

Automated Lab Micro Distillation Analyzers

PMD 110


www.paclp.com




by PAC

Increase Lab Productivity with Fast and Reliable Micro-Distillation Analysis

- True Physical Distillation in Less than 10 Minutes
- Compatible with all Types of Biodiesel (FAME and Blends)
 - Accurate Detection of Contamination in Fuels
- Compact and Portable Design, Ideal for In-the- Field Applications
- Compliant with ASTM D7345, and in perfect correlation to ASTM D86, ASTM D1160, ISO 3405, and IP 123

PMD 110

FAST AND RELIABLE MICRO-DISTILLATION ANALYSIS

Developed in partnership with leading university researchers, 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 and in perfect correlation with ASTM D86 (groups 0-4), D1160, 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 10ml of sample.

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

APPLICATION RANGE

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

STANDARD METHODS

- ASTM D7345
- Correlation to:
- ASTM D86
 - ASTM D1160 (biodiesel B100)
 - ISO 3405
 - IP 123

VOLATILITY

- Gasoline
- Diesel
- Biodiesel Fuels (B100 & blends)
- Jet Fuel
- Other Commercial Fuels
- Refinery Process Streams
- Short-cut Distillates
- Contaminated Fuels
- Transmix

UNIQUE PHYSICAL MICRO DISTILLATION FOR FAST, ON-SITE ANALYSIS

A fully-automated process together with integrated smart heating mode allows true “push-button” operation. This makes the PMD110 exceptionally flexible to run “unknown” samples (research work), and also very user-friendly for staff with limited training and exposure to laboratory equipment (e.g. inspection/customs points).

10 Minutes Turnaround



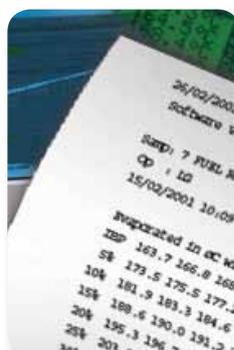
Inject Sample



Press Start



Distillation Run



Getting Results



Inject Next Sample

Get Results in 6 to 8 Minutes

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 and store results, or send data to a printer, PC software 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

INTELLIGENT ANALYSIS

- No pre-testing or programming required – sample type is automatically recognized and appropriate heating method and data treatment is applied
- Quick results validation using flexible, user-defined criteria and automatic pass/fail notification
- Enhanced sensitivity to contamination levels is ideal for fuel screening
- Built-in, sophisticated, quality and calibration features assure complete results traceability
- Patented design eliminates cooling unit, receiver, and volume measurement; the the distillate condenses into waste bottle
- Continual self-monitoring and multiple safety features ensure CE compliant operation

DEPENDABLE OPERATION AND SUPPORT

- Quality construction and reliable operation backed by a limited parts and service warranty
- Expert sales and service from PAC's worldwide network of factory trained authorized representatives

NEW BIODIESEL APPLICATION!

ISL PMD 110 now enables users to determine distillation characteristics of their FAME products under atmospheric pressure, in perfect correlation to ASTM D1160. ISL PMD 110 is an excellent alternative for running biodiesel distillation analysis to time-consuming, heavy maintenance vacuum distillation test methods, since it is easier to use, provides results faster, and is less costly to operate. Operators simply select the "B100" sample type in the PMD110 menu, fill only 5ml of sample inside the flask, push "start" button and receive results in 5 minutes!

ADVANCED TECHNOLOGY

Innovative Micro-Distillation Principle

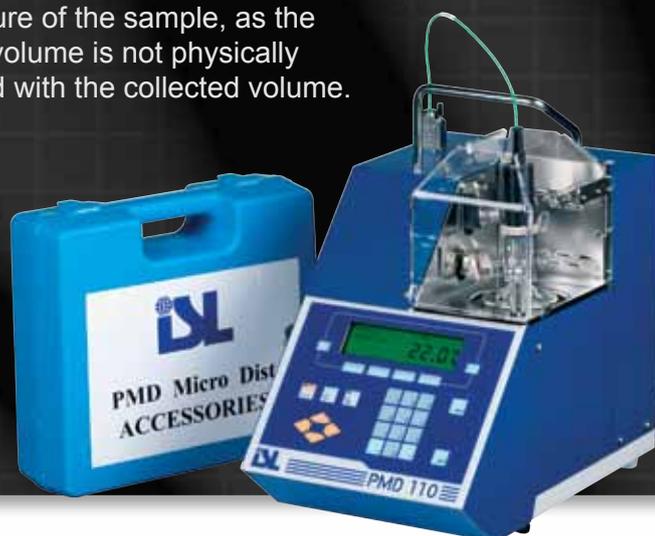
The ISL PMD 110 achieves significant response time improvements compared to conventional ASTM D86 method, by determining the complete distillation curve using data from one phase transition: evaporation, thus eliminating the process of condensation.

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 gradually 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.





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ISL

ISL is a global, leading provider of scientific apparatus and instruments for testing petroleum and petrochemical products in the lab and online. More than 20 automatic analyzers bearing the ISL brand are recognized for increasing test precision, boosting laboratory efficiency and reducing costs.

SPECIFICATIONS

Ordering Information	
	Model PMD 110 MicroDist™ Analyzer Model PMD 110 MicroDist™ Analyzer (with Built-in Fire Extinguisher)
Standard Test Method	
	ASTM D7345, Correlation to ASTM D86, ASTM D1160 (biofuels), ISO 3405, IP 123 and analogs
Operation Principle	
	Physical micro-distillation of liquid sample, under atmospheric pressure — the most reliable principal to determine distillation characteristics of petroleum products. Measures vapor & liquid temperatures by non-inertial, low mass thermocouples, further monitoring pressure in the distillation flask as the sample gradually distills under atmospheric pressure. Collected data is processed and converted to ASTM D 86-compliant format.
Sample Size	
	10 ml
Performance	
Test Time	<10 minutes for complete run
Temperature Range	0° to 400°C (32° to 752°F)
Sensitivity	±0.1°C (±0.1°F)
Operation	
User Interface	Graphic LCD display; solvent-proof alphanumeric keypad with dedicated function keys
Calibration	Automatic calibration routine with programmable frequency; printed reports
Heating System	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
Pressure	Built-in gauges: differential (in-flask pressure) & barometric
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
Data Memory	Locally retains 45 results
Product Memory	Up to 40 product names with associated specifications
Specifications Memory	Up to 80 customized product specifications (i.e. typical temperature versus volume, or volume versus temperature)
PC Software	Database management, results comparison, run control, flexible LIMS protocols and other functions enabled when connected to optional Windows based PC software
Physical	
Ambient Conditions	Operation: 10 to 35°C (50 to 95°F) Storage: -20 to 40°C (-4 to 104°F)
Electrical Requirements	100–240 VAC (auto switching), 50/60 Hz, 200 watt Optional car battery +12 DC adapter available
Dimensions	25cm x 40cm x 33cm (W x D x H) (9.8 x 15.75 x 13 in)
Weight	14 kg (37 pounds)