

## SetaVap3

# Vapour pressure testing, the optimum solution

ASTM D5191; ASTM D6378; ASTM D5188; EN 13016-1 & 3; IP 394

Correlates with ASTM D323; ASTM D4953; ASTM D5190; ASTM D5482



- Rapid automatic vapour pressure testing
- Piston based design for triple and single expansion test methods
- Integrated shaker
- High visibility touch screen operation
- Minimum operator skill required

## SetaVap3

**Vap3** uses the very latest technology to provide fast, precise and fully automated vapour pressure testing for a wide range of volatile liquids, including gasoline, solvents and light crude oil. The measurement system uses a piston based design in compliance with the newest test methods and regulations. With intuitive operating software, vapour pressure testing is now easy and precise for all types of measurement requirements. An ultra-robust and compact design makes the **Vap3** ideally suited for laboratory through to mobile applications.

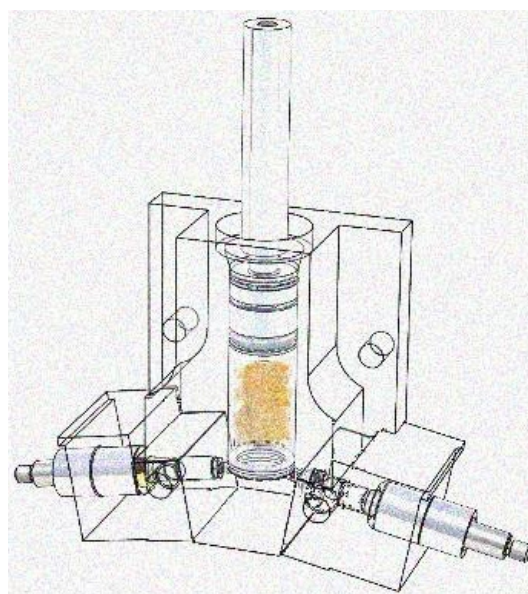


## Measurement Principle

A motorised piston with an internal pressure transducer draws sample into a temperature controlled measurement chamber. The chamber is automatically sealed and the piston expands the headspace to create a vacuum to the required vapour/liquid ratio(s). At the same time the chamber is heated to the test temperature. Vapour pressure is recorded and reported. There is no requirement for an external vacuum pump.

## Triple and Single Expansion Methods

**Vap3** is compliant with both types of test and will report DVPE or VPx depending on the selection. ASTM D6378 and EN 13016-3 use a sequence of chamber expansions to calculate and report the partial pressure from dissolved gases and subtract this from the result. This crucially eliminates the air saturation and pre-chilling steps associated with the widely used ASTM D5191 and EN 13016-1 methods. Two key advantages are time saving and removing a possible variability between operators. Results from the triple expansion procedure directly correlate with DVPE.



## Innovative Design

The measurement chamber and valves are temperature controlled using electronic peltier cells for heating and cooling. A unique surface finish and coating is applied to the bore of the chamber to provide extended durability and sealing integrity. A high precision linear actuator with digital encoder feedback is used for exact piston positioning. Inlet and outlets are fitted with chemically resistant linear motion valves with long life sealing tips suitable for high throughput testing.

## Precise Results

To minimise sample carryover the combined measuring chamber and valves exceed the method requirements for minimum dead volume and is suitable for high ethanol content fuels as highlighted in the recent ASTM inter-laboratory study. A fully automated test sequence eliminates possible operator bias.

## Ease of Operation

Running a test is as simple as placing the inlet tube into the sample and pressing go. An 8.4" colour touch screen provides a clear user interface to guide the operator through the menu system. Just one touch to access results, download data, connectivity, or maintenance functions.

## Operator Sequence

**Start of Test**

Operator: CM

Sample ID: TEST 160506 1

Test Method: ASTM D5191

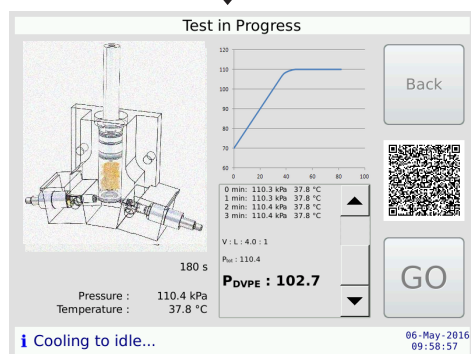
Test temperature: 37.8 °C

V:L: 4 : 1

Comment: example

**Next**

i Press Next to continue 06-May-2016 09:46:18



**Open Test**

06-May-2016

Sample ID	Method	Result (kPa)
TEST 160506 1	ASTM D5191	102.9
TEST 160506 1	ASTM D5191	102.7

**Back**

⚠ Press Back to return

## Data Management & Connectivity

Results are stored in a 16GB internal memory and easily accessed by scrolling through the calendar. For data management and analysis the results between two specified dates can be saved directly to a USB memory stick to allow printing from a computer, all data is compatible with Microsoft Excel. LIMS compatibility and printing is provided via Ethernet or Serial Ports.

## Benefits

- Rapid and precise vapour pressure testing
- Suitable for triple and single expansion methods
- Minimum dead volume design to eliminate bias from previous test samples
- Integrated shaker
- In the field temperature and pressure calibration
- Easy to maintain
- Wide format colour touch screen
- Intuitive operating software

## Calibration & Verification

Calibration of the Vap3 can be performed in the field, eliminating the costs and time associated with sending the instrument to a service centre.

## Service & Maintenance

The rugged instrument design ensures minimal operational maintenance is needed. An automatic gravity feed lubricating system supplies lubricant to the piston and valves, to ensure that all moving parts and seals provide a long service life.

## Industry Applications

- Fuel terminals
- Oil exploration and pipeline companies
- Refineries
- Vehicle manufacturers
- Testing laboratories
- Research and development

**Gasoline | Solvents | Fragrances**  
**Liquid Petroleum Products | Aviation Turbine Fuels**

### Ordering Information:

SetaVap3 Automatic Vapour Pressure Tester*	80500-0
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### Suggested Spares:

Inlet Sample Filter (3)	80500-001
Lubrication Oil (60ml)	80500-002

### Calibration/Verification:

Verification Material - Gasoline 500ml	99854-0
Calibration Thermometer	80002-0
Portable Digital Barometer	99910-2

\*Supplied with waste flask and mains lead.

## Technical Specifications

Regulatory	
Test Methods	ASTM D5191, D5188, D6378; EPA & CARB; EN 13016-1, EN 13016-3; IP 394 <i>To be implemented in future software revisions:</i> ASTM D6377, D6897; EN 13016-2; IP 409, IP 481
Correlation	ASTM D323, D2533, D4953, D5482
Fuel Specifications	ASTM D910, D1655, D4814, D5798, D6227; EN 228; CEN/TS 15293
Operation	
Pressure Range	0 to 1550 kPa
Pressure Resolution	0.01 kPa
Units of Pressure	kPa, PSI, hPa, mbar, bar and mmHg
Temperature Range	0 to 120°C
Temperature Stability	0.01°C
Vapour to Liquid Ratio	0.02:1 to 20:1
Sample Volume	1mL, plus rinsing
Measurement Time	~ 8 minutes, depending on method
Lubrication	Automatic
Data Management	
Documentation	Real time display on screen of test progress and results
Result Storage	500,000 results stored in internal memory
Results Download	XML, CSV, PDF
Interface	
User Interface	8.4" LCD touchscreen, can be used with gloves, USB, keyboard, mouse and barcode reader
Data Input/Output	LIMS compatible Ethernet RJ45 USB Type A Serial port, RS232C Downloadable to USB memory stick QR code
Printer Options	RS232 Ethernet
Power Requirements	
Voltage	82-262V, 45-65Hz, autosensing universal power supply Field use: 12V SC using DC/AC converter option
Power	180 W
Environmental	
Operating Temperature	5 to 35°C
Relative Humidity	Up to 95% non condensing
Physical	
Dimensions (HxWxD)	380 x 230 x 370mm
Weight	23 kg