

Density Measurement of Petroleum Products by Hydrometer Method

ASTM D287 - ASTM D1298 - IP 160 - API 2547 - ASTM D6822



- ⊕ Small footprint
- ⊕ Detachable leakage tray
- ⊕ Easy to drain and clean
- ⊕ Stainless steel
- ⊕ Cylinder visible over full length
- ⊕ Wide temperature range

General

This specific method covers following laboratory determinations by hydrometer method:

Density,
Relative density (Specific gravity),
American Petroleum Institute Gravity of:

Crude petroleum,
Liquid Petroleum products,

Products must have a Reid vapor pressure of 26 lb or less.

Construction

A Tamson TLC15-5 refrigerator circulates a (cold) flow through the double walls of the cylinders. The TLC15-5 maintains the bath temperature within $\pm 0.25^\circ\text{C}$ of the test temperature required by the method.

The PTFE valves ensure fast drainage and cleaning of the tube. The easy detachable leakage tray prevents that portions of the sample are spilled on the workbench.

The rack offers full view on the hydrometer. Our special support eliminates the problem of mounting brackets or portions of a thermostatic bath blocking the view.

Item	Unit	TLC15		
Ordering code		230V /50Hz	230V /60Hz	115V /60Hz
		00T2000	00T2001	00T2002
Reading	°C or °F	Menu selectable		
Interface		RS232		
Setting	[°C/F]	0.01		
Bath volume	[L]	5		
Opening bath	[mm]	85 x 150 (effective use)		
Depth bath	[mm]	150		
Length	[mm]	420 (460 Incl. drain)		
Width	[mm]	265		
Height	[mm]	565		
Weight	[Kg]	30		
Power	[Watt]	1100 (1 Heater)		
Item	Unit	Rack		
Length tripod	[mm]	360 (front to back)		
Width tripod	[mm]	320 (left to right)		
Height tripod	[mm]	800		
Weight tripod	[Kg]	9 (glass cylinders included)		
Ambient temperature	[°C]	18 .. 23		
CE		Products conform to CE regulation		

The measuring set-up contains three glass cylinders with lids, a support, and a TLC15-5 circulator. Our system offers an interesting price advantage compared to other solutions based on a combination of a thermostatic bath and an external chiller.

This set-up can also be used for ASTM D287, standard test method for API gravity of crude petroleum and petroleum products having a Reid vapour pressure of 26 psi (180 kPa) or less. For this method the gravities are determined at 60°F. The set-up can also be used for the thermo-hydrometer conform ASTM D6822.

Accuracy

The system keeps the sample within 0.25°C of the test temperature.

Fine adjustment and offset

After the circulator has stabilized, the set point may be more accurately adjusted in the range of -5.00° to $+5.00^\circ$ by programming the offset, if necessary.

Density Measurement of Petroleum Products by Hydrometer Method

Accessories

Ambient condition

For proper cooling performance to stay within the specifications it is preferred that the ambient temperature is within 18°C...23°C.

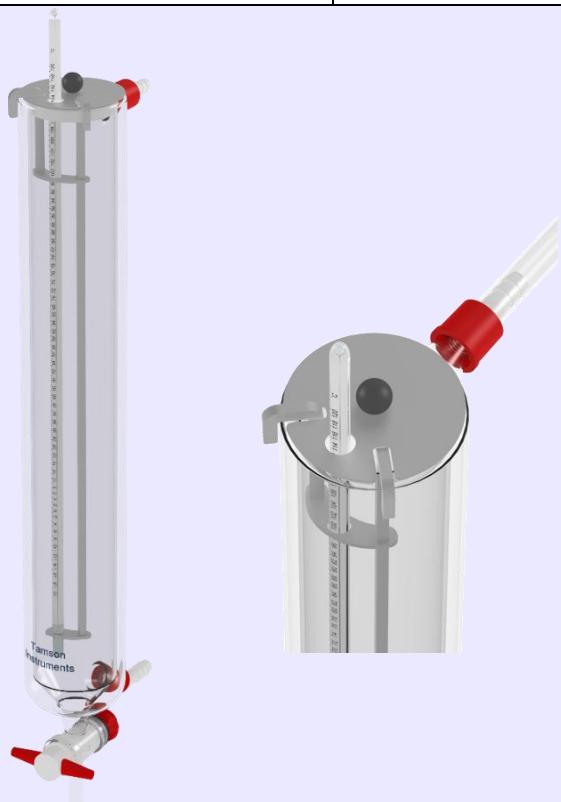
Hydrometers

The precision hydrometers are manufactured conforming to BS 718 or DIN 12791.

Six positions

One TLC15-5 circulator is able to control the temperature of six double wall cylinders and thus an additional rack can be connected in series. Ordering code for an additional rack with three cylinders is P/N 00T1260.

Part no.	Picture	Description
25T0911		ASTM thermometer (12C), range from -20 to +102°C with certificate of conformity.
25T0911W		ASTM thermometer (12C), range from -20 to +102°C with works certificate.
25T2153		Thermometer holder D1298.
00T1260		Complete rack with frame and cylinders.



Density Measurement of Petroleum Products by Hydrometer Method

Spareparts

Part no.	Picture	Description
13T1860		Lid for cylinder. Standard three lids are included in the set-up.
09T0000		Jacketed glass hydrometer cylinder with stopper valve. In total three per D1298 apparatus are included as standard.
08T0100		Silicone tubing 8 x 12 mm per 1 mtr -60.. +180, Approx. 3 mtr per set is needed.
08T0126		T-Split polypro pylene. In total two per D1298 apparatus are needed.
08T0125		“Y” split polypro pylene. In total two per D1298 apparatus are needed.
08T0121		Plastic hose connection straight GL14. In total three per D1298 apparatus are needed.
08T0122		Plastic hose connection angle GL14. In total three per D1298 apparatus are needed.
08T0120		Plastic screw cap red with opening GL 14. In total six per D1298 apparatus are needed.

D1298



Density Measurement of Petroleum Products by Hydrometer Method

Hydrometers

ASTM D1298

Hydrometer calibrated at 15°C, length 270 mm		
Part no.	Description	General info
25T2450	Hydrometer M50 cal @15°C 0.600-0.650	M 50 series acc. to BS 718
25T2451	Hydrometer M50 cal @15°C 0.650-0.700	Ref. temperature (Tp.): 15 °C
25T2452	Hydrometer M50 cal @15°C 0.700-0.750	Measuring span: 0.050 g/cm ³
25T2453	Hydrometer M50 cal @15°C 0.750-0.800	Scale units: 0.001 g/cm ³
25T2454	Hydrometer M50 cal @15°C 0.800-0.850	Total length (L): 270 mm
25T2455	Hydrometer M50 cal @15°C 0.850-0.900	
25T2456	Hydrometer M50 cal @15°C 0.900-0.950	
25T2457	Hydrometer M50 cal @15°C 0.950-1.000	
25T2458	Hydrometer M50 cal @15°C 1.000-1.050	
25T2459	Hydrometer M50 cal @15°C 1.050-1.100	



Hydrometer is supplied without certificate.

The hydrometers can also be supplied government verified, with a verification certificate, with 3 test points. Then a "C" should be added to the reference number. Prices are on request.

ASTM D1298

Hydrometer calibrated at 15°C, length 335 mm		
Part no.	Description	General info
25T2401	Hydrometer L50 cal @15°C 0.600-0.650	L 50 series acc. to BS 718
25T2402	Hydrometer L50 cal @15°C 0.650-0.700	Ref. temperature (Tp.): 15 °C
25T2403	Hydrometer L50 cal @15°C 0.700-0.750	Measuring span: 0.050 g/cm ³
25T2404	Hydrometer L50 cal @15°C 0.750-0.800	Scale units: 0.0005 g/cm ³
25T2405	Hydrometer L50 cal @15°C 0.800-0.850	Total length (L): 335 mm
25T2406	Hydrometer L50 cal @15°C 0.850-0.900	
25T2407	Hydrometer L50 cal @15°C 0.900-0.950	
25T2408	Hydrometer L50 cal @15°C 0.950-1.000	
25T2409	Hydrometer L50 cal @15°C 1.000-1.050	
25T2410	Hydrometer L50 cal @15°C 1.050-1.100	
25T2411	Hydrometer L50 cal @15°C 1.100-1.150	
25T2412	Hydrometer L50 cal @15°C 1.150-1.200	



Hydrometer is supplied without certificate.

The hydrometers can also be supplied government verified, with a verification certificate, with 3 test points. Then a "C" should be added to the reference number. Prices are on request.

D1298



Tamson Instruments bv ☎ 31 105 22 43 73 ☐ sales@tamson.com ☐ www.tamson.com

est. 1878

Rev 1.1 - "16

Density Measurement of Petroleum Products by Hydrometer Method

Hydrometers

ASTM D1298

Hydrometer calibrated at 20°C, length 335 mm		General info
Part no.	Description	
25T2500	Hydrometer L50 cal @20°C 0.600-0.650	L 50 series acc. to DIN 12791
25T2501	Hydrometer L50 cal @20°C 0.650-0.700	Ref. temperature (Tp.): 20 °C
25T2502	Hydrometer L50 cal @20°C 0.700-0.750	Measuring span: 0.050 g/cm ³
25T2503	Hydrometer L50 cal @20°C 0.750-0.800	Scale units: 0.0005 g/cm ³
25T2504	Hydrometer L50 cal @20°C 0.800-0.850	Total length (L): 335 mm
25T2505	Hydrometer L50 cal @20°C 0.850-0.900	 Hydrometer is supplied without certificate.
25T2506	Hydrometer L50 cal @20°C 0.900-0.950	The hydrometers can also be supplied government verified, with a verification certificate, with 3 test points. Then a "C" should be added to the reference number. Prices are on request.
25T2507	Hydrometer L50 cal @20°C 0.950-1.000	
25T2508	Hydrometer L50 cal @20°C 1.000-1.050	
25T2509	Hydrometer L50 cal @20°C 1.050-1.100	
25T2510	Hydrometer L50 cal @20°C 1.100-1.150	
25T2511	Hydrometer L50 cal @20°C 1.150-1.200	
25T2512	Hydrometer L50 cal @20°C 1.200-1.250	
25T2513	Hydrometer L50 cal @20°C 1.250-1.300	
25T2514	Hydrometer L50 cal @20°C 1.300-1.350	
25T2515	Hydrometer L50 cal @20°C 1.350-1.400	
25T2516	Hydrometer L50 cal @20°C 1.400-1.450	
25T2517	Hydrometer L50 cal @20°C 1.450-1.500	



ASTM D1298

Hydrometer calibrated at 20°C, length 270 mm		General info
Part no.	Description	
25T2550	Hydrometer M50 cal @20°C 0.600-0.650	M 50 series acc. to DIN 12791
25T2551	Hydrometer M50 cal @20°C 0.650-0.700	Ref. temperature (Tp.): 20 °C
25T2552	Hydrometer M50 cal @20°C 0.700-0.750	Measuring span: 0.050 g/cm ³
25T2553	Hydrometer M50 cal @20°C 0.750-0.800	Scale units: 0.001 g/cm ³
25T2554	Hydrometer M50 cal @20°C 0.800-0.850	Total length (L): 270 mm
25T2555	Hydrometer M50 cal @20°C 0.850-0.900	 Hydrometer is supplied without certificate.
25T2556	Hydrometer M50 cal @20°C 0.900-0.950	The hydrometers can also be supplied government verified, with a verification certificate, with 3 test points. Then a "C" should be added to the reference number. Prices are on request.
25T2557	Hydrometer M50 cal @20°C 0.950-1.000	
25T2558	Hydrometer M50 cal @20°C 1.000-1.050	
25T2559	Hydrometer M50 cal @20°C 1.050-1.100	



D1298

Density Measurement of Petroleum Products by Hydrometer Method

Hydrometers

ASTM D287

API hydrometer calibrated at 60°F, length 330 mm		General info
Part no.	Description	
25T3800	API Gravity hydrometer ASTM, 1H-62, -1+11:0,1°API	API Gravity hydrometer ASTM D287 REF. temperature (Tp.): 60°F Measuring span: API Scale units: 0.1 degrees API Total length (L): 330 mm
25T3801	API Gravity hydrometer ASTM, 2H-62, 9+21:0,1°API	
25T3802	API Gravity hydrometer ASTM, 3H-62, 19+31:0,1°API	
25T3803	API Gravity hydrometer ASTM, 4H-62, 29+41:0,1°API	
25T3804	API Gravity hydrometer ASTM, 5H-62, 39+51:0,1°API	
25T3805	API Gravity hydrometer ASTM, 6H-62, 49+61:0,1°API	
25T3806	API Gravity hydrometer ASTM, 7H-62, 59+71:0,1°API	
25T3807	API Gravity hydrometer ASTM, 8H-62, 69+81:0,1°API	
25T3808	API Gravity hydrometer ASTM, 9H-62, 79+91:0,1°API	
25T3809	API Gravity hydrometer ASTM, 10H-62, 89+101:0,1°API	



ASTM D287

API hydrometer calibrated at 60°F, length 163 mm		General info
Part no.	Description	
25T3810	API Gravity hydrometer ASTM, 21H-62, 0+6:0,1°API	API Gravity hydrometer ASTM D287 REF. temperature (Tp.): 60°F Measuring span: API Scale units: 0.1 degrees API Total length (L): 163 mm
25T3811	API Gravity hydrometer ASTM, 22H-62, 5+11:0,1°API	
25T3812	API Gravity hydrometer ASTM, 23H-62, 10+16:0,1°API	
25T3813	API Gravity hydrometer ASTM, 24H-62, 15+21:0,1°API	
25T3814	API Gravity hydrometer ASTM, 25H-62, 20+26:0,1°API	
25T3815	API Gravity hydrometer ASTM, 26H-62, 25+31:0,1°API	
25T3816	API Gravity hydrometer ASTM, 27H-62, 30+36:0,1°API	
25T3817	API Gravity hydrometer ASTM, 28H-62, 35+41:0,1°API	
25T3818	API Gravity hydrometer ASTM, 29H-62, 40+46:0,1°API	
25T3819	API Gravity hydrometer ASTM, 30H-63, 45+51:0,1°API	
25T3820	API Gravity hydrometer ASTM, 31H-62, 50+56:0,1°API	
25T3821	API Gravity hydrometer ASTM, 32H-62, 55+61:0,1°API	
58T3822	API Gravity hydrometer ASTM, 33H-62, 60+66:0,1°API	
25T3823	API Gravity hydrometer ASTM, 34H-62, 65+71:0,1°API	
25T3824	API Gravity hydrometer ASTM, 35H-62, 70+76:0,1°API	
25T3825	API Gravity hydrometer ASTM, 36H-62, 75+81:0,1°API	
25T3826	API Gravity hydrometer ASTM, 37H-62, 80+86:0,1°API	
25T3827	API Gravity hydrometer ASTM, 38H-62, 85+91:0,1°API	
25T3828	API Gravity hydrometer ASTM, 39H-62, 90+96:0,1°API	
35T3829	API Gravity hydrometer ASTM, 40H-62, 95+101:0,1°API	

