OXIDATION STABILITY BY ROTATING PRESSURE VESSEL METHOD-(RPVOT)-(ASTM D2272, ASTM D2112)-(WITH CIRCULAR PRESSURE CHART RECORDER)

Compliance standards

ASTM D2272, ASTM D2112, IS 12958, IP 229

Purpose :

These methods used to evaluate the oxidation stability of new and in-service engine, turbine and inhibited mineral insulating oils in the presence of water and a copper catalyst coil at 150°C as per ASTM D2272 and at 140 °C test temperature as per ASTM D211. The method is applicable to determine the oxidation stability of both - steam turbine oil and inhibited mineral insulating oil as per the respective standards mentioned above.

Significance & Use :

The estimate of oxidation stability is useful in controlling the continuity of this property for batch acceptance of production lots having the same operation. This test method is also used to assess the remaining oxidation test life of in-service oils. This is a control test of oxidation stability of new, inhibited mineral insulating oils for determining the induction period of oxidation inhibitors under prescribed accelerated aging conditions

Summary of test method :

The test oil, water, and copper catalyst coil, contained in a covered glass container, are placed in a vessel equipped with a pressure gage. The

vessel is charged with oxygen to a gage pressure of 620 kPa (90 psi, 6.2 bar), placed in a constant temperature oil bath set at 150 °C, and rotated axially at 100 rpm at an angel of 30° from the horizontal. C. The time for an oil to react with a given volume of oxygen is measured; completion of the test is indicated by a specific drop in pressure. The number of minutes required to reach a specific drop in gage pressure is the oxidation stability of the test sample.

Salient Features :

- Aesthetic outer appearance
- Unique and self explanatory design
- Designed by keeping in mind easy cleaning and maintenance purpose
- Efficient heating system saves power by reducing the overall power consumption
- Inbuilt memory for data recording saves on additional printer and paper cost.
- The Pressure sensor derives power from the system itself, hence no batteries required.
- Automatic end of test if leak detected in the pressure vessel.
- The unit is LAN Ready, enabling control of the system operation from any PC in your network.
- Both TFOUT & RPVOT tests can be conducted
- Carriage rotated by a heavy duty Ac motor at 100 ± 5 RPM
- Automatic Detection of end point and end of test for both RPVOT and TFOUT tests.

Brief construction details :

Following parts and accessories will be provided to

conduct the entire test process

Heating Bath :

- Double walled oil bath with inlet provision & outlet provision
- Rectangular shape
- Stainless steel structure
- Outer body fabricated from matt finished Stainless Steel - 304 Grade material
- Inner chamber is also fabricated from Stainless Steel - 304 Grade material
- Heavy insulation is provided between inner chamber and exterior body to prevent the direct heat loss
- Inner chamber is fitted with efficient heating element and PT-100 Sensor to measure the temperature
- Bath temperature is controlled by Microprocessor based dual display Auto-Tune PID Temperature indicator cum controller
- Equipped with an efficient stirrer to maintain uniform temperature throughout the chamber

Fitted with a suitable device for holding and rotating the vessel axially at an angle of 30° at 100 ± 5 rpm, while submerged in oil to a point at least 25 mm (1 in) below the level of the bath liquid.

- Heavy duty drive motor to rotate pressure vessel at 100 ± 5 rpm rpm and is housed below the oil bath.
- Temperature control accuracy : ± 0.5°C
- Temperature display : LED
- Temperature range : 5 °C above ambient to 200 °C
- Temperature sensor : Pt - 100 Sensor

- RPM of rotating vessels : 100 ± 5 rpm
- RPM Indication : Digital indication on RPM indicator
- RPM Control : Controlled by accurate DC Drive
- Electric Motor : Of standard reputed make such as GE / CROMPTON / MARATHON
- Pressure Indication : On EUROTHERM RECORDER/CONTROLLER
- Supplied with over temperature protection safety
- Operates on 230 Volt, 50 Hz, Single Phase, AC Supply

Rotating Pressure Vessel (Oxidation Vessels) :

- Oxidation vessel with body, cap, closure ring and stem, constructed from Stainless Steel material
- Stainless steel material ensures a proper rate of heat transfer.
- The interior surface is given a smooth finish to facilitate cleaning.
- Vessel stem is having an inside diameter of 6.4 mm (1/4 in) and is equipped with a 6.4-mm (1/4-in) needle valve
- Withstands a working pressure of 3450 kPa (500 psi, 34.5 bar) at 150 °C.
- Two numbers of rotating pressure vessels are provided.

Glass Sample Container, Catalyst Coil :

- It will be supplied with copper catalyst coil,
- Capacity of container : 175-mL capacity
- Construction : Made of borosilicate glass

glass

- Will be having a sliding fit in the vessel with no excess side clearance.
- Will be having maximum wall thickness of 2.5 mm and weighs no more than 100 gram
- Supplied with Catalyst wire, glass liners with PTFE - Cover, & 'O' ring.

Thermometer :

IP 37C/ASTM 96C sludge test thermometer having a range from 144 to 156 °C graduated in 0.2 °C intervals

Recording Pressure Mechanism (Pressure Chart Recorder) :

- Pressure recording mechanism consists of high quality circular Pressure Chart Recorder.
- Product Type : Circular Chart Recorder
- Pressure range : 0 to 200 psi
- Accuracy : ± 2%
- Enclosure : Splash proof case with IP66 rating
- Case : Corrosion resistant case
- Power source : Single AA battery operation

Optional Accessories At Extra Cost :

- Oxygen cylinder @ **Rs 18500.00**