

Sediment Determination by Membrane Filtration in Crude Oil

ASTM D4807 - MPMS, Chapter 10.8



- ⊕ Complete apparatus (pump included)
- ⊕ Levelling platform for toluene
- ⊕ Jacketed funnel (instead of wired copper)
- ⊕ Bath drain
- ⊕ Fully grounded system

General

The ASTM D4807 test method covers the determination of sediment in crude oils by membrane filtration. This test method has been validated for crude oils with sediments up to approximately 0.15 mass %.

Apparatus

The Tamson TC16 circulator pumps the bath content filled with bath oil through the jacketed (double wall) funnel to maintain the crude oil sample at 90°C. Necessary filter support, clamp, rubber stopper, 1000 mL vacuum filtering flask, glass T-piece with ground wire, insulated tubing with connectors, stand with clamps, membrane filters, and a vacuum pump are included in P/Ns 00T2010 and 00T2011, please see table 1.

The TC16 is standard equipped with a levelling platform and a cover with rings to place a beaker inside the TC16 to preheat the toluene (required for the test) to 90°C. The use of the TC16 for this application is a safer way to preheat the toluene as the mechanical safety thermostat of the liquid bath can be set slightly above the setpoint of the TC16. Thus the D4807 apparatus is much safer than using a hot plate to preheat the toluene. The D4807 apparatus should be placed in a fume hood.

Item	Unit	TC16
Complete ASTM D4807 apparatus 230V/50-60Hz		P/N 00T2010
Complete ASTM D4807 apparatus 115V/60Hz		P/N 00T2011
Power	[kW]	1.8
Range	°C °F	Ambient .. 250 Ambient .. 482
Reading		°C or °F
Setting	[°]	0.1
Stability ±	[°C]	0.02
Heating	[W]	1400
Bath volume	[L]	16
Bath opening	[mm]	180 x 210
Bath depth	[mm]	220
Length	[mm]	480
Width	[mm]	295
Height	[mm]	480
Materials	Used inside bath: stainless steel 304	
CE	Conforms to CE regulation	

Next to the complete apparatus, all parts for the apparatus (please see table 1) can be ordered as a spare parts. We deliver other accessories for this method as well (please see table 2).

Accuracy

The insulation of the bath and electronic design result in an very stable working temperature of $\pm 0.02^\circ$. The set point can be set in steps of 0.1° in the range of 0°C up to 250°C ($32..482^\circ\text{F}$). The accuracy on the display is displayed in 0.1°C . However the controller has an internal accuracy of 0.01°C .

Temperature readout

The temperature range is from ambient $+5^\circ\text{C}$ to 250°C . Standard available in $^\circ\text{C}$, on request in $^\circ\text{F}$.

Safety

The bath conforms to CE regulation. It is further equipped with a mechanical resettable safety thermostat.

All parts (bath, support, clamp) are grounded. A braided wire grounds the flask and sample in the vacuum filtering flask.

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Accessories

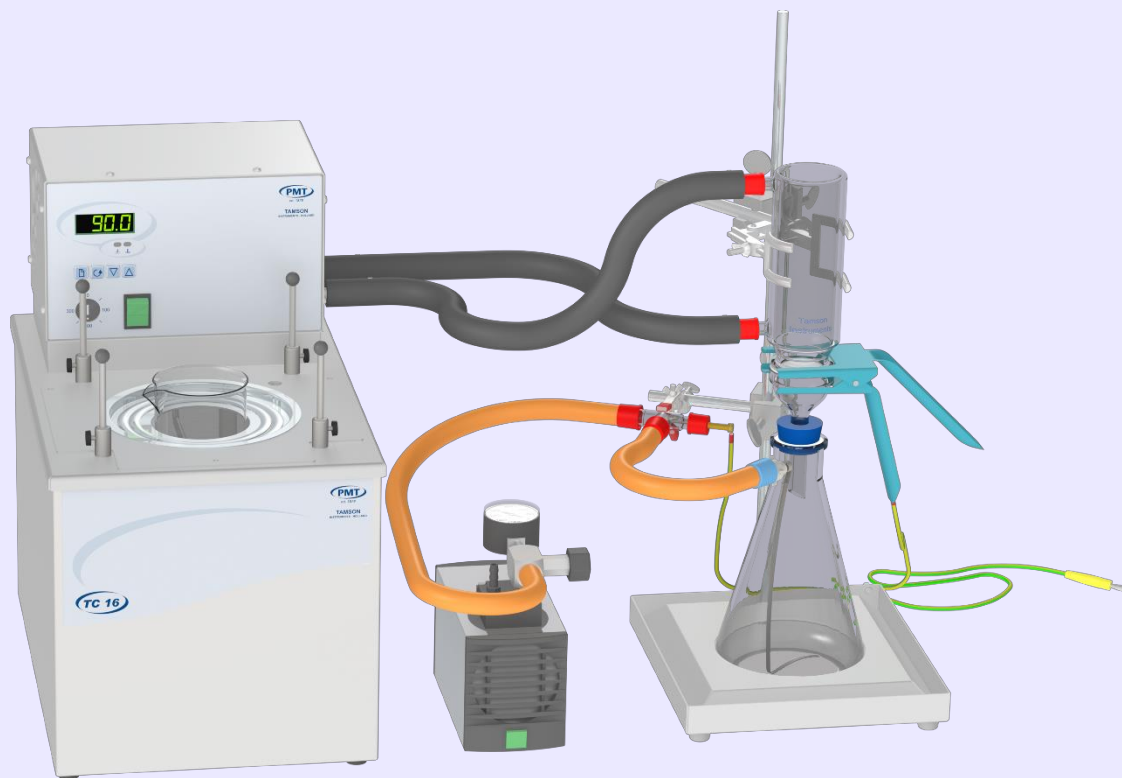


Table 1: Apparatus (P/N 00T2010 or P/N 00T2011) consists of TC16 circulator* with levelling platform and cover with rings and the additional parts listed below

* Voltage dependent

P/N	Picture	Quantity	Description
31T0400		1	Funnel 250 mL, jacketed (double wall).
31T0401		1	Filter support funnel, 40 mm (without stopper).
31T0402		1	Clamp to secure the funnel to the filter support.
31T0029		1	Stopper, with hole.

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Continued table 1			
P/N	Picture	Quantity	Description
31T0405		1	Vacuum filtering flask 1000 mL, erlenmeijer shape. On request 500 mL (P/N 31T0404) or 2000 mL (P/N 31T0406) are available.
31T0407		1	Nylon/polyamid membrane filter, 0.45-µm pore size, 47 mm, box of 100 pcs.
31T0408		1	T-piece made from glass with connectors and with ground wire.
13T8044		1	Stand complete with clamps.
24T0611		1	Cable protective earth 6 mm banana Crimp terminal 6.3 mm fast-on.
24T0612		1	Cable protective earth Crimp terminal 6.3 mm fast-on Crimp ring terminal 4 mm hole
24T0055		2	One meter of tygon tubing 8 x 11.2 mm
11T0031		1	Vacuum pump 230V/50Hz, capable of maintaining -80 kPa during filtering.
11T0032			Vacuum pump 115V/60Hz, capable of maintaining -80 kPa during filtering.
08T0120		2	Plastic screw cap red with opening GL14.
08T0123		2	Plastic hose connection straight GL14.

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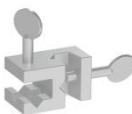
Accessories

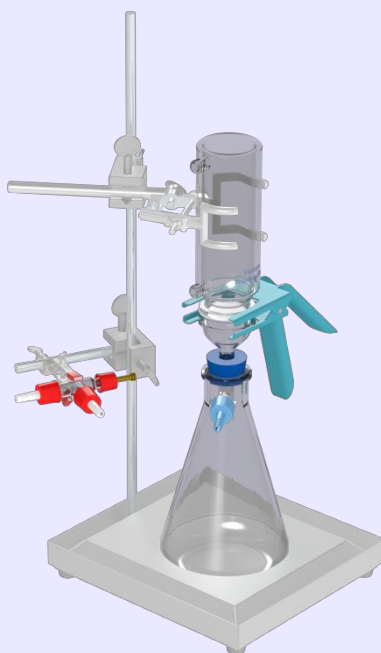
Table 2: Optional accessories			
P/N	Picture	Suggested quantity	Description
21T0250		1	Desiccator with lid and knob, DN100.
21T0251		1	Desiccator plate DN100, 90 mm, porcelain.
25T0928BW		1	ASTM thermometer similar to 34C with blue filling (low-hazardous to ship). Temp. range +25°C-105°C:0.2°C. Supplied with works certificate.
25T2154		1	Thermometer holder, 425 x 10 mm.
00T0220		1	Bath fluid Tamson mineral oil T150, 80..150°C, 20ltr.
21T0230		1	Oven 230V/50-60Hz, min.10°C above ambient up to +300°C, volume 32 L, w x h x d: 400 x 250 x 320 mm. Oven 115V/60Hz is part number 21T0231.
21T0240		1	Analytical balance (110-240V), range 210 gram capable of measuring to the nearest 0.0001 gram.

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Table 3: Spares for "stand complete with clamps" (P/N 13T8044)		
Part no.	Picture	Description
13T8045		Stand rod, diameter 10 mm, height 600 mm. Without clamps.
24T0069		Clamp hook connector.
24T0070		Clamp for T-piece (P/N 31T0408).
24T0071		Clamp for funnel.



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