



# PMD 110

## Automated Lab Micro Distillation Analyzer

- ⊗ Analysis of all types of Gasoline, Jet Fuel, Diesel and Biodiesel (FAME)
- ⊗ Accurate Detection of Contamination in Fuels
- ⊗ Compliant with: ASTM D7345, IP 596
- ⊗ In perfect correlation to: ASTM D86, D1160 (biodiesel B100), ISO 3405 & IP123
- ⊗ Listed in fuel specs: ASTM D2880, D396, D7467, D3699, D7566, D4814, D1655, D975 and D6751

## INCREASE LAB PRODUCTIVITY WITH FAST & RELIABLE MICRO-DISTILLATION ANALYSIS

The ISL PMD 110 is a state-of-the-art solution for fast and reliable response distillation analysis. It is in accordance to ASTM D7345, IP 596 and in perfect correlation with ASTM D86 (groups 0-4), D1160 (B100 Biodiesel), ISO 3405 and IP 123. Based on an innovative micro-distillation method, the PMD 110 determines the boiling range characteristics of any commercially available petroleum product, including light and middle distillates process streams, in less than 10 minutes and using only 10 ml of sample.

Thanks to its compact, robust and portable design, the PMD110 is easily installed in labs and it's ideal for on-site locations, for refining, for refining process control, fuel blending, research or mobile applications (fuel adulteration monitoring and fast quality screening).

### KEY ADVANTAGES

#### QUICK DISTILLATION, HIGH THROUGHPUT

- Immediately start testing without concern over flask and measurement device adjustments or heater power settings
- Receive results in under 10 minutes
- Locally display/store results, or send data to a printer, PC with IRIS, or LIMS network
- Perform up to 5 tests per hour, beginning a new test immediately after one has completed—no apparatus conditioning or cleaning necessary

#### APPLICATIONS

- Refining Process & Fuels Blending
- Mobile Laboratories
- Pipelines, Terminals
- Fuels Research Centers
- Inspection and Customs Points

#### UNMATCHED VERSATILITY - NEW FUNCTIONALITY FOR BIOFUELS

Distillation of FAME products can now be run under atmospheric pressure, offering an excellent alternative to the standard D1160 test methods with a significant cost reduction, in terms of operation and maintenance.

#### INTELLIGENT ANALYSIS

- No pre-testing or programming required
- Quick results validation with user-defined criteria and automatic pass/fail notification
- Enhanced sensitivity to contamination levels
- Built-in quality and calibration features assure complete results traceability
- Patented design eliminates cooling unit, receiver, and volume measurement
- Continual self-monitoring and multiple safety features ensure compliant operation

## 10-MINUTE TURNAROUND

Get accurate results in 6 to 8 minutes



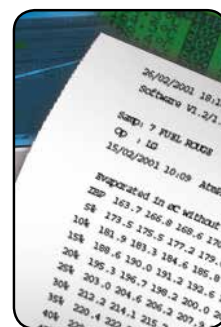
Inject Sample



Press Start



Distillation Run



Getting Results



Inject Next Sample

## INNOVATIVE MICRO-DISTILLATION PRINCIPLE

The ISL PMD 110 delivers significantly faster results compared to the conventional ASTM D86 method. It determines the complete distillation curve, within 10 minutes, by reading the temperature and the volume from the evaporation phase only.

The method, which is based on fundamental thermodynamic dependencies, consists in measuring vapor and liquid temperature variations, together with monitoring the pressure inside a special micro-distillation flask as the sample distills under atmospheric pressure. During the distillation cycle, the measured vapor pressure characterizes the product flow-rate through the hydrodynamic process in the capillary.

Immediately after test completion (i.e. considered completed when the pressure inside the flask returns to its initial pressure level), distillation characteristics are calculated from collected data with an ASTM D86 compliant detailed report.

Such principle is universal, reliable and applicable to any petroleum product, without prior knowledge of its properties. No heating power programming or group selection is necessary to start a test. There is no need to correlate any specific given initial temperature of the sample, as the charged volume is not physically compared with the collected volume.



## SPECIFICATIONS

Operation	
Standard Test Methods	ASTM D7345, IP 596 Correlation to ASTM D86, ASTM D1160 (biodiesel B100), ISO 3405, IP 123 and analogs
Fuel Specifications	ASTM: D7566, D4814, D1655, D975, D6751, D2880, D396, D7467, D3699
Operation Principle	Physical micro-distillation of liquid sample, under atmospheric pressure
Sample Volume	10 ml
Test Duration	<10 minutes for complete run
Temperature Range	0° to 400°C (32° to 752°F)
Sensitivity	±0.1°C (±0.1°F)
User Interface	Graphic LCD display; solvent-proof alphanumeric keypad with dedicated function keys
Calibration	Automatic calibration routine with programmable frequency; printed reports
Documentation	Low mass, self-positioning low voltage heating element (125W); fast air cooling at end of test
Measurements	
Temperature	Non-inertial, low mass thermocouples protected by rigid metal thermowell for reliable operation
Heating System	Percent recovered or evaporated calculated against recorded pressure variation in the flask during distillation run
Results Management	
Documentation	Detailed ASTM D86 compliant report, or custom selected distillation points; on local screen; on external printer data export to LIMS or external PC via built-in RS-232 or RS-485 interfaces Results instantaneously reported in °C or °F Automatic barometric correction
Software	Database management, results comparison, run control, flexible LIMS protocols and other functions enabled when connected to optional IRIS software
Physical	
Size (W x D x H)	25cm x 40cm x 33cm (9.8 x 15.75 x 13 in)
Weight	14 kg (37 pounds)

Continuing research and development may result in specifications or appearance changes at any time

### ABOUT PAC

PAC develops advanced instrumentation for lab and process applications based on strong **Analytical Expertise** that ensures **Optimal Performance** for our clients. Our analyzers help our clients meet complex industry challenges by providing a low cost of ownership, safe operation, high performance with fast, accurate, and actionable results, high uptime through reliable instrumentation, and compliance with standard methods.

Our solutions are from industry-leading brands: AC Analytical Controls, Advanced Sensors, Alcor, Antek, Herzog, ISL, Cambridge Viscosity, Phase Technology, Phase Technology, PSPI, and PetroSpec. We are committed to delivering superior and local customer service worldwide with 16 office locations and a network of over 50 distributors. PAC operates as a unit of Roper Technologies, Inc., a diversified technology company and a constituent of S&P 500, Fortune 1000, and Russell 1000 indices.

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