eralytics

eravap

VAPOR PRESSURE TESTING AT ITS BEST

Standards
ASTM D5188, D5191, D6377, D6378,
D6897, EN 13016-1, EN 13016-2,
EN 13016-3

Fuel specifications
ASTM D910, D1655, D4814,
D6227, EN 228

EPA, CCQTA reference instrument
CARB, NATO, US Military approved

Built-in shaker
for crude oil measurements

www.eralytics.com/eravap

era**vap**
combines
unmatched
precision
with solid
durability

Unmatched Performance

Powerful Peltier elements make **ERAVAP** the only vapor pressure tester on the market that covers a temperature range from -20 °C – 120 °C (4 °F – 248 °F).

ERAVAP's Pure Sampling™ valve technology minimizes any cross-contaminations. Its high precision pressure sensor allows repeatabilites of r ≤ 0.15 kPa for pure substances clearly outperforming the standard methods.

|			
①	sample	⑥	measuring cell
②	inlet valve	⑦	liquid phase
③	manifold	⑧	gas phase
④	outlet valve	⑨	piston with pressure sensor
⑤	waste container	⑩	temperature sensor

The Piston-based Measurement Principle

This leading-edge measurement principle in vapor pressure testing renders the external vacuum pump obsolete. The built-in piston draws in the sample at the beginning of the measurement. The piston then creates a vacuum by expanding the headspace above the sample to the predefined vapor to liquid (V/L) ratio. The instrument then heats up the measurement cell to the measurement temperature and records the vapor pressure.

ASTM D5191 vs. ASTM D6378

Using the conventional ASTM D5191, the sample is cooled and manually air saturated prior to the actual measurement which is performed in one single expansion step. ASTM D6378 on the contrary expands the sample in three steps to the same vapor to liquid ratio as ASTM D5191. The recorded pressures at the three steps are then used to calculate the contribution of dissolved gases to the vapor pressure, with the additional benefit that their contribution is reported independently from the vapor pressure of the liquid. This removes any possible operator bias due to the air saturation step needed for ASTM D5191.
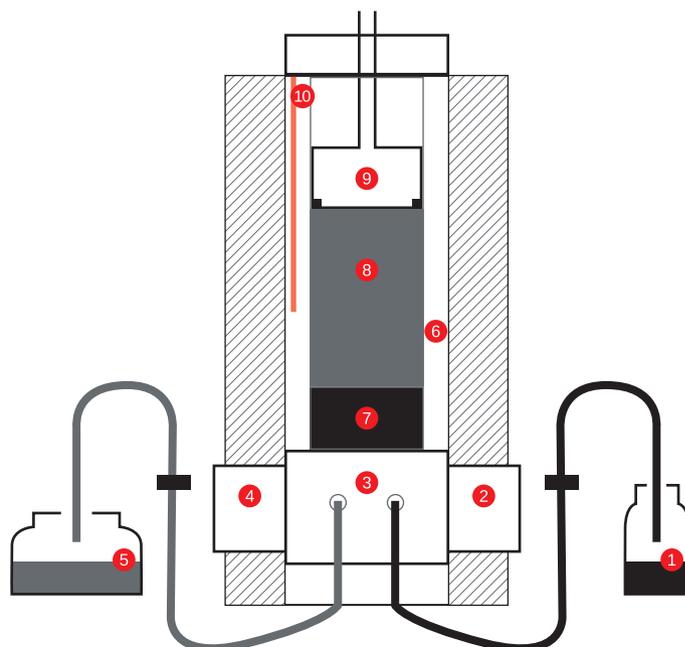
TVS™ - ASTM D5191 Temperature Verifiction Sensor

ERAVAP's optional TVS™ (patent pending) allows for the fully automated monitoring of the sample temperature directly inside the sample container, featuring an immediate check of the sample preparation even before the actual measurement starts.

TVS™ enables the specification of upper (and lower) temperature limits triggering an automatic warning, if the sample temperature does not match the requirements.

In combination with **ERAVAP**'s built-in QC control charts (ASTM D6299) offering the setting of predefined warning levels, the full compliance even with strictest quality control standards is ensured in your lab at any time.

TVS™

Crude Oil Testing - ASTM D6377

ERAVAP's crude oil package is tuned for measuring live or dead crude according to ASTM D6377, IP481 and GOST 52340. Additionally, optimized CCQTA methods for low V/L ratios are available and the TVP (True Vapor Pressure) value is accurately determined from a series of automated measurements at different V/L ratios. With **ERAVAP** the behavior of crude oil can be analyzed under various storage and transport conditions, maximizing safety in crude oil handling.

Applications

ERAVAP's applications range from routine vapor pressure testing of gasoline, aviation fuel, crude oil and liquified petroleum gas (LPG) to any other organic or aqueous solvent. It is the ideal solution for R&D applications due to its versatile configurability and various available ad-on modules **ERAVAP** is used in several hundred laboratories around the world and is field-proven by many installations inside mobile laboratories.

Standard Model
EV10 ERAVAP
Pressure range: 0 kPa–1 000 kPa (0 psi–145 psi)
Temperature range: 0 °C–120 °C (32 °F–248 °F)

Low Temperature Extension
EV01-Cool for EV10
Temperature range: -20 °C–120 °C (-4 °F–248 °F)

Low Vapor Pressure Extension
EV01-VPL for EV10
Repeatability r = 0.1 kPa for decane at 37.8 °C (100 °F)

High Viscosity Extension
EV01-Visc for EV10
Heated inlet and outlet for highly viscous samples

High Pressure Model
EV20 ERAVAP LPG
Pressure range: 0 kPa–2 000 kPa (0 psi–290 psi)
Temperature range: 0 °C–120 °C (32 °F–248 °F)

Autosampler
Directly attached optional 10-position autosampler

Technical Specifications of era**vap**

Available Test Methods	ASTM D5188, D5191, D6377, D6378, D6897; EN 13016-1, EN 13016-2, EN 13016-3; IP394, IP409, IP481; JIS K2258-2; SHT 0769, SHT 0794; SNT 2932; GOST 52340; freely programmable methods EPA / CARB / CCQTA / US Military and NATO reference methods, TVP measurement VP-V/L Speed Test™ – Combined T(V/L) and vapor pressure measurement
Correlation to	ASTM D323, D1267, D2533, D4953, D5190, D5482, D2879 (optional low vapor pressure extension)
Fuel Specifications	ASTM D910, D1655, D4814, D6227; EN 228
Hardware Features	Built-in shaker for crude oil and accelerated V/L measurements Pure Sampling™ valve technology for minimized cross-contaminations
Temperature Range	0 °C–120 °C (32 °F–248 °F) with Peltier technology – No external cooling required Optional extension EV01-COOL: -20 °C–120 °C (-4 °F–248 °F) – External cooling required Extrapolated range: -100 °C–300 °C (-148 °F–572 °F)
Temperature Stability	0.01 °C (0.02 °F)
Pressure Range	EV10 ERAVAP: 0 kPa–1 000 kPa (0 psi–145 psi) – High precision pressure transducer EV20 ERAVAP LPG: 0 kPa–2 000 kPa (0 psi–290 psi) – Extended range pressure transducer
Pressure Resolution	0.01 kPa (0.0014 psi)
Vapor / Liquid Ratio	Variable from 0.02/1–100/1 – Single-point, multi-point and curve measurements
Precision	Repeatability: r ≤ 0.15 kPa (0.022 psi) measured with EV10 and cyclopentane at 37.8 °C Reproducibility: R ≤ 0.5 kPa (0.073 psi)
Sample Introduction	Automated via built-in piston – No external vacuum pump required; 80 µm reusable filter
Sample Volume	1 mL (2.2 mL per rinsing cycle)
Measurement Time	5 minutes for a standard measurement
Interfaces	Built-in PC with Ethernet, front and rear USB and RS232 interfaces; Wifi via USB dongle Direct LIMS connectivity via LAN, output to printer or PC and export as CSV or PDF Optional input by external keyboard, mouse and barcode reader
Remote Control	Remote service capability via Ethernet interface
PC Software	ERASOFT RCS – remote control Windows® software for multi-instrument remote control, convenient data transfer and result analysis
Result Database	Over 100 000 detailed test reports stored in internal memory
Alarm Tracking	All alarm messages are stored in the database together with the result
Power Requirements	Auto-switching 85–264 V AC, 47–63 Hz, max. 150 W (multi-voltage power supply) Field application: 12 V DC (vehicle battery) adapter available
Dimensions / Weight	29 x 35 x 34 cm (11.4 x 13.8 x 13.4 in) / 9.7 kg (21.4 lb)

eralytics instruments are available worldwide.
An international network of over 50 authorized and well-trained distributors is ready to answer your inquiries and to offer local support and service.
www.eralytics.com/distribution

era**lytics**

Lohnergasse 3, 1210 Vienna, Austria
Phone: +43 1 890 50 330
Fax: +43 1 890 50 3315
office@eralytics.com
www.eralytics.com