

Cold Behavior

AVIATION FUELS



Freezing Point Analyzer

FZP 5G2s

Long duration flight at high altitude subjects aircraft fuel tanks to very low temperatures, presenting a threat of fuel line and filter blockage due to hydrocarbon crystal formation. Heavy hydrocarbons and/or wax-containing products can change a fuels' cold behavior properties, creating significant flight safety risk. Therefore, **rigorous control of aviation fuels'** freeze point is important at all stages between production and aircraft fueling, including intermediate reloading points within the distribution system.

ISL's FZP 5G2s provides **highly accurate freezing point determinations** down to -100°C (-148°F), helping you assure the low-temperature flow performance of your aviation fuel. It combines a **patented built-in cooling** system and a **unique, patented detection cell** into an **ultra-compact, easy to use** instrument that's ready to work whenever and wherever you are.

Simply inject approximately 10 ml of sample and press *Test*; no pre-test programming is necessary. The unit automatically controls test progress and deliver precise **results in less than 15 minutes**. Self-cleaning operation speeds and simplifies testing, while smart software features assure accurate testing of difficult and contaminated samples.

ADVANTAGES

- **Detects all types of crystallization in all types of jet fuels**
- **Highly reliable operation; not affected by ambient moisture**
- **Perfect repeatability and reproducibility on neat samples**
- **Excellent sensitivity to contamination levels**
- **Perfect correlation with CRM, cross check and manual results**
- **Built-in cooling system cools sample to -120°C without any external connection**
- **Small footprint**



METHODS

NEW:
D 7153
IP 529
DEF STAN 91-91

ASTM D 2386 correlation
IP 16 correlation
ISO 3013 correlation
JIS K2276 correlation



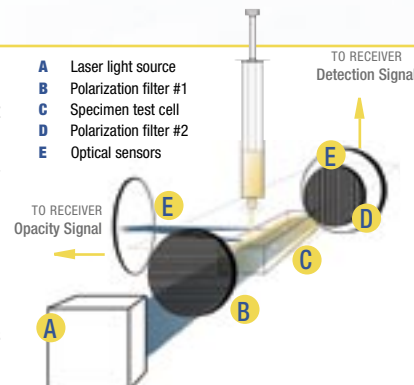
ISL Freezing Point Analyzer

Powerful precision, simple operation with ultra-low temperature testing capabilities

ISL'S PATENTED DETECTION SYSTEM...

The freezing point of jet fuel is defined as the temperature at which the last crystal melts when warming a fuel that has been previously cooled until hydrocarbon crystals form. ISL's unique, detection system utilizes powerful optics and precise temperature control, providing highly reliable freezing point measurements with excellent sensitivity to contamination levels. As the sample is exposed to carefully monitored temperature changes, causing crystal to form (during cooling) and dissolve (during reheating), the system's unique polarization filters and optics sensors precisely track the refraction of light as it passes through the sample.

The method, which is based on fundamental optical laws, detects all types of crystallization for any type of jet fuel. Smart detection software precisely determines Freeze Point according to its definition for aviation fuels, reporting results in perfect correlation to the manual test method — whether the sample being tested is neat or contaminated.



SIMPLE, PRECISE FREEZE POINT TESTING

- Compact and portable unit; easily moves throughout your lab to area ideal for workflow
- Easy operation—simply inject sample & press *Test*
- Standard and customized test profiles
- Completely self-contained, patented cooling system enables ultra-low temperature testing; saves energy; and eliminates heat, noise, external liquid connections and toxic coolant vapors of external cooling units
- Rapid cooling to temperatures lower than -100°C in minutes
- Real-time display of test progress and results
- Immediate testing without any wait time between samples
- Accommodates & enhances most rigorous QC programs
- Multi-level password protection for secure operation
- Endurance tested and proven for long-term operation

OPTIONAL PC CONTROL & INSTRUMENT NETWORKING

- Centralizes control and data management of up to 31 ISL ALANready™ cold behavior, distillation, flash point units
- Real-time test monitoring on PC display; bi-directional communication between PC & analyzer
- Automatically stores results to database with sorting and filtering capabilities
- Displays detection curve upon test completion
- Transmits results to external computer, network or LIMS

Def Stan Approved!

FZP 5G2s is approved for test method IP 529: Determination of the Freezing Point of Aviation Fuels – Automatic Laser Method. This method is now included in MOD Def Stan 91-91 issue 5 Jet Fuel specification. A recently completed international round robin by ASTM has proven that ISL technique precision is equivalent to IP 435 / ASTM D 5972 Automated Phase Transition Method, proven as more cost effective, much easier to use and a wider application range.

Approved for use by the **Joint Inspection Group** which defines the fuel quality requirements for fuel supplied by most major petroleum companies. See Product Specification Bulletin no. 4, Issue 20, March 2005.

FOR ADDITIONAL INFORMATION

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SPECIFICATIONS

Ordering Information	FZP 5G2s Freezing Point Analyzer with built-in cooling system. Includes an alphanumeric, solvent-proof keypad and a large, easy to read LCD with real time test results.
Standard Test Method	IP 529; correlation to ASTM D 2386, D 7153, IP 16, ISO 3013, JIS K 2276
Performance	Measuring Range: Ambient down to -100°C (-148°C) Detection: Self contained operation, no external connection necessary Optical, patented
Operation	Operator Time: ½ minute per test Test Duration: 15 minutes Sample Volume: 10 ml, including volume for cleaning Sample Injection: Disposable 10 or 20 ml syringe Cleaning: Self-cleaning operation, no cleaning required
Calibration	Automatic calibration routine for temperature measurement. 10°C interval probe correction capabilities. Programmable calibration frequency. Calibration ticket printing.
Documentation	Display Printing: On-screen viewing of test progress and result Detailed detection curve tracking of fuel behavior during the test; can be printed to on optional graphic printer (following a test or recalled from storage) and attached to document the test report Data Storage: 50 complete test reports stored locally, unlimited with PC Data Export: PC and RS connections standard; ALAN™ software optional
Utility Requirements	Electrical: 100–240 VAC, 150W, 50/60 Hz Dimensions: 25cm W x 62cm D x 39cm H (10" x 24½" x 15½") Weight: 26 kg (57 lbs)
ALAN™ Software	Automatic Laboratory Analyzer Network. Enables multi-analyzer networking with centralized operation and data management. Available

Due to continuing product development, specifications subject to change at any time without notice.

YOUR LOCAL REPRESENTATIVE: