TANNAS CO.
LABORATORY INSTRUMENTS

Selby-Noack® II
Volatility Test

ASTM D5800

Principle

Evaporation Loss / Volatility: The evaporation loss/volatility of engine oils is of particular importance to the automotive industry as it closely relates to oil consumption in an engine and can lead to a change in the properties of the engine lubricant.

A measured quantity of sample is placed in an evaporation crucible and heated to 250°C for 1-hour while a constant flow of air, controlled at 20 mm H_2O vacuum, is drawn over its surface to remove the resultant vapors. The loss in mass of the oil is determined by weighing before and after the test and calculating the percent loss.

History

The original Noack volatility test was introduced to the industry in the 1930's for determining the evaporation loss of lubricating oils. Now known as Procedure A, it operates with a toxic mixture of compounds known as Wood's Metal for sample heating.

Innovation

In the mid-1990's, Mr. Selby, and his colleagues at the *Savant Group,* eliminated the need for Wood's Metal by devising a noble-metal heater approach. This innovative development was completed in 1997 and Tannas began marketing the first non-Wood's Metal Noack tester. Novel advancements and updates to the original Selby-Noack® led to the new Selby-Noack® II Volatility Test.

Features

- Calibration to lab environment using interchangeable Orifice Caps – 'tunable' to the atmospheric conditions of each lab.
- Only Noack System to collect volatile products for further analysis of phosphorus, sulfur, and other elemental oil vapors.
- Used for *Phosphorus Emission Index (PEI)* and *Sulfur Emission Index (SEI)* related to phosphorus and sulfur emissions from the combustion chamber.
- Advanced Automated Software Option.

ASTM D5800

Required for :

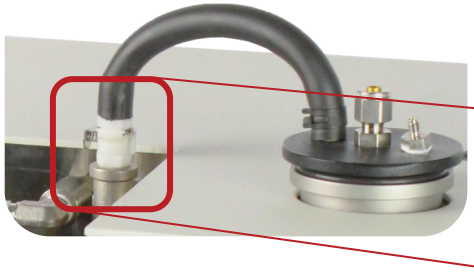
- ILSAC GF-3 to GF-5 & dexos™ Engine Oil Specifications.
- API 'SL', 'SM', 'SN' categories for modern engine oils.
- Currently in Round Robin testing for inclusion in CEC L-040.

Special Features

- Sized Orifice Caps easily calibrate and "tune" instrument to lab environment.
- True operation at 250°C Temperature Setting.
- Redesigned for improved precision and rapid turn-around between tests.
- Collection of volatile products during Noack test for further analysis.

New Design

- Design enhancements for improved test precision and ease-of-use for high sample workloads and robust day-to-day operation.
- Incorporates metal Reaction Vessel and Quick Connect Fittings for test efficiency and easy cleaning.
- Compact, all-in-one design with small footprint.



Quick Connect Fitting (left): Connections snap together easily for rapid and stable test setup.

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ISO 9001:2008 QMS

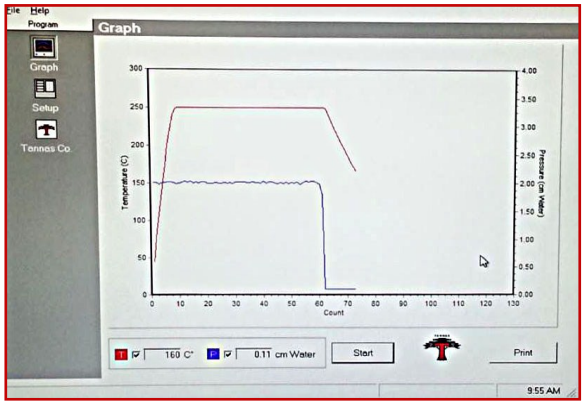
Parts & Accessories

ASTM D5800:

480118: Reaction Vessel- S-Noack II
480127: Reaction Vessel Lid Assembly- S-Noack II
480132: Outlet Tube Assembly- S-Noack II
480130: Inclined Manometer Assembly
480140: Quick Connect Fitting 1/4 NPT/Coupling
480141: Quick Connect Fitting 1/4 Barb/Coupling
480139: Quick Connect O-ring
480133: Coalescing Filter Housing Assembly
450110: Coalescing Filter Element
450135: O-ring - Coalescing Filter
460029: Vacuum Tubing - Tygon 1/4" ID
450138: Pump Filter Element
450136: O-Ring - Pump Filter
480026: Stirrer Bar
550031: Gripper Gloves
040045: VarClean© Cleaner
040034: SNH-200 Reference Oil
040032: SNC-150 Reference Oil
040048: SNA-130 Reference Oil

Instrument Specifications

Dimensions	Bench-top: 55(w) x 40(d) x 33(h) cm (22 x 16 x 13 inches)
Weight	~33.5 kg (74 lbs.)
Voltage	120 VAC, 15 amp. max | 220-240 VAC, 8 amp. max.
Frequency	50/60 Hz
Heating Medium	Resistive Solid Metal Heating (*non-Wood's metal*)
Vacuum Control	Automated Vacuum Control (± 0.1 cm of H_2O) Built-in Vacuum Pump
Operating Parameters	Temperature: 250° (± 0.1°C) 65 gram sample volume 20 mm Water Vacuum 1 hour test duration *(automatic shut-off w/audible alarm)*
Output	Digital RS232 to printer *(Analog available upon request)*
Safety	Over-temperature cutoff Fuse & Indicator Protective Heat Shield CE Marked
Shipping Weight & Dimensions	~60 kg (132 lbs.) Approximately ~86 x 60 x 83 cm (34 x 24 x 33 inches) Approximately



Automated Software

The Selby-Noack® II Software Package provides real-time display of test temperature and vacuum control during the 1-hour test and temperature based automatic shutdown after test. It allows convenient entry of sample information and offers test result reporting at end-of-test.

The data analysis downloads to a .csv file for easy transfer into LIMS or conversion to an Excel spreadsheet.

Additional TANNAS CO. Precision Laboratory Instruments

Tannas Foam *Air* Bath (TFAB™)
- ASTM D892, D6082, IP146
- Non-liquid bath
- 24°C to 150°C range

Tapered Bearing Simulator (TBS™) Viscometer
- ASTM D4683, D6616, CEC L-36-A90, IP370
- High-Temperature, High-Shear (HTHS) Viscosity

***Quantum*® Oxidation Tester**
- ASTM D2272, D2112, D4742, D942, IP229
- RPVOT, TFOUT, Grease Oxidation
- Non-liquid 'dry cylinder' sample heating

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