



US Environmental Protection Agency Office of Pesticide Programs

**Office of Pesticide Programs
Microbiology Laboratory
Environmental Science Center, Ft. Meade, MD**

Use of Environmental Agency Chamber (Memmert HPP110)

SOP Number: EQ-14-01

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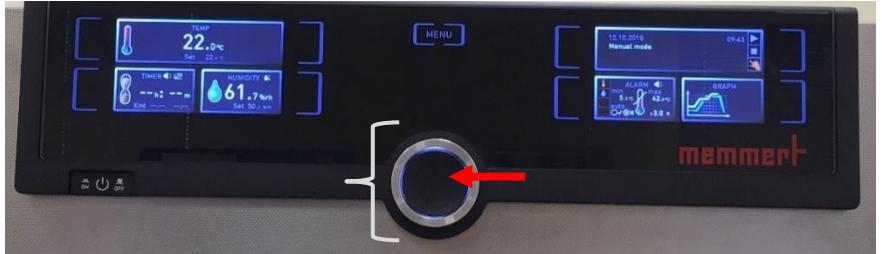
SOP Number	EQ-14-01
Title	Use of Environmental Chamber (Memmert HPP110)
Scope	The purpose of this SOP is to describe procedures for operation and setting parameters for the Memmert HPP110 Environmental Chamber.
Application	The environmental chamber is used to dry inoculated carriers under standard conditions (humidity and temperature).

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1. Definitions	<ol style="list-style-type: none"> <i>Control Panel</i>: a panel near the top of the instrument. This panel is used to set and display the operational parameters of the instrument. <i>Setpoint Readout</i>: the area of the control panel for a parameter (i.e., temperature, timer, humidity, etc.; see Figure 1).  <p>Figure 1. Example of setpoint readout for temperature, timer, and humidity.</p> <ol style="list-style-type: none"> <i>Activation Key</i>: the area just inside the left or right bracket by a setpoint readout (see Figure 2).  <p>Figure 2. Activation keys, denoted by arrows.</p> <ol style="list-style-type: none"> <i>Turn Control</i>: the circular knob at the lower center of the control panel (see Figure 3).  <p>Figure 3. Turn Control with confirmation key (denoted by arrow).</p> <ol style="list-style-type: none"> <i>Confirmation Key</i>: the center section of Turn Control (see Figure 3). Additional abbreviations/definitions are also provided in the text.
2. Health and Safety	Follow procedures specified in SOP MB-01, Laboratory Biosafety.
3. Personnel Qualifications and Training	Refer to SOP ADM-04, OPP Microbiology Laboratory Training.

4. Instrument Calibration	1. The instrument was calibrated and adjusted at the factory. If readjustment is necessary (e.g., due to influence of the chamber load), follow manufacturer's instructions (see 15.1, "Operating Instructions", section 7.5).
5. Sample Handling and Storage	Not applicable.
6. Quality Control	1. Verify instrument quarterly using a NIST traceable thermometer/hygrometer at $22\pm2^{\circ}\text{C}$ and $35\% \pm 5\%$ relative humidity. See section 12.6, "Verification of Temperature and Humidity".
7. Interferences	1. Do not exceed the working range specified by the manufacturer.
8. Non-conforming Data	Not applicable.
9. Data Management	1. Set conditions (temperature/humidity) are documented in study paperwork. In the event the chamber is used at a different temperature and relative humidity range than previously verified, verification should be conducted at the new ranges prior to proceeding with testing (see section 12.6 "Verification and Temperature Humidity").
10. Cautions	1. The use of auxiliary air supply is required to manage humidity controls; auxiliary air supply valve must be in the "on" position when the chamber is in use. 2. Do not exceed a pressure of 5 bar for the auxiliary air (~70 psig).
11. Special Apparatus and Materials	1. Water Tank: plastic jug with DI water connected with a line to the "H ₂ O" connection on the rear of the instrument. 2. Auxiliary Air Supply: for humidity control. 3. NIST traceable thermometer/hygrometer
12. Procedure and Analysis	1. Operate the instrument according to manufacturer's instructions (see 15 "References"). 2. The procedures in this SOP are for operation and control of temperature and humidity in manual mode without alarms. When the instrument is powered on, the initial display shows "Manual mode" in the upper right section of the control panel and a colored dot in the circle next to the "x" in the ALARM section.

12.1 Setting the desired parameter values	<ol style="list-style-type: none">a. Open the instrument's door by pulling the door handle to the right. Verify that the instrument is empty.b. Turn on the instrument by pressing and releasing the On/Off toggle switch on the front of the instrument. The instrument control panel will be displayed if the instrument was successfully powered on.c. Set the desired temperature by pressing the activation key next to the temperature readout (TEMP), turning the Turn Control to the desired value, and pressing the confirmation key. The display will show the set and actual temperatures.d. Set the desired humidity value by pressing the activation key next to the humidity control readout (HUMIDITY), turning the Turn Control to the desired value, and pressing the confirmation key. The display will show set and actual humidity values.
12.2 Operating the instrument	<ol style="list-style-type: none">a. Once the desired parameters are set, the instrument will adjust to reach the desired result.b. The instrument is ready for use when the desired parameters are reached.c. Turn off the instrument by pressing and releasing the On/Off toggle switch.
12.3 Displaying the temperature or humidity graphically	<ol style="list-style-type: none">a. In the lower right section of the control panel, press the activation key by the GRAPH readout.b. Select temperature or humidity by pressing the activation key in the upper left of the control panel, turning the Turn Control for the desired selection, and pressing the confirmation key.c. A wide or narrow range of display on the vertical axis may be selected in the upper right of the control panel.d. The time display may be scrolled by the activation key in the lower left, using the Turn Control to scroll.
12.4 Using auxiliary air for humidity control	<ol style="list-style-type: none">a. To manage the humidity, the use of auxiliary air supply is required. Turn on valve when chamber is in use.b. An auxiliary air setting of 10-20 psig often has proven advantageous but not necessary.
12.5 Downloading data	<ol style="list-style-type: none">a. Download data via the chamber's USB port on the lower, right edge of the control panel.b. To download data

	<ol style="list-style-type: none">i. Connect the EPA-approved USB storage medium (e.g., a flash drive) to the USB port on the instrument.ii. Press the MENU key at the top center of the control panel.iii. Press the activation key on the right side of the PROTOCOL display.iv. Use the Turn Control to select the time period (e.g., "This Month," "This Year") desired.v. Press the confirmation key. The transfer begins.vi. When the transfer is complete a check mark appears by the time period selected.vii. Remove the EPA-approved USB storage medium.viii. Press the MENU key to return to the normal display mode. <p>c. The data files are named in the format "Pryymmdd" where Pr is protocol number, yy is the last two digits of the year, mm is the number of the month and dd is the day of the month.</p>
12.6 Verification of Temperature and Humidity	<ol style="list-style-type: none">a. Power on instrument and set parameters to 22°C and 35% humidity and allow to equilibrate for at least 30 minutes.b. Place NIST traceable thermometer/hygrometer into the chamber and let sit for at least 30 minutes.c. After thermometer equilibrates, record temperature and % humidity on the external instrument panel and then open the door and record the thermometer/hygrometer reading.<ol style="list-style-type: none">i. Record results on the form (EQ-14_F1) in the Environmental Chamber Quarterly Record Book.ii. Both the instrument and the NIST traceable thermometer/hygrometer must be within the required range of $22 \pm 2^\circ\text{C}$ and $35\% \pm 5\%$ humidity. Adjust the instrument accordingly to meet the required range.
13. Data Analysis/ Calculations	<ol style="list-style-type: none">1. The downloaded data may be viewed, edited, and plotted in a spreadsheet.2. In the data file, "Tm" shows the date and time, "TS" is the temperature setpoint, "T1R" is the temperature reading, "HS" is the humidity setpoint and "HR" is the humidity reading.
14. Forms and Data Sheets	Forms are stored separately from the SOP under the following file names:

	Quarterly Verification of Environmental Chamber EQ-14-01_F1.docx
15. References	1. "Operating Instructions," Constant Climate Chamber HPP, Memmert GmbH and Company, KG, 03/2017