | 0.20 | 0.50 | - | - | max. 1.2 | - | - |
| | DDF | % | 12 | 12 | 12 | 20 | - | - | - | max. 50 | - | - |
| | ASTM 110 °Cx164hrs | Sludge | wt% | 0.12 | 0.12 | 0.12 | 0.06 | - | - | - | D 2440 | max. 0.3(0.2) |
| Acid Value | mgKOH/g | 0.25 | 0.25 | 0.25 | 0.15 | - | - | - | - | max. 0.6(0.4) | | |
| Water | | ppm | 7 | 7 | 7 | 8 | C 2101 | max. 30/40[*1] | IEC 60814 | max. 30/40[*1] | D 1533 | max. 35 |
| Dielectric breakdown voltage | <Spherical> | kV(2.5mmGap) | 74 | 74 | 74 | 74 | C 2101 | min. 40 | IEC 60156 | min. 30 | - | - |
| | <VDE> | kV(2.0mmGap) | 55 | 55 | 55 | 55 | - | - | - | - | D 1816 | min. 20/35[*4] |
| | <Disk> | kV(2.5mmGap) | 78 | 78 | 78 | 78 | - | - | - | - | D 877 | min. 30 |
| Dielectric Dissipation Factor | 25 °C | % | 0.001 | 0.001 | 0.001 | 0.001 | C 2101 | max. 0.1 | - | - | D 924 | max. 0.05 |
| | 80 °C | | 0.005 | 0.005 | 0.005 | 0.005 | | | - | - | - | - |
| | 90 °C | | 0.007 | 0.007 | 0.007 | 0.007 | - | - | IEC 60247 | max. 0.5 | - | - |
| | 100 °C | | 0.009 | 0.009 | 0.009 | 0.009 | - | - | - | - | - | - |
| Volume Resistivity | 80 °C | T Ω*m | 40 | 40 | 40 | 40 | C 2101 | min. 0.5 | - | - | - | - |
| Notes | | | | | | | | [*1] Bulk/Drum | [*1] Bulk/Drum [*2] Condition = 20 °C [*3] Standard value | | [*4] 1mmGap/2mmGap | |

Idemitsu Transformer Oil G (E): General-use transformers oil

Idemitsu Transformer Oil H (E): For use with ultra-high voltage transformer

Idemitsu Transformer Oil A (E): For use with ultra-high voltage transformer operate cold climates

Please use the product after carefully reading the precautions written on the container and MSDS (MSDS is available at your sales contact office). The performance and specifications are results of our tests, and are NOT a guarantee of accuracy or completeness.

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