

### SciLog DN 3131: SciTemp Temperature Sensor, Post Autoclaving Sensor Response

**Objective:** Test SciTemp Sensor Response after Repeated (3) Autoclaving Cycles. Autoclaving Conditions: Sterilization Temperature: 257°F (125°C); Sterilization Time: 30min., Pressure: 19 psi, Drying Time: 30min.

SciTemp, Luer Sensor ID	Pre-Autoclave			Post Trial 1			Post Trial 2			Post Trial 3		
	NIST T1	SciTemp T2	ΔT	NIST T1	SciTemp T2	ΔT	NIST T1	SciTemp T2	ΔT	NIST T1	SciTemp T2	ΔT
A1-210164-0108	25.07	25.00	0.07	25.01	25.03	-0.02	24.88	24.96	-0.08	25.05	24.96	0.09
A1-210165-0108	25.07	25.02	0.05	25.01	25.05	-0.04	24.88	24.96	-0.08	25.05	25.05	0.00
A1-210166-0108	25.07	25.04	0.03	25.01	25.06	-0.05	24.88	24.98	-0.10	25.05	NR	
A1-210167-0108	25.07	25.05	0.02	25.01	25.04	-0.03	24.88	24.91	-0.03	25.05	24.98	0.07
A1-210168-0108	25.07	25.06	0.01	25.01	25.05	-0.04	24.88	24.94	-0.06	25.05	25.07	-0.02
Group Average		<b>25.03</b>			<b>25.05</b>			<b>24.95</b>			<b>25.02</b>	
Group SD*		<b>0.02</b>			<b>0.01</b>			<b>0.03</b>			<b>0.05</b>	

\* SD = Standard Deviation

NR = No and/or Erratic Response

**Test Protocol:** Prior to autoclaving, factory-calibrated SciTemp sensors (5) were removed from inventory and temperature-tested at 25.00 °C in a temperature equilibrated glove box. The "out-of-box" sensor response data is listed as "Pre-Autoclave" in the table above. The SciTemp sensor air-vent as well as the 8-pin sensor connector were sealed with autoclavable tape (Cole-Parmer P/N: EG-08277-62). The sensors were placed into a paper bag (6 1/2"x 4" x12 3/8"), sealed with tape and placed in a Tuttnauer EZ9 Autoclave. The following conditions were maintained throughout the three autoclaving trials: 1.Sterilization Temperature: 257°F (125 °C); 2.Sterilization Time: 30 min; 3.Sterilization Pressure: 18 psi, 4.Drying Time 30 min.

After each trial, the SciTemp sensors were placed in a temperature equilibrated glove box for 45 minutes. Utilizing a peristaltic pump, a temperature equilibrated solution (0.100 molar KCl, 25 °C) was re-circulated through the in-line SciTemp sensor assembly. An in-line NIST-traceable thermistor was used as a temperature reference.

Four of the five SciTemp sensors survived the three autoclaving trials while maintaining good sensor accuracy and precision during the initial autoclave cycles. All trial measurements were carried out with the original factory calibration. No sensor calibration were made before, during or after the three post-autoclave trials.

**Summary:** *Sensor accuracy becomes increasingly compromised after the multiple autoclave cycles. For accurate performance, sensors should not be autoclaved more than two times.*

**NOTE:** SciLog sensors have been designed for disposable, single-use applications. However, with proper care, the sensors can be re-used while maintaining good accuracy and precision. If required, sensors can be re-calibrated.

**CAUTION:** Do Not Exceed Maximum Pressure of 60 psi

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