

# Tannas Noack S2<sup>®</sup>

## Volatility Test

ASTM D5800, CEC L-40-93



**ASTM D5800D  
CEC L-40-93**

Required for :

- ILSAC GF-3 to GF-6 & dexos<sup>™</sup> Engine Oil Specifications.
- API 'SM', 'SN', 'SP' categories for modern engine oils.

### Special Features

- Sized Orifice Tubes 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.

### 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<sub>2</sub>O 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

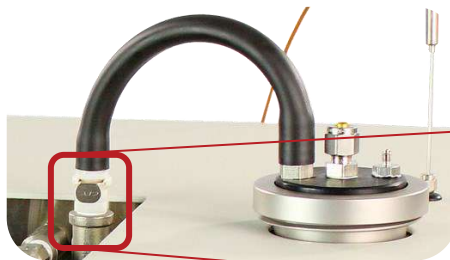
In the mid-1990's, Mr. Selby, and his colleagues at the *Savant Group*, eliminated the need for Wood's Metal by devising a noble-metal heater approach. This innovative development was completed in 1997 and Tannas began marketing the first non-Wood's Metal Noack tester. Novel advancements and updates to the original Selby-Noack<sup>®</sup> led to the new Tannas Noack S2<sup>®</sup> Volatility Test.

### Features

- Advanced Automated Software Option.
- Compatible with MS Windows<sup>®</sup> 11
- Used for *Phosphorus Emission Index (PEI)* and *Sulfur Emission Index (SEI)* related to phosphorus and sulfur emissions from the combustion chamber.
- 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.

### New Design

- Design enhancements for improved test precision, 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.
- New touchscreen controller with a user-friendly interface.



**Quick Connect Fitting:** Connections snap together easily for rapid and stable test setup.



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## Instrument & Parts

### Noack S2® Volatility Test:

480000: 110 VAC, 50/60 Hz Power  
 480500: 220 VAC, 50/60 Hz Power

### ASTM D5800, Procedure D:

480145: SN2 Threaded Cup/Lid Assembly  
 480114: Flex Outlet Tube Assembly  
 480155: Digital Manometer Assembly  
 480133: Coalescing Filter Housing Assembly  
 480135: Quick Connect O-ring  
 480150: Leak Check Tube Assembly - RV  
 450145: System Leak Check Tube Assembly  
 500612: Thermocouple Assembly (Type J)  
 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: Stir Bar - Cross Shaped  
 500019: Pipe Cleaners  
 550031: Gripper Gloves  
 950014: Exhaust Tubing  
 950539: Heat Resistant Stopper (High Temp Red)  
 950536: Cork Stopper  
 040045: VarClean Cleaner (1.89 L/ Half Gallon)  
 040035: SNL-75 Reference Oil (1.89 L/ Half Gallon)  
 040039: NCO-12 / SNA-130 Reference Oil (1.89 L/ Half Gallon)

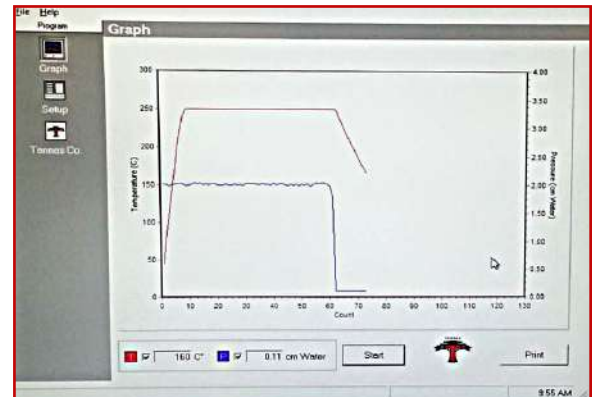
## Instrument Specifications

|   |  |
|---|--|
| <b>Dimensions</b>                       | Bench-top: 55(w) x 40(d) x 33(h) cm (22 x 16 x 13 inches)  |
| <b>Weight</b>                           | ~33.5 kg (74 lbs.)   |
| <b>Voltage</b>                          | 120 VAC, 15 amp. max   220-240 VAC, 8 amp. max.  |
| <b>Frequency</b>                        | 50/60 Hz   |
| <b>Heating Medium</b>                   | Resistive Solid Metal Heating ( <i>non-Wood's metal</i> )  |
| <b>Vacuum Control</b>                   | Automated Vacuum Control ( $\pm 0.1$ cm of H <sub>2</sub> O)<br>Built-in Vacuum Pump   |
| <b>Operating Parameters</b>             | Temperature: 250° ( $\pm 0.1$ °C)<br>65 gram sample volume<br>20 mm Water Vacuum<br>1 hour test duration ( <i>automatic shut-off w/audible alarm</i> ) |
| <b>Output</b>                           | Digital RS232 to printer<br>( <i>Analog available upon request</i> )   |
| <b>Safety</b>                           | Over-temperature cutoff Fuse & Indicator<br>Protective Heat Shield<br>CE Marked  |
| <b>Shipping Weight &amp; Dimensions</b> | ~60 kg (132 lbs.) Approximately<br>~86 x 60 x 83 cm (34 x 24 x 33 inches) Approximately  |

## Automated Software

The Tannas Noack S2® 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, D1881, D7840, IP146
- Non-liquid bath
- 24°C to 150°C range



### TBS 3000 HTHS Viscometer

- ASTM D4683, D6616, CEC L-36, IP370
- High-Temperature, High-Shear (HTHS)
- 80°C, 100°C, 150°C testing



### Quantum® Oxidation Tester

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



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