APPARATUS FOR ESTIMATION OF GUM CONTENT BY JET EVAPORATION-ASTM D381

Compliance with following International Standards:
ASTM D381, IP 131, IP 540

Scope

This test method covers the determination of the existent gum content of aviation fuels, and the gum content of motor gasoline or other volatile distillates in their finished form, (including those containing alcohol and ether type oxygenates and deposit control additives) at the time of test.

Summary of test method

A measured quantity of fuel is evaporated under controlled conditions of temperature and flow of air or steam. For aviation gasoline and aviation turbine fuel, the resulting residue is weighed and reported as milligrams per 100 mL. For motor gasoline, the residue is weighed before and after extracting with heptanes and the results reported as milligrams per 100 mL.

Gum content is the residue of substances mainly aircraft fuels and motor gasoline) under investigation which cannot be evaporated under test conditions. The gum content is measured in units of mg/100 ml.

Construction details:

- The complete test assembly comprises of following parts and accessories.
- Evaporation bath
- Fully insulated aluminum block design which assures safe and efficient high temperature operation.
- The solid aluminum heating block consists of 5 test wells and one thermometer well.
- External body of the bath is fabricated from high grade Stainless Steel material - S.S. 304
- **The stainless steel bath is equipped with removable taper-fit conical steam/air jet adaptors with copper screens**
- **Stainless steel jets deliver air or steam flow to the 05 test wells through removable brass conical adapters**
- The bath is also equipped with air/steam pressure regulator with gauge and a flow meter for adjusting air flow as per ASTM D381 specifications
- Each test Outlet can be individually checked for uniform flow of air or steam
- Bath is also Protected by over-temperature control circuit that interrupts power supply when bath temperature exceeds the

programmed cut-off point.

- Temperature range : 140 °C to 260 °C
- Temperature controller : Microprocessor based dual display digital PID indicator cum controller
- Temperature sensor : PT-100 RTD Probe
- Temperature accuracy : ± 0.5 °C
- Power consumption : 1500 watt
- Operates on : 220 Volt, 50 Hz, Single Phase, AC Supply

Steam Super Heater

Supplied complete with steam super heater to perform the experiment

Glass Beakers

- Made of borosilicate glass
- 100 ml capacity
- 5 numbers of glass beakers will be supplied

Flow meter

Capable of metering a flow of air or steam equivalent to 1000 mL/s for each test well will be supplied.

Air compressor

Independent (oil free) blowing pumps connected to flow meter to maintain air flow rate at 1000 mL/Sec.

Tong for beakers

- Made of stainless steel material
- Used to extract and hold the beakers from heated aluminum block

Thermometer (Temperature Sensor) at extra cost

- ASTM 3C Thermometer for existent gum test method
- Temperature range : (-5 °C to + 400 °C)