HTM2010 Porous Load - Yearly Tests

Rev. 1.3.0011	Porous Load Yearly Summary		
Authority			
Hospital			
Department	Area R5		
Date of Report	08/01/2010 12:21:55	**Dates of Tests**	05/01/2010
Steriliser	**Manufacturer**	L.T.E. Scientific Ltd	
	Serial Number	L7096	
	Reference number	N/A	
	Model	Touchclave K150E Porous Load	
	Usable Chamber Space	150Litre litres	
	Date of Manufacture	18/09/06	
Service Provider	L.T.E. Scientific Ltd		

Results of Yearly Tests

Tests as Specified in HT2010	Ref	Pass/Fail	Cycle No.	Result
Safety checks	**5.8**	**Pass**	N/A	
Steam non-condensable gas test	**9.4**	**Pass**	1933-1935	Concentration of NCG 1.09 %
Steam superheat test	**9.20**	**Pass**	1936	Superheat 0.23 ℃
Steam dryness test	**9.30**	**Pass**	1937	Dryness Value 1.00
Vacuum leak test (before sensors)	**11.2**	**Pass**	1938	Leak rate 0.2 mbar\min
Vacuum leak test (sensors inserted)	**11.2**	**Pass**	1940	Leak rate 1.0 mbar\min
Automatic control test	**12.1**	**Pass**	1941+1942	ST selected 134&12℃ ST hold time 4&20Mins
Verification of calibration	**12.2**	**Pass**	1941+1942	See below
Air detector performance test small load	**11.45**	**Pass**	1945	Leak rate 9.7 mbar\min
Air detector performance test full load	**11.53**	**Pass**	1946	Leak rate 9.7 mbar\min
Thermometric test full load	**13.15**	**Pass**	1949+1952	See below
Thermometric test small load	**13.7**	**Pass**	1948+1951	See below
Performance Re-Qualification	**8.64**	**N/A**	N/A	See Performance Re-Qualification Test (if applicable).
Vacuum leak test (sensors removed)	**11.2**	**Pass**	1953	Leak rate 0.2 mbar\min
Air detector function test	**11.60**	**Pass**	1955	Air Detector Setting 9.7 mbar
Bowie-Dick test for steam penetration	**13.39**	**Pass**	1956	Type of Test Pack Browne TST

List of Calibrated Equipment

Data Logger	
Manufacturer	Fluke
Model	NetDAQ
Serial No.	LTE-LOG16MB
Calibration House	N/A
Cert No.	N/A
Renew date	N/A

Temp Ref Probe	
Manufacturer	Isotech
Model	Fast-Cal Indicator
Serial No.	LT343
Calibration House	TMS Brockwell
Cert No.	13802
Renew date	05/10/10

Heat Source	
Manufacturer	Isotech
Model	Fast-Cal
Serial No.	LT343
Calibration House	TMS Brockwell
Cert No.	13802
Renew date	05/10/10

Pressure Calibrator	
Manufacturer	GE Druck
Model	DPI103
Serial No.	DPVTG5
Calibration House	TMS Brockwell Calibration
Cert No.	12773
Renew date	03/03/10

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Yearly Safety Checks

Rev. 1.2.0010

Safety Check	Completed	Comments
Safety valve(s) operation	Yes	
Condition of door seal	Yes	Replaced Door Seal.
Door interlocking mechanism	Yes	
Door interlock pressure operation	Yes	
Door steam generation / admission interlock	Yes	
Housekeeping	Yes	
Daily record check	N/A	
Weekly record check	N/A	
Quarterly record check	N/A	
Yearly maintenance	Yes	
	N/A	
	N/A	
Results	Pass	

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Steam Non-Condensable Gas Test Porous Load

Rev. 1.2.0010

	Test 1	Test 2	Test 3
Cycle No.	1933	1934	1935
Volume of Gas Collected (Vb)	0.8 cubic cm	0.9 cubic cm	1.8 cubic cm
Vol. of Condensate Collected (Vc)	105 cubic cm	110 cubic cm	105 cubic cm
Fraction of Non-Condensable Gases: 100 x (Vb / Vc) =	Yearly 0.76 % Validation N/A %	Yearly 0.82 % Validation N/A %	Yearly 1.71 % Validation N/A %
Result	Pass	Pass	Pass
Comments	Condensable gases should not exceed 3.5%.	Condensable gases should not exceed 3.5%.	Condensable gases should not exceed 3.5%.

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Steam Superheat Test

Rev. 1.2.0010

Cycle No.	1936		
Temperature in expansion Tube (Te)	99.69℃	Superheat = Te - To =	0.23 °C
Temp. of boiling Water at local atmos. Pressure (To)	99.46 ℃	Validation	N/A
Steam service supply Temperature	110.49 ℃	Result	Pass

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Steam Dryness Test

Rev. 1.2.0010

Cycle No.	1937		
Weight of flask assembly when empty	M1 =	816.5 g	
Weight of flask assembly + cold water	M2 =	1443.3 g	
Initial weight of water in flask	Mw = M2 - M1 =	626.80 g	
Initial temperature of water in flask	To =	21.86 ℃	
Average temperature of steam delivered to Sterilizer	Ts =	139.43 ℃	
Final temperature of water and condensate in flask	T1 =	80.71 ℃	
Weight of flask assembly + condensate collected	M3 =	1513.5 g	
Weight of condensate collected	Mc = M3 - M2 =	70.20 g	
Latent heat of dry saturated steam at temperature Ts	L =	2145.54 kJ/kg	
Dryness value (T1 - To) (4.18Mw + 0.24) / (LMc) - 4.18(Ts - T1) / L	D =	1.00	Validation N/A
Result		Pass	

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Rev. 1.2.0010	Porous Load Automatic Control Test				
Cycle No. 1941	**Sterilisation Temp**		134.0 ℃	**Yearly**	**Validation**
Air Removal	Negative Pulsing	Minimum Vacuum		306 mBA	N/A
		Maximum Vacuum		105 mBA	N/A
		Number		5	N/A
		Duration		00:01:45 hh:mm:ss	N/A hh:mm:ss
	Positive Pulsing	Minimum Pressure		1192 mBA	N/A
		Maximum Pressure		2020 mBA	N/A
		Number		5	N/A
		Duration		00:02:07 hh:mm:ss	N/A hh:mm:ss
Steam Admission and Sterilizing	Time to Attain Sterilising			00:06:55 hh:mm:ss	N/A hh:mm:ss
	Heat Up Time			00:01:46 hh:mm:ss	N/A hh:mm:ss
	Indicated Pressure	Start		3200 mBA	N/A
		Mid		3244 mBA	N/A
		Max		3246 mBA	N/A
		End		3208 mBA	N/A
	Indicated Temperature	Start		135.8 ℃	N/A
		Mid		136.1 ℃	N/A
		Max		136.4 ℃	N/A
		End		136.0 ℃	N/A
	Recorded Pressure	Start		N/A mBA	N/A
		Mid		N/A mBA	N/A
		Max		N/A mBA	N/A
		End		N/A mBA	N/A
	Recorded Temperature	Start		135.3 ℃	N/A
		Mid		135.9 ℃	N/A
		Max		135.9 ℃	N/A
		End		135.8 ℃	N/A
	Measured Pressure	Start		3206 mBA	N/A
		Mid		3206 mBA	N/A
		Max		3245 mBA	N/A
		End		3218 mBA	N/A
	Measured Temperature	Start		136.96 ℃	N/A
		Mid		136.38 ℃	N/A
		Max		136.96 ℃	N/A
		End		136.64 ℃	N/A
	Steriliser Hold Time			00:04:00 hh.mm.ss	N/A hh.mm.ss
Drying	Maximum Vacuum			30 mBA	N/A
	Duration			00:16:13 hh.mm.ss	N/A hh.mm.ss
Air Admission	Duration			00:00:34 hh.mm.ss	N/A hh.mm.ss
Total Cycle Time	Duration			00:27:42 hh.mm.ss	N/A hh.mm.ss
				Result	**Pass**

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Rev. 1.2.0010	Air Detector - Performance Test Small Load		
Cycle Number	1945	**Yearly**	**Validation**
Load Temp. (Tp) at the Start of Plateau Period		133.32 °C	N/A
Drain Temp. (Tc) at the Start of Plateau Period		134.21 °C	N/A
Temperature Depression (Tc - Tp)		0.89 °C	N/A
Induced Leak Value		9.7 mbar\min	N/A
Air Detector Trigger Point Set Up		75.0 °C	N/A
Induced Leak to be used on future Air Detector Function Tests		9.7 mbar\min	N/A

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Rev. 1.2.0010	Air Detector - Performance Test Full Load		
Cycle Number	1946	**Yearly**	**Validation**
Load Temp. (Tp) at the Start of Plateau Period		132.76 °C	N/A
Drain Temp. (Tc) at the Start of Plateau Period		134.11 °C	N/A
Temperature Depression (Tc - Tp)		1.35 °C	N/A
Induced Leak Value		9.7 mbar\min	N/A
Air Detector Trigger Point Set Up		75.0 °C	N/A
Induced Leak to be used on future Air Detector Function Tests		9.7 mbar\min	N/A

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Thermometric Test for Full Load

Cycle No. 1949	Sterilisation Temp 134.0 °C	Yearly	Validation
Start of Plateau Period	Drain	134.02 °C	N/A
	Load	133.32 °C	N/A
	Top Sheet	133.44 °C	N/A
	Pressure	2953 mBA	N/A
Start of Holding Time	Drain	134.71 °C	N/A
	Load	134.08 °C	N/A
	Top Sheet	134.20 °C	N/A
	Pressure	3013 mBA	N/A
Mid of Holding Time	Drain	136.38 °C	N/A
	Load	136.30 °C	N/A
	Top Sheet	136.36 °C	N/A
	Pressure	3200 mBA	N/A
Max Values During Holding Time	Drain	136.79 °C	N/A
	Load	136.49 °C	N/A
	Top Sheet	136.56 °C	N/A
	Pressure	3217 mBA	N/A
End of Holding Time	Drain	134.24 °C	N/A
	Load	134.11 °C	N/A
	Top Sheet	134.07 °C	N/A
	Pressure	2983 mBA	N/A
Equilibration time		0:04 mm:ss	N/A mm:ss
Drain Fluctuation		0.21 °C	N/A
Load Fluctuation		0.26 °C	N/A
Max difference between Drain and Load		0.21 °C	N/A
Post vacuum stage time		00:19:51 hh:mm:ss	N/A hh:mm:ss
Pressure at end of vacuum hold		42 mBA	N/A
Load sensibly dry		Pass	N/A
Automatic test requirements met		Pass	N/A
Hold Time		00:04:19 hh:mm:ss	N/A hh:mm:ss
Total Cycle Time		00:41:41 hh:mm:ss	N/A hh:mm:ss
		Result	Pass

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Job Ref: Porous Load 134 4M	Service Provider: **L.T.E. Scientific Ltd**	Test Name: HTM2010 Porous Load 134C
Cycle No.: 1949	Site Name:	Test Date: 07/01/2010
Serial No.: L7096	Operator:	Start Time: 11:31:37