

Icon Scientific Vapour Pressure Analyser



WHAT DOES IT DO?

The icon scientific Vapour Pressure Analyser measures the pressure exerted by vapour in equilibrium above a liquid at a specified temperature and vapour-liquid ratio. Vapour pressure is a measurement of volatility. Vapour pressure measurement finds use in gasoline, LNG condensate, crude oil and liquefied petroleum gas production. The Vapour Pressure Analyser uses the piston expansion principle to measure vapour pressure in line with the latest vapour pressure test methods. It can perform single or multiple expansions, and while it normally operates at 37.8°C (100°F) and a 4:1 liquid vapour ratio, its measuring temperature and liquid-vapour ratios can be varied up to 60°C and 20:1. The liquid and vapour volumes are tracked by laser for unparalleled accuracy.

HOW DOES IT WORK?

The sample flows into a piston based measuring cell via low dead-volume solenoid valves, and is either flushed or isolated for measurement. Within the measuring cell, a resistance thermometer enables the cell temperature to be accurately controlled at the required measurement temperature. A small defined volume of the sample is held in place by the piston, which is moved to achieve the desired vapour-liquid ratio. Once equilibrium is established, the absolute pressure inside the cell is converted into actual vapour pressure as required by the test method being emulated.

WHY CHOOSE THE ICON SCIENTIFIC VAPOUR PRESSURE ANALYSER?

Vapour pressure measured according to modern test methods: results can still be correlated back to Reid Vapour Pressure by the use of published and accepted correlation factors.

Precise temperature control: using a Peltier cooler and cartridge heater, the cell temperature is accurately controlled and measured for better repeatability.

Laser precise liquid-vapour ratio measurement: provides superior repeatability.

Test method adaptability: variable piston expansion enables vapour pressure to be tested in accordance with various standard test methods.

APPLICABLE TEST METHODS

The directly applicable test methods are: -
ASTM D5191: Standard Test Method for Vapour Pressure of Petroleum Products (Mini Method).

ASTM D6378: Determination of Vapour Pressure (VPX) of Petroleum products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method).

ASTM D6897: Vapour Pressure of Liquefied Petroleum Gases (LPG) (Expansion Method).

ASTM D6377 Standard Test Method for Determination of Vapor Pressure of Crude Oil:VPCR_x (Expansion Method). Now approved by the EPA for environmental considerations and being adopted for all crude oil applications ultimately replacing ASTM D323 (RVP). The analyser can also perform "True Vapour Pressure" analysis by conversion of correlated RVP data by back extrapolation of multiple expansion curve to a user defined Vapour liquid ratio as described in ASTM D6377. TVP may be calculated/measured at temperatures up to up to 100°C.

The analyser can also estimate Gas Oil Ratio (GOR).

The correlated test methods are: -

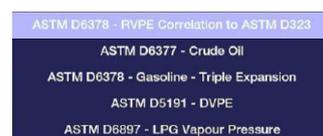
ASTM D323: Standard Test Method for Vapour Pressure of Petroleum Products (Reid Method).

ASTM D4953: Standard Test Method for Vapour Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method).

ASTM D5190: Standard Test Method for Vapour Pressure of Petroleum products (Automatic method).

ASTM D5188: Standard Test Method for Vapour-Liquid Ratio Temperature Determination of Fuels (Evacuated Chamber Method).

ASTM D5482: Standard Test Method for Vapour Pressure of Petroleum Products (Mini Method- Atmospheric).



Vapour Pressure status screen



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