



EIE INSTRUMENTS PVT. LTD.
(An ISO 9001:2015 Certified Company)

OXIDATION STABILITY BY ROTATING PRESSURE VESSEL METHOD-(RPVOT)-(ASTM D2272 & D2112)-(ELECTRONIC WITH SOFTWARE)

Compliance Standards

ASTM D2272, ASTM D2112, 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 D2112. 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.

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 gauge. The vessel is charged with oxygen to a gauge 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.. The time for oil to react with 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 gauge pressure is the oxidation stability of the test sample.

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
- Outer body fabricated from mild steel material, Powder coated in attractive shades



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Calibration Laboratory:

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GST TIN No. : 24AABCE4018L1ZU
I.T. PAN No. : AABCE 4018L
IEC No. : 0813026598 Dt. 04/03/2014
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TAN No. : AHME00572F



- Inner chamber is 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
- RPM of rotating vessels : 100 ± 5 rpm rpm
- RPM Indication : ON HMI Touch screen controller
- RPM Control : Controlled by accurate DC Drive
- Pressure Indication : On HMI Touch screen 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 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 :

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- It will be supplied with copper catalyst coil,
- Capacity of container : 175-mL capacity
- Made of borosilicate glass
- Will be having 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 recording mechanism consists of high quality Electronic pressure transducers, power source, mounting equipment, data recorder cum controller (Touch screen HMI), connecting cables and digital software. The rotary transducer couplings can be mounted directly on the vessel stem in place of the standard mechanical pressure recorders. The output signal from the transducer is recorded & stored in HMI Controller. Complete system is designed such that operation of the unit will automatically be cut-off, when the pressure will be dropped by 25 psi from the originally established pressure Plateau.

- Pressure Transmitter : 1 to 9 Bar
- Technology : 4-20 mA two wire, 24 VDC
- Accuracy : 0.25 %
- Connection : 1/4" BSP
- Temperature Range : -40 to 125 C, DIN Connector

Salient features of Touch Screen Controller / Recorder

- Secure data recording
- PID control loops
- High accuracy universal inputs
- USB removable data storage facility
- Compact design
- 50MB flash memory

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- Ethernet communications
- Multiple I/O options
- Crystal clear, color display
- Data Acquisition and recording
- Supplied complete with dedicated software

Optional Accessories At Extra Cost

1. Oxygen cylinder @ **Rs 18500**

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