

Cold Soak Filtration Test (CSFT) of Biodiesel

ASTM D7501 - IP PM EA - CEN N 403 - CGSB 3.0 No. 142



- ⊕ Completely stainless steel
- ⊕ Drain to empty bath
- ⊕ Overflow protection
- ⊕ Large bath
- ⊕ Very quiet
- ⊕ Multiple options for levelling platforms
- ⊕ Smart rack to position flasks
- ⊕ Up to 12 x 500 mL jars
- ⊕ Optional alarm

General

In this test method, 300 mL of biodiesel (B100) is stored at $4.5 \pm 0.5^\circ\text{C}$ ($40 \pm 1^\circ\text{F}$) for 16 hours, allowed to warm to $25 \pm 1^\circ\text{C}$ ($77 \pm 2^\circ\text{F}$), and vacuum filtered through a single $0.7 \mu\text{m}$ glass fiber filter at controlled vacuum levels of $\sim 70\text{--}85 \text{ kPa}$ (21–25 in. of Hg).

TLB50 bath (see also specification sheet of TLB50) is specially designed to condition the biodiesel samples in 500 mL jars at 4.5°C for sixteen hours. TLB50 bath can be used to maintain the samples at $+25^\circ\text{C}$ after the cold soak test. Tamson offers other types of circulating water baths.

Filtration kit D7501 (P/N 31T2000) consists of: 0.7 micron filters (100 pcs), glass filter funnel and clamp, filter forceps, one litre safety flask, one litre receiving flask, 500 ml graduated cylinder, petri dishes (ten pieces), watch glasses (ten pieces), glass piece with earth lead, stopper with hole (two pieces), stopwatch, and tubing.

The TLB50 Cold Soak bath is a specially designed

Item	Unit	TLB50
Range		-5..+80°C 14..+176°F
230V/50Hz		00T0072
115V/60Hz		00T0071
230V/60Hz		00T0073
Reading	°C or °F	menu selectable
Interface		RS232
Setting	[°C/F]	0.01
Stability*	[°K]	min/max ± 0.02
Uniformity*	[°K]	min/max ± 0.02
Heating	[kW]	2.8W
Heaters		2
Bath volume	[L]	50
Opening bath	[mm]	400 x 314
Depth	[mm]	280
Length	[mm]	430
Width	[mm]	710
Height	[mm]	720
Weight	[kg]	65
Power	[kW]	Nominal 0.8 Maximum 3
Ambient condition	[°C]	18 .. 23
CE		All models conform to CE regulation

* Measured @20°C in water.

bench top unit with programmable digital temperature control suitable for cooling and heating samples in accordance with IP PM EA, CEN N 403, ASTM D7501, and CGSB 3.0 No. 142.

Accuracy

The insulation of the bath and electronic design result in an very stable working temperature of $\pm 0.02^\circ\text{C}$. The set point can be set in steps of 0.01° in the range of -5°C up to $+80^\circ\text{C}$ ($-14..176^\circ\text{F}$). The accuracy on the display is displayed in 0.01°C . Unit is equipped with an integrated compressor.

Temperature readout

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

Cooling medium


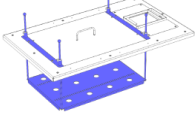
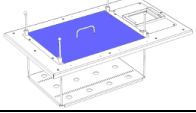
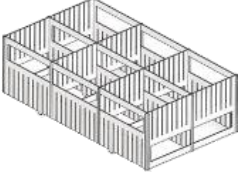
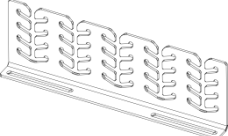

The used cooling system is ozone friendly and doesn't contain any CFK/HCFK gas.

Safety

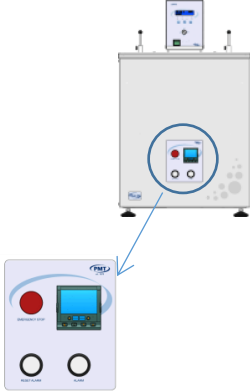
The bath conforms to CE regulation. It is further equipped with a mechanical resettable safety thermostat.

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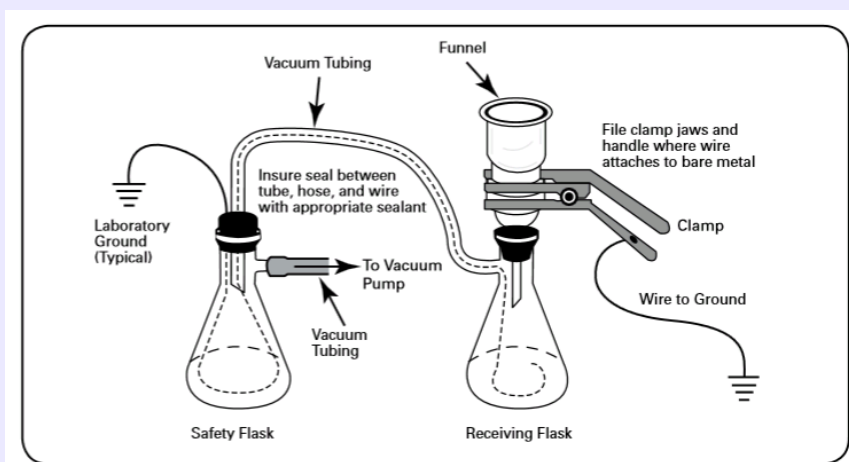
Necessary Cold Soak Bath and Options		
P/N	Picture	Description
<p>00T0072 230V/50Hz</p> <p>00T0071 230V/60Hz</p> <p>00T0073 115V/60Hz</p>		TLB50 Cold soak bath
03T0071		Single levelling platform - Adjustable - One platform - Without lid P/N 03T0080
03T0080		Top lid with handle for single levelling platform (P/N 03T0071).
03T1049		Rack to hold bottles or glassware Combination with 1/2 Rack to be used with P/N 03T0072 - No rack - One 1/2 platform with rack, one 1/2 platform without rack - Both 1/2 platforms with rack P/N 03T1049 comes with: - Three long spacers - Four small spacers This set can be expanded using extra "small - P/N 03T1050" and "Wide - P/N 03T1051" spacers. Two needed
03T1040		Rail to hold bottle bracket(s) preventing bottles from floating. Four pieces are needed for P/N 03T0071.
03T1041		Bottle bracket. Prevents bottles from floating. To be placed in rail (P/N 03T1040). Four pieces are needed.

* Other levelling platforms are available, please see our TLB50 specification sheet.

Optional accessory for Cold Soak Bath		
P/N	Picture	Description
11T0040		Optional alarm to operate within temperature band. Three temperatures are pre set for operation: - Set point temperature, - Minimum allowed bath temperature, - Maximum allowed bath temperature. After reaching the set point temperature, minimum and maximum temperatures are monitored. When the bath temperature exceeds the pre set values following options are available: - Audible alarm, - Potential free external contact, - Switching-off the bath, - A combination of the above. Please contact sales for more specific details.

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Necessary accessories for ASTM D7501		
P/N	Picture	Description
31T2000**	Please see picture above	Filtration kit for ASTM D7501: 0.7 micron filters (100 pieces), glass filter funnel and clamp, filter forceps, 1 litre safety flask, 1 litre receiving flask, 500 ml graduated cylinder, petri dishes (10 pieces), watch glasses (10 pieces), glass piece with earth lead, stopper with hole (2 pieces), stopwatch, and tubing. **
11T0031		Vacuum Pump (230V/50-60Hz), capable of maintaining -80 kPa during filtering.
11T0032		Vacuum Pump (115V/60Hz), capable of maintaining -80 kPa during filtering.
25T0944		ASTM 57C thermometer
00T0239		Thermometer holder
31T0018		500 mL bottle (set of 10 bottles).
13T8044		Tripod complete with clamps (two needed).

** Please see final page for automated alternative, conform IP PM EA.

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Consumables for ASTM D7501		
P/N	Picture	Description
31T0019		Box with 100 glass fiber filters (GF/F), 3 plain, 47-mm diameter, nominal pore size 0.7-µm.
31T0020		Glass funnel and glass filter support with a stainless steel filter screen for a 47-mm diameter glass fiber filter, and locking clamp and stopper, capable of receiving 300 mL.
31T0405		Vacuum filtering flask 1000 mL, Erlenmeyer shape.
31T0023		Ground/bond Wire, 0.912-2.59-mm (No. 10 through No. 19) bare stranded flexible, stainless steel.
31T0024		Forceps
31T0025		500 mL, graduated cylinder 5 mL.
31T0026		Petri dishes (ten pieces), approximately 120 Ø mm x 20 mm (height).
31T0027		Small watch glasses (ten pieces), approximately 60 Ø mm.

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** This manual set-up can be replaced by automated Tamson Filter Blocking Tendency tester. Fully conforms to the latest 'Cold Soak' filterability test requirements for FAME and bio diesel to be used with the TLB50 for IP PM EA. Please also see our TFBT specification sheet.



D7501