

# TFAB

## Tannas Foam Air Bath

ASTM D892, D6082, D1881, D7840 | IP 146

### Principle

**Foaming Tendency & Stability of Lubricating Oils:** High foaming tendency and slow foam collapse time can be serious problems in systems such as high-speed gearing, high-volume pumping, and splash lubrication. Foaming can cause inadequate lubrication, cavitation, and loss of lubricant due to overflow, resulting in mechanical failure. Oil additives help reduce the generation of foam. The Tannas Foam Air Bath (TFAB) measures the tendency and stability of foam additive effectiveness in oils and lubricants over a broad temperature range (24°C to 150°C) per the industry test methods. The removable Carousel holds up to (6) six 1000-mL test cylinders which are compatible with the recommended Stainless Steel cylindrical Gas Diffusers or spherical (Mott) Gas Diffusers.

### History

Liquid baths have been used for foam testing since the inception of the method. With the need from the automotive industry for foam testing at higher temperatures (150°C) came the desire to eliminate the safety risks and imprecision of hot, messy oil bath systems, sparking the development of the TFAB in 1995. The air bath system has been used and recommended for foam test methods ever since.

### Innovation

The single air bath approach of the TFAB dramatically reduces bench space requirements, eliminates the need to replace oxidized (discolored) bath oil, permits more accuracy in reading foam levels, and significantly reduces the hazards of operating sequences of higher temperatures. An innovative touchscreen interface promotes ease-of-use, while the new Direct Drive motor allows for quiet and maintenance-free operation. The TFAB has shown correlation in ASTM round robin studies and has assisted in ASTM efforts of improving the test method precision.

### Features

- **New Direct Drive** motor for quiet and maintenance-free operation.
- The *non*-liquid system eliminates hazardous bath mediums from laboratory environments.
- Thermal equivalence at all locations within bath - no temperature variations among samples.
- Removable six-position cylinder carousel; convenient side-mounted cylinder drying rack.

- New touchscreen controller
- Thermocouple placement for accurate control via sample temperature.
- Progressive timer with audible alarms for simplified determination of Collapse Time in D6082 test.
- Built-in cool 'tap' water circulation system aids cooling from higher temperature Sequences and maintains 24°C in



The touchscreen controller offers a user-friendly interface during operation with continuous time readout and sequence alarms for each measuring time.



### ASTM D892 (Sequence I, II, III) IP 146

Determines the foaming characteristics of lubricating oils at 24°C and 93.5°C.

### ASTM D6082 (Sequence IV)

Determines the foaming characteristics of lubricating oils at 150°C.

Required for :

- ILSAC GF-2 to GF-6 (A&B), IFC™, dexos™ and GB 11121 Engine Oil Specifications.
- API 'SM', 'SN' and 'SP' categories for modern engine oils.

### ASTM D1881

Foaming Tendencies of Engine Coolants

### ASTM D7840

Foaming Tendencies of Non-Aqueous Engine Coolants

### China National Standard

GB/T12579

SH/T0722

SH/T 0066



## Parts & Accessories

### TFAB Instrument:

550100: 220 VAC, 50/60 Hz Power

### ASTM D892 & D6082:

550120: Water Displacement Exit Air Measuring Device

550122: Digital Exit Air Measuring Device

550156: Air Flow Calibration Device

550154: Digital Gas Diffuser Verification Device

550080: TFAB Chiller Bath

550016: Glass Cylinder - 1000 mL

550157: Stainless Steel Diffuser Stone - Certified

550145: Diffuser Tube Assembly

550029: Centering Washer

550018: Air Tubing - 18" Tygon

550020: Probe s/s 18"

970137: Lamp LED - Foam Bath

550125: Cylinder Stopper Assembly (3 hole)

550060: Spare Fuse Set - 220V, 50/60 Hz

550037: Carousel Rubber Stopper

040004: F-100 Reference Oil (1.89 L)

## Instrument Specifications

<b>Dimensions</b>	Bench-top: 61(w) x 61(d) x 53(h) cm   (24 x 24 x 21 inches)
<b>Weight</b>	~72.5 kg (~160 lbs.)
<b>Voltage</b>	220 VAC, Single Phase, 10 Amp.
<b>Frequency</b>	50/60 Hz.
<b>Heating Medium</b>	Air
<b>Improved Feature</b>	<b>New Direct Drive</b> motor for quiet and maintenance-free operation
<b>Diffuser Air Flow</b>	Stainless steel, cylindrical, diffuser stone Pre-heated diffuser air flow system Two (2) built-in Air Flow Meters Air Flow Rate: 94 to 200 mL/min. (±5 mL/min.)
<b>Operating Parameters</b>	Temperature Range: +20°C to 175°C (±0.1°C) Foaming Sequences: I @ 24°C II @ 93.5°C III @ 24°C IV @ 150°C
<b>Touch-Display Controller</b>	Digital Display of Operator Commands Audible Sequence Alarms for each measuring time Automated Air Flow Meters programmed for each sequence Continuous time readout
<b>Sample Volume</b>	200 mL
<b>Testing Capacity</b>	Holds six (6) 1000 mL Cylinders Tests two (2) oil samples simultaneously
<b>Safety</b>	Over-temperature Cut-off Fuse & Current Limiting Fuses Triple Pane Glass View Port CEMarked
<b>Shipping Weight &amp; Dimensions</b>	~90 kg (198 lbs.) Approximately ~71 x 71 x 122 cm (28 x 28 x 48 inches) Approximately

## Additional TANNAS CO. Precision Laboratory Instruments



### Tannas Noack S2® Volatility Test

- ASTM D5800, Procedure D, CEC L-40
- Phosphorus Volatility
- non-Wood's metal heating system



### 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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