



**US Environmental Protection Agency
Office of Pesticide Programs**

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

**Standard Operating Procedure for
Verification of Volume Dispensed and Maintenance
of Oxford Automatic Dispenser**

SOP Number: EQ-08-06

Date Revised: 04-15-14

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Title	Verification of Volume Dispensed and Maintenance of Oxford Automatic Dispensor
Scope	This protocol describes the quality control requirements for the Oxford Automatic Dispensor.
Application	Media dispensors are used to accurately measure the volume of media to be dispensed into tubes prior to sterilization. This SOP describes the quality control procedure to ensure proper instrument calibration.

	Approval	Date
SOP Developer:	_____	
	Print Name: _____	
SOP Reviewer	_____	
	Print Name: _____	
Quality Assurance Unit	_____	
	Print Name: _____	
Branch Chief	_____	
	Print Name: _____	

Date SOP issued:	
Controlled copy number:	
Date SOP withdrawn:	

TABLE OF CONTENTS

<u>Contents</u>	<u>Page Number</u>
1. DEFINITIONS	3
2. HEALTH AND SAFETY	3
3. PERSONNEL QUALIFICATIONS AND TRAINING	3
4. INSTRUMENT CALIBRATION	3
5. SAMPLE HANDLING AND STORAGE	3
6. QUALITY CONTROL	3
7. INTERFERENCES	3
8. NON-CONFORMING DATA	3
9. DATA MANAGEMENT	3
10. CAUTIONS	3
11. SPECIAL APPARATUS AND MATERIALS	3
12. PROCEDURE AND ANALYSIS	4
13. DATA ANALYSIS/CALCULATIONS	4
14. FORMS AND DATA SHEETS	5
15. REFERENCES	5

1. Definitions	Abbreviations/definitions are provided in the text.
2. Health and Safety	Follow procedures specified in SOP MB-01, Laboratory Biosafety. The Study Director and/or lead analyst should consult the Material Safety Data Sheet for specific hazards associated with media and reagents.
3. Personnel Qualifications and Training	Refer to SOP ADM-04, OPP Microbiology Laboratory Training.
4. Instrument Calibration	As noted below
5. Sample Handling and Storage	Not Applicable
6. Quality Control	For quality control purposes, the required information is documented on the appropriate form (see section 14).
7. Interferences	<ol style="list-style-type: none"> 1. High volumes or viscous fluids dispensed at high speed will result in extremely high discharge velocities and valve pressures that can damage the valve. 2. Calibration may be affected if the unit is operated at a speed setting other than the range specified (speed knob at 6-7).
8. Non-conforming Data	<ol style="list-style-type: none"> 1. Management of non-conforming data is consistent with SOP ADM-07, Non-Conformance Reports. 2. Document any deviation from the procedure on the appropriate forms (see section 14). Recalibrate the instrument if the percent error is > 5%, as indicated in the manufacturers' instruction manuals (see section 15).
9. Data Management	<ol style="list-style-type: none"> 1. Data will be archived consistent with SOP ADM-03, Records and Archives.
10. Cautions	<ol style="list-style-type: none"> 1. Check hose connections before operating the instrument. 2. Prime the instrument prior to and after use, and between fluid changes, by dispensing at least one liter of de-ionized water through the system. 3. Dispense large volumes at low speed when initiating the process.
11. Special Apparatus and Materials	<ol style="list-style-type: none"> 1. Oxford Automatic Dispenser: Curtin Matheson, Product No. 8885-047004, Serial Number 10012369. Manufacturer claims precision of 0.5%. With polypropylene accessory pack, Catalog No. 387-894, instrument can dispense volumes from 2 mL to 20 mL. 2. 100 mL volumetric flasks

	<ol style="list-style-type: none"> 3. Serological pipettes 4. De-ionized water 5. Ethanol (70%) 6. Bleach 6% solution diluted 1:10
<p>12. Procedure and Analysis</p>	<ol style="list-style-type: none"> 1. The instrument is set to deliver 10.3 mL aliquots of liquid. The set volume is based on volume loss during autoclaving as observed on historical data. In the event that a different volume is set, conduct verification of the specific target volume prior to use. Follow instructions in 12.2 for different target volumes. 2. Verify the volume dispensed on a monthly basis. <ol style="list-style-type: none"> a. Dispense ten 10.3 mL aliquots of de-ionized water into a 100 mL volumetric flask. Calibrate the instrument when set at a speed between 6 and 7. Speed can be adjusted using the speed control knob. b. If the amount of liquid dispensed is above 100mL volume mark, use a 5 mL serological pipette to determine the volume that is greater than 100 mL. c. If the amount of liquid dispensed is below the 100 mL volume mark, use a 5 mL serological pipette to determine the volume that is necessary to bring the level to the 100 mL volume mark. d. Calculate the volume dispensed and percent error, see formula in section 13. e. The error must be within $\pm 5\%$ or the machine must be re-calibrated. Follow section 12.2 for recalibration. If after recalibration instrument is outside the accepted percent error, contact the manufacturer for further instructions. 3. Clean the instrument on a monthly basis to avoid the buildup of biofilm (visible pink film) in the hose lines. <ol style="list-style-type: none"> a. Flush the tubing and syringe with 70% ethanol or with bleach 6% solution diluted 1:10 (one part bleach + nine parts de-ionized water). b. Rinse tubing and syringe with de-ionized water. Let approximately one liter of de-ionized water run through the tubing.
<p>13. Data Analysis/ Calculations</p>	<p>Percent error formula:</p> $\text{Percent Error} = \frac{(103 - \text{amount of liquid actually dispensed})}{103} \times 100$

