

Frederick National Laboratory for Cancer Research <small>sponsored by the National Cancer Institute</small>	HPV Serology Laboratory Standard Operating Procedure	
Use and Maintenance of the ThermoScientific Thermal Mixer		
Document ID: HSL_EQ_013	Version 1.0	Page 1 of 7

Released by/Date Effective:

Author Name	Title	Signature/Date

Approver Name	Title	Signature/Date

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1. PURPOSE

- 1.1. The purpose of this procedure is to set instructions in the proper use and handling of the ThermoScientific Thermal Mixer.

2. SCOPE

- 2.1. This procedure applies to the HPV Serology Laboratory located at the Advanced Technology Research Facility, Room C2007.

3. REFERENCES

- 3.1. ThermoScientific Thermal Mixer user manual
- 3.2. HSL_EQ_013.01: Thermal Mixer Use and Maintenance Form
- 3.3. HSL_GL_001: Waste Disposal at the Advanced Technology Research Facility
- 3.4. HSL_GL_002: Equipment Qualification and Calibration in the HPV Serology Laboratory
- 3.5. HSL_GL_003: Good Documentation Practices for the HPV Serology Laboratory
- 3.6. HSL_GL_006: Reagent Preparation for the HPV Serology Laboratory
- 3.7. HSL_GL_007: Reagent and Chemical Expiry in the HPV Serology Laboratory
- 3.8. HSL_GL_008: Laboratory Flow and Gowning Procedures for the HPV Serology Laboratory
- 3.9. HSL_GL_009: HPV Serology Laboratory BSL-2 Procedures
- 3.10. HSL_GL_010: Control and Request of Documents in the HPV Serology Laboratory

4. RESPONSIBILITIES

- 4.1. The Research Associate, hereafter referred to as analyst, is responsible for reviewing and following this procedure.
- 4.2. The Scientific Manager or designee is responsible for training personnel in this procedure and reviewing associated documentation.
- 4.3. The Quality Assurance Specialist is responsible for quality oversight and approval of this procedure.

5. REAGENTS, CHEMICALS AND EQUIPMENT

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- 5.1. Thermal Mixer (Model # 13657718)
- 5.2. Block for 24 x 2.0 mL microtubes (ThermoFisher, Cat # 13687713 or equivalent)
- 5.3. Block for 96-well PCR microplate (ThermoFisher, Cat # 13687716 or equivalent)
- 5.4. Ster-ahol (VWR, Cat # 14003-358 or equivalent)
- 5.5. Wypalls paper towel (Warehouse, Cat # 79300335 or equivalent)
- 5.6. VWR Traceable Big-Digit Memory Thermometer (VWR, Cat # 10171-388 or equivalent)

6. HEALTH AND SAFETY CONSIDERATIONS

- 6.1. Proper safety precautions should be taken while working in a laboratory setting. This includes, but is not limited to, proper protective equipment such as lab coats, safety glasses, closed-toe shoes, and non-latex gloves.
- 6.2. Refer to the respective SDS when working with any chemicals.
- 6.3. Refer to "HSL_GL_001: Waste Disposal at the Advanced Technology Research Facility" regarding waste disposal processes at the ATRF.

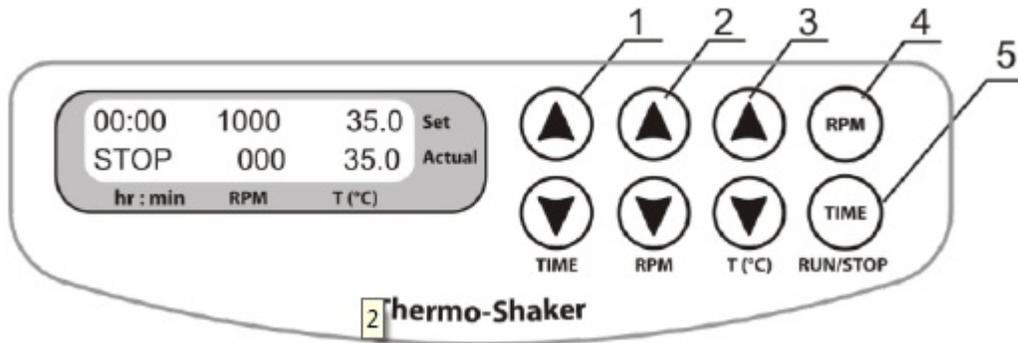
7. DEFINITIONS

Term	Definition
ATRF	Advanced Technology Research Facility
HPV	Human Papillomavirus
HSL	HPV Serology Laboratory
SDS	Safety Data Sheets
SOP	Standard Operating Procedure

8. OPERATION

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8.1. Setting parameters



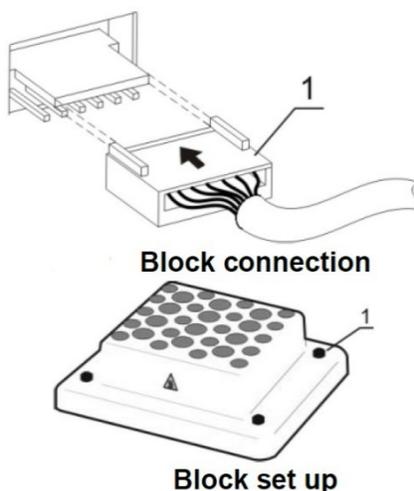
- 8.1.1. **Setting time (TIME).** Using the ▲ and ▼ **TIME** button set the required working time interval in hours and minutes (increment 1 min). Pressing the button for more than 3 seconds will increase the increment rate.
- 8.1.2. **Setting speed (RPM).** Using the ▲ and ▼ **RPM** button set the required speed (increment 10 rpm). Pressing the button for more than 3 seconds will increase the increment rate.
- 8.1.3. **Setting temperature (T, °C).** Using the ▲ and ▼ **T, °C** button set the necessary temperature (increment 0.1°C). Pressing the button for more than 3 seconds will increase the increment rate.
- 8.2. Press the **RPM-RUN/STOP** button. The platform will start rotating and the timer indicator will start counting up the time interval (with 1 min precision).
- Note:** If the rotation speed is set to zero, pressing **RPM-RUN/STOP** key will start the timer but the platform will not move.
- 8.3. After finishing the program (after the set time elapses) the platform motion will stop and the timer will show the flashing reading **STOP** accompanied by the repetitive sound signal until the **RPM-RUN/STOP** button is pressed.
- 8.4. If the working time is not set (or is reset) and the timer indicator in the upper line shows 00:00, pressing the **RPM-RUN/STOP** button will start continuous operation of the device with countdown timer in the lower line (Actual) until the **RPM-RUN/STOP** button is pressed again.
- 8.5. If required, there is the possibility to restart the timer when it is running. Press the **TIME-RUN/STOP** key once to stop the timer. Press the **TIME-RUN/STOP** button again to restart the timer.
- 8.6. The platform motion can be stopped at any time by pressing the **RPM-RUN/STOP** button. In this case the program realization and the platform motion will stop and the timer will switch into the **STOP** mode saving previously set time. Press the **RPM-RUN/STOP** button to repeat the operation with the same time and speed.

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- 8.7. After finishing the operation set the power switch, located on the rear panel of the unit, in position O (Off) and disconnect the external power supply from electric circuit.

9. BLOCK INSTALLATION

- 9.1. Turn OFF the unit. Disconnect the external power supply from the unit.
- 9.2. Remove the four knurled screws (labeled #1 on “Block set up” picture below), lift the block without damaging the cable and disconnect the plug (labeled #1 on “Block connection” picture below).
- 9.3. Choose the block, connect the plug to the contact terminal according to the scheme on the picture below (labeled #1 on “Block connection”) on the underside of the block. Make sure that the connector is mounted tightly.



- 9.4. Align the block so that the warning labels (hot) is facing the front of the unit.
- 9.5. Secure with the four knurled screws (labeled #1 on “Block set up” picture above).

10. USE

- 10.1. Pre-Heat incubator block prior to use and insert digital thermometer probe into a micro centrifuge tube (1.5 – 2.0 mL tube) with a thermostable matrix to monitor temperature. The block is ready for use as soon as the temperature reading from the digital thermometer probe is at the desired temperature.

Note: If the PCR tube block is being used, then the digital thermometer probe will rest directly into a single PCR block cup.

- 10.2. Record the temperature (from digital thermometer probe) prior to use and after use on HSL_EQ_013.01: Thermal Mixer Use and Maintenance Form.

11. MAINTENANCE

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11.1. Cleaning

11.1.1. If spill occurs or if heat block becomes visibly soiled, unplug unit and wait for it to reach Room Temperature, then spray with Ster-ahol and wipe using a clean, low-lint wipe. Once dry, plug in unit and allow it to reach temperature.

11.1.2. Document maintenance on HSL_EQ_013.01: Thermal Mixer Maintenance Form.

12. ATTACHMENTS

12.1. Not Applicable.

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13. REVISION HISTORY

Date Changed	Version #	Changes	Reasons
15Mar17	New	Create new SOP for the use and maintenance of the thermal mixer	New SOP.

Thermal Mixer Use and Maintenance Form

Form ID: HSL_EQ_013.01
Associated SOP: HSL_EQ_013

Version 1.0

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Equipment ID:	Calibration Date:	Calibration Due Date:
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Date	Initials	Temperature (in °C)		Disinfectant(s) Used/ Lot Number	Activity Performed/ Data Reference
		Pre	Post		
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A
				<input type="checkbox"/> N/A <input type="checkbox"/> Ster-ahol, Lot #:	<input type="checkbox"/> N/A

Comments:

N/A

Review By/Date:	
QA Review By/ Date:	