

# **SAYBOLT VISCOSITY METER**

## **BE 94**

The Saybolt viscosity apparatus, commonly known as the Saybolt viscometer, is a standardized device used to measure the kinematic viscosity of petroleum products, such as oils, fuels, and bitumen emulsions. It operates on the principle of efflux time, where viscosity is determined by timing how long it takes for a fixed volume (typically 60 ml) of fluid to flow through a calibrated orifice under controlled temperature conditions. This empirical method is outlined in ASTM D88 and is particularly useful for field testing and quality control in the petroleum industry.

## **FOLLOWING STANDARD**

ASTM D88

## **KEY COMPONENTS**

The apparatus typically includes:

- **Receiving flask:** A graduated container to collect the effluxes fluid (60 cc volume).
- **Viscosity cup:** A metal cup with a precisely sized orifice at the bottom (for Saybolt Universal: 0.176 cm diameter, 1.225 cm length).
- **Temperature-controlled bath:** A thermostatically regulated oil or water bath (up to 240°C) to maintain the sample at the test temperature, often using a heating tube and automatic controller.
- **Thermometer:** Specialized Saybolt thermometers (e.g., ASTM 17C, 18C, or 21C) for accurate temperature monitoring within  $\pm 0.1^\circ\text{C}$ .

- **Stopper and withdrawal tube:** To control flow start/stop and remove air bubbles.
- **Timer:** For precise measurement of efflux time in seconds.

The two types saybolt viscosity available & ALSO AVAILABLE One tubes, two tubes & four tubes.

BE 94-01- Single Tubes Viscometer

BE 94-02 –Two Tubes Viscometer

BE 94-03 – Four Tubes Viscometer

Type	Saybolt Universal (SU)	Saybolt Furol (SF)
Orifice Size	Small (0.176 cm dia.)	Larger (0.122 cm dia., longer tube)
Typical Test Temperature	38°C (100°F) or 40°C (104°F)	49°C (122°F) or 50°C (122°F)
Application	Less viscous fluids (light oils, kerosene)	More viscous fluids (heavy fuels, road oils)
Result Unit	Saybolt Universal Seconds (SUS or SSU)	Saybolt Furol Seconds (SFS or SSF); ~1/10 of SUS

BE 94-01



ENTERPRISES



BE 94-03