

SHEAR STABILITY OF POLYMER CONTAINING FLUIDS APPARATUS



Shear Stability of Polymer Containing Fluids Apparatus TT-6278

Shear Stability of Polymer Containing Fluids Apparatus TT-6278 meets the ASTM D6278 standard, which assesses viscosity loss due to polymer breakdown in high-shear conditions using a European diesel injector. This method minimizes thermal and oxidative influences, ensuring accurate evaluation of shear stability.

APPLICATIONS

The primary application of the Shear Stability of Polymer Containing Fluids Apparatus TT-6278 is to determine the **permanent shear stability** of polymer-containing fluids, such as multi-grade engine oils and hydraulic fluids, in compliance with the **ASTM D6278** standard. The test uses a diesel fuel injector to subject the fluid to intense mechanical shearing forces, which breaks down the viscosity index (VI) improver polymers. By measuring the viscosity loss, the test predicts the fluid's ability to "stay-in-grade" and maintain its protective properties throughout its service life.

Key Industries

- **Lubricant Manufacturing:** This is a fundamental quality control and product development test for lubricant blenders. It is essential for ensuring that their multi-grade engine oils, transmission fluids, and hydraulic oils will maintain their specified viscosity under the high-shear conditions of real-world operation.
- **Additive Manufacturing:** Chemical companies that develop and produce Viscosity Index (VI) improver polymers rely on this test for research and development and for quality control of their products. It allows them to evaluate and certify the shear stability of the polymers they sell to lubricant manufacturers.
- **Automotive and Engine Manufacturing:** Automakers and engine manufacturers specify the required shear stability for the lubricants used in their equipment. They perform this test during engine development and for oil qualification to ensure the lubricants provide adequate wear protection and maintain performance over a full service interval.

FEATURES

- Pump with nozzle and atomizing chamber.
- Axial nozzle injector with a filter cartridge in the nozzle holder.
- Spherical condenser with a cooling jacket for efficient heat transfer.
- Digital liquid flow meter, $170\text{ cm}^3 \pm 5\text{ cm}^3/\text{min}$.
- Automatic stroke counter with power shutoff function.
- 250 cm^3 liquid reservoir with a top inlet.
- Three-phase motor with frequency converter, 1100W power, $925 \pm 25\text{ r/min}$ speed.
- Glass test tube with an internal distribution plate and a three-way piston at the cooling outlet.
- Microcomputer temperature controller with a digital display, $\pm 0.1^\circ\text{C}$ accuracy, and Pt100 sensor.
- Fully enclosed compressor chiller with high cooling capacity and low noise.
- Digital timer with a beep alarm for test duration tracking.
- Exhaust device at the top of the pump.
- Electronic pressure controller with a digital display, $17.5\text{ MPa} \pm 0.35\text{ MPa}$.

TECHNICAL SPECIFICATIONS

Nozzle:	DN 8 S2
Nozzle holder:	KD 43 SA 53/15
Pump:	PE 2A 90D 300/3S 2266
Motor:	1.1KW, 925±25rpm
Nozzle pressure:	13~18MPa
Flow rate:	170±5ml/min
Circulating pump:	10l /min

Cooling method:	Chiller
Temperature control range:	10~40℃±0.1℃
Working Temperature:	0~40℃
Relative humidity:	≤80%
Rated voltage:	380V±10%, 50Hz
Total power:	1500W



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