

News Headlines:

- ✓ New Improvements in ASTM D4807 Set-up.
- ✓ The TV12LT suitable for -40°C.
- ✓ The TB30 Bath can now be used for Copper and Silver Corrosion Tests
- ✓ New versions of TB30 bath.

New Improvements in ASTM D4807 Set-up for the Determination of Sediment in Crude oil by Membrane Filtration.

Last year, Tamson introduced a turn-key set-up for ASTM D4807. This test method covers the determination of sediment in crude oils by membrane filtration and has been validated for crude oils with sediments up to 0.15 mass per cent.

The set-up includes a TC16 circulator that pumps fluid through the jacketed (double-walled) funnel to maintain the crude oil sample at 90°C. The necessary filter support, 1000 mL vacuum filtering flask, clamp, ground leads, vacuum pump, insulated tubing, and rubber stopper are supplied by Tamson. Also, we deliver all other necessary accessories for this test.



Based on feedback, Tamson has added two items to increase safe, around-the-clock operation.

- P/N 31T8044 is a complete stand with hooks and clamps to keep the glassware (funnel, filtration flask, filter support, t-piece with ground lead, etc.) safely secured in the same position, preventing breakage of the glassware.
- P/N 24T0611 is introduced to safely ground the complete stand (P/N 31T8044).

The main advantage is seen in the use of a jacketed funnel instead of a wired copper coil, which ensures safe operation of the test. The TC16 can also be used to prepare the sample and the toluene mixture at the required temperature of 90°C. If you have any questions regarding the parts or accessories above, please contact us.

The TV12LT meets and exceeds the new requirements for testing the Kinematic Viscosity of Aviation Turbine Fuels at -40°C!

At every stage, between refining and the aircraft fuel tank, jet fuel quality is tested. These checks ensure that the fuel conforms to requirements specified for the grade when it is delivered to the aircraft. While several parameters of jet fuel are measured to define its properties, its low temperature kinematic viscosity is determined mainly for safety.

The operation of jet aircraft at high altitudes over long periods of time dictates good low-temperature flow behavior of jet fuel. If the fuel's viscosity is too high during fuel injection, the pilot may not be able to quickly restart the engine during flight. A second problem relates to lubrication at low temperatures. If the viscosity is too low, a lack of lubrication can lead to mechanical failure of the fuel pump and will stop the engine. Low temperature kinematic viscosity of jet fuel is usually tested at -20°C. As commercial airlines are reporting that they can't quickly restart the engine while on a long-haul flight, testing at -40°C is becoming increasingly important to OEMs and there is consideration for this becoming a specification requirement within ASTM D1655 and Defence Standard 91-91. Until now, it was assumed that the kinematic viscosity of jet fuel did not exceed 12 mm²/s @ -40°C when the measured kinematic viscosity @ -20°C was below 8 mm²/s.

Because change in rate per unit temperature is significantly higher for viscosity than for other properties, temperature control is the single most important parameter for obtaining accurate and precise kinematic viscosity measurements. The TV12LT, introduced by Tamson in 2009, is the only available manual instrument which has a temperature range down to -48°C. Temperature stability of the TV12LT is very precise ($\pm 0.014^{\circ}\text{C}$) over the entire range. The TV12LT is much more stable than the requirements in ASTM D445 where a bath temperature stability of $\pm 0.05^{\circ}\text{C}$ below 15°C is allowed. Extensive testing showed that errors in temperature drift and in homogeneity combined with poor bath stability ($>0.02^{\circ}\text{C}$) could easily produce measurement errors over 1%! That is why homogeneity, ultra-low temperature drift, and high temperature stability are so important. This is extremely important to meet critical



Tamson recently participated in a joint ASTM/Energy Institute (E.I.) inter laboratory study (ILS). E.I. developed a new method (IP PM EJ/12) for determining the kinematic viscosity of aviation turbine fuel using both a specified manual method (A) and an automated method (B). For method A, 15 laboratories participated at -20°C and seven labs participated at -40°C. Most laboratories used the Tamson TV12LT. In December 2015, the manual data will be officially published and the precision is better than the precision of an ILS performed in 1997. Based on other studies (e.g. "Grand Design" of ASTM D445) these improvements were not expected and Tamson assumes that in this ILS the very stable Tamson TV12LTs contributed to the increase in precision ($r + R$).

There was not enough data produced (lack of participants) for automatic instruments (method B) both at -20°C and -40°C. Therefore, the results could not be published and a new ILS is scheduled in the coming years. That means that only the latest precision data are available for method A (manual measurements at -20°C and the new requirement at -40°C) where the TV12LT played an important role in the ILS.

For more information about the TV12LT, please download the TV12LT Power Point presentation from our website, www.tamson.com.

The TB30 Bath can now be used for Copper and Silver Corrosion Tests

The TB30 can be used for copper corrosion testing of LPG using the special long LPG test cylinders. Each lid can hold two LPG cylinders. Since the TB30 has two lids, the maximum capacity of the TB30 is four LPG cylinders.

Based on market requests, we have added P/N 03T2324 as an option. This is a cover with three 51 Ø mm openings, so that the TB30 also can be used for copper and silver corrosion tests from petroleum products (e.g. ASTM D130, ASTM D7671). This is very convenient for laboratories that want to perform both tests in the same bath as they have a few samples per day or limited work bench space.



New versions of TB30.

In addition to the ability to perform ASTM D1838 tests, the TB30 is also available in two new versions: with and without a permanent levelling platform. This TB30 can be used as a 45 cm deep water bath for sample preparation or to calibrate temperature sensors. Temperature range is from ambient to 120°C and provides a temperature stability of ±0.002°C.



The depth of the TB30 makes it easy to calibrate temperature sensors. The cooling coil is now included as a standard feature in case the customer wants to work below ambient temperature using a Tamson cooling circulator like the TLC15-5. The levelling platform can be used when the samples should not be fully immersed in the bath content or it can be used to hold PT-100 probes in position while calibrating them. Custom manufactured covers are available on request.

For more information, please contact our sales team via sales@tamson.com or visit our website: www.tamson.com