

AUTOMATED FREEZING POINT OF AVIATION FUELS

Test Method

Determines the temperature below which solid hydrocarbon crystals may form in aviation turbine fuels and aviation gasoline. The freezing point of an aviation fuel is the lowest temperature at which the fuel remains free of solid hydrocarbon crystals that can restrict the flow of fuel through filters if present in the fuel system of the aircraft. The temperature of the fuel in the aircraft tank normally decreases during flight depending on aircraft speed, altitude, and flight duration. The freezing point of the fuel must always be lower than the minimum operational fuel temperature.

Automatic Freezing Point Analyzer with Integrated Panel PC

- Conforms to ASTM D1177, D1655, D2386, D5901, D5972 and related specifications
- Stand alone system with Integrated Touch Screen Panel PC
- Direct Cooling system eliminates the need for solvent cooling baths
- One-stage cooling system provides temperatures as low as -45°C and a two-stage cooling system down to -80°C
- Freezing Point measured by light pulsed emission on I.R spectrum through a coaxial fiber optic with mirror

The freezing point detection system provides automated sample testing with the accuracy and repeatability in accordance with ASTM D1177, D1655, D2386, D5901, D5972 and related international specification. The sample is cooled in the test chamber with constant stirring. The sophisticated dynamic measurement system emits a light pulse every 0.5°C from a coaxial fiber optic cable positioned above the test sample. The light pulse is then reflected off the mirror of the fiber optic to an optical sensor. The advanced software package analyzes the response of the light pulse. The initial appearance of crystallization is monitored by light scattering. The sample is then warmed up, and the temperature at which the hydrocarbon crystals disappear is recorded as the freezing point. All clear and transparent fuels are readily measured by the detection system, regardless of sample color.

Integrated Panel PC and Software Package—The Automated Freezing Point Analyzer is a complete standalone system featuring an integrated panel PC with an advanced software package. The 6.4" TFT/LCD touch screen display has a resolution of 640x480 with a 262K color scheme. All analytical parameters are graphed and displayed in real time as well as recorded in Microsoft® Excel compatible file format. The software monitors the operation and performance of all the analyzer components for proper data measurement, including the solenoid valves, cooling system, pressure sensors, and the Platinum resistance PT100 Class A temperature probe.

Cooling System—For various user applications, the automated freezing point system is available with either one-stage cooling for temperatures as low as -45°C or two-stage cooling for temperatures as low as -80°C. The direct cooling system features integrated gas CFC free motors compressors thus eliminating the need for a solvent cooling bath. The direct system is capable of rapid cooling, approaching -80°C bath temperatures in approximately 15 minutes, and utilizes less electricity than standard cooling systems. The rapid cooling feature combined with a consistent cooling profile system provides repeatable results with high test reproducibility.

Safety Features

- Audible alarm and displayed messages (at the end of the analysis and in case of errors and/or malfunctions)
- Pressure controller for 1st and 2nd stage motor compressor
- Thermostat for 2nd stage activation
- Thermo-switch for each cooling / heating jacket
- Motor compressors equipped with internal overload devices



KLA-5-TS Automatic Freezing Point Analyzer with integrated touch screen PC

Multiple Configuration System—These automated sample cooling and physical property measurement systems can be configured with one, two, three, four and six test positions with one of five possible analytical heads at each position: cloud point, pour point, cloud & pour point, cold filter plugging point and freezing point. Standard and customized multiple configuration systems are readily available.

Specifications

Conforms to the specifications of:

ASTM D1177, D1655, D2386, D5901 (Withdrawn 2010); IP 16; ISO 3013

Temperature Range:

One-Stage: +30 to -45°C

Two-Stage: +30 to -80°C

Resolution: 0.06°C

Accuracy: ±0.1°C

Repeatability / Reproducibility: as per standard test methods or better

Data Storage: > 60,000 analyses

Electrical Requirements: **CE**

115V ± 15% / 60Hz

220V ± 15% / 50 to 60Hz

Dimensions WxDxH,in.(cm)

26 x 23¼ x 31½ (66x60x80)

Net Weight: 176.5 lbs (80kg)

Ordering Information

Catalog No.

KLA-5-TS

Automatic Freezing Point Analyzer with Touch Screen, (One-stage)

KLA-5-TS/2

Automatic Freezing Point Analyzer with Touch Screen, (Two-stage)

Please specify voltage requirements when ordering.

Accessories

KLA-PT100-CAL

Certified Calibration Decade Box - PT100 Simulator

KLA-DB-KIT

Set of Connectors and Cables

Extended Cooling Range down to -100°C Available Upon Request.