

### Determination of Homogeneity and Miscibility in Automotive Engine Oils

ASTM D6922 – FED-STD-791/3470.1



**Completely stainless steel**  
**Drain to empty bath**  
**Wheels fitted for easy transport**  
**Compact, low noise**  
**Auto tune, high precision**  
**Position for seven jackets**

#### General

Apparatus for the determination of homogeneity and miscibility in automotive engine oils. It is important that engine oils from different manufacturers be homogenous and miscible with each other, because operators of automotive engines often do not have prior knowledge of the manufacture of the oil that is currently used in their application, and engine failure can occur if oils are combined that do not stay homogenous and function properly.

For this test method visual color determinations and observations are made on an undiluted test oil specimen, along with six blends of the same test oil that have been combined with specific reference oils at room temperature after the samples have been preheated to 46°C in a TC16 liquid bath. Then manually (as this is the referee method), the pour point of the samples is determined using single and adjustable Tamson TLC40-14(s) and/or TLC80-14(s). The pour point describes a procedure for testing the fluidity of a petroleum product at a temperature. The samples are then allowed to warm to room temperature and again color determinations and observations are made. After this, the samples are heated to 232°C in the TC16 liquid bath, then allowed to cool down to ambient temperature, and then stored at their pour point temperatures for 18 h to 24 h. The samples are then allowed to thaw and a series of color determinations and observations are made as they reach room temperature.

PItem	Unit	TLC40-14	TLC80-14		
P/N 230V/50Hz		00T0520	00T0530		
P/N 230V/60Hz		00T0522	00T0532		
P/N 115V/60Hz		00T0525	On request		
Power	[Watt]	2000	3200 max		
Used materials inside bath		Stainless steel Chrome plated coil			
Range		-40.. +20°C -40.. +68°F	-80..+20°C -112..+68°F		
Reading	Standard °C, °F on request				
Setting ±	[°]	0.1			
Stability ±	[°C]	Better than 0.05			
Heating	[W]	1550 (1 heater)			
Bath volume	[L]	14..15			
Compressor	[W]	400	2*400		
Heat removal	[W]	@ -10°	1220	@ -70°	200
	[W]	@ -20°	880	@ -74°	100
	[W]	@ -30°	520	@ -80°	50
	[W]	@ -40°	250		
Opening bath	[mm]	240 x 170 (240 x 160 effective)			
Depth bath	[mm]	150			
Length	[mm]	810			
Width	[mm]	460			
Height	[mm]	770			
Weight	[kg]	65		80	
CE	Conforms to CE regulation				

#### Span

The TC16 operates from ambient +10°C to +250°C.  
 The TLC40-14 operates from -40°C to +20°C (-40°F..68°F) and optional available is an extended minimum temperature: -45°C .. +20°C (-49°F .. + 68°F). The TLC80-14 operates from -80°C to +20°C (-112°F to +68°F).

#### Cooling medium

The used cooling system is ozone friendly and doesn't contain any CFK/HCFK gas.

#### Accuracy

The set point is adjustable in steps of 0.1°. The overall system accuracy is better than ± 0.05°C.

#### Temperature readout

Standard available in °C, on request in °F.

#### Safety

The bath conforms to CE regulations. It also is equipped with a mechanical adjustable and resettable safety thermostat to guarantee safe around the clock operation.

### Determination of Homogeneity and Miscibility in Automotive Engine Oils

#### Accessories












Table 1: Necessary parts needed for liquid bath:			
P/N	Picture	Quantity	Description
00T0671		1	TC16 circulator bath, 230V/50-60Hz
00T0861			TC16 circulator bath, 115V/60Hz
03T2123		1	Top lid with nine ø51 mm openings and a thermometer opening
14T0109		7	Test tube holder test jar conform ASTM 6922
09T0142		1	Test jar pour point, case of 24 pieces.
31T0037		2	Cork (unbored) for test jar (P/N 09T0142), pack of ten pieces.

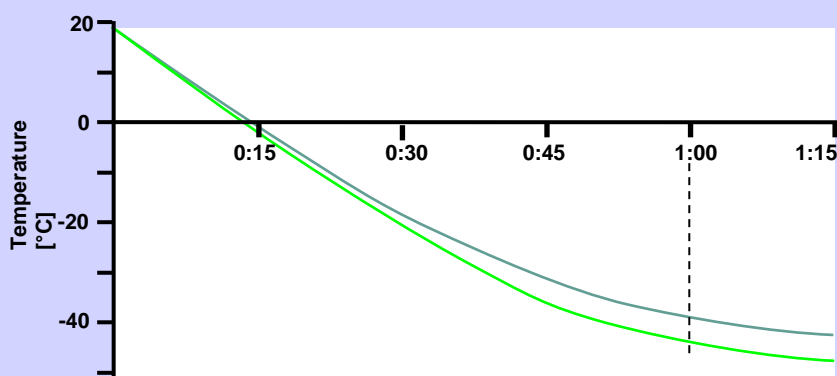
Table 2: Necessary accessories for TLC40-14 and/or TLC80-14 (please order separately the pour point baths which are required, see table on front page for P/N)			
P/N	Picture	Quantity	Description
03T2172		1	Insulated cover for seven positions with insulated lids.
14T0235		7	Jacket
31T0421		2	Felt gasket (pack of ten pieces).
31T0422		2	Felt disk (pack of ten pieces).
31T0013		2	Cork (bored) for test jar (P/N 09T0142), pack of ten pieces.

### Determination of Homogeneity and Miscibility in Automotive Engine Oils

#### Accessories

Continued Table 2: Accessories			
P/N	Picture	Quantity	Description
31T0423		2	Cork for bath thermometer.
25T0905TW		10	Thermometer ASTM 6C with special low-hazardous filling and works certificate.

**Cooling down TLC40-14 and TLC40-14**  
**"extended range"**  
 (methanol used as bath liquid)



**Cooling down TLC80-14**  
 (methanol used as bath liquid)

