Standard Operating Procedure (SOP): Dry Misting with HOCl and Laser Coverage Verification

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Purpose

This SOP explains how to perform dry misting with Hypochlorous Acid (HOCl) and verify room coverage using a laser tool. The goal is to ensure safe, even, and effective disinfection of enclosed spaces such as classrooms, offices, gyms, healthcare rooms, and other facilities.

Scope

This procedure applies to anyone operating GEIA dry-misting or dry-fogging systems using HOCl solutions for air and surface treatment.

Responsibilities

- Operators must follow these steps exactly.
- Supervisors are responsible for training and checking compliance.
- Maintenance staff must keep equipment in working condition.
- All staff should be ready to answer questions about HOCl and explain its benefits.

Required Materials & Equipment

- **HOCl Solution** (max 300 ppm unless approved otherwise):
    - Pre-mixed liquid HOCl or pre-dissolved tablets.
    - **Dilution / Tablet Instructions:**

        - **334 mg tablets:** 10 tablets per 1 gallon of clean drinkable water (~300 ppm)
        - **3.3 g tablets:** 1 tablet per 1 gallon of clean drinkable water (~300 ppm)
        - **6.55 g tablets:** 1 tablet per 2 gallons of clean drinkable water (~300 ppm)
    - Always dissolve tablets in a separate container of clean drinkable water before filling the machine.
    - **Important:** Use *only* Hypochlorous Acid (HOCl) in GEIA equipment. **No other chemical should ever be used** in any GEIA unit.
- **Clean Drinkable Water** for dissolving tablets.
- **Premixing Container or Jug** for preparing HOCl before filling the machine.
- **Dry Misting or Dry Fogging Machine** (produces sub-5 micron droplets).
- **Laser Beam Visualization Tool** for verifying coverage.

Procedure

1. Preparation

1. Read the safety and operation instructions for the misting machine.
2. Inspect the machine for clean filters, proper operation, and full battery or power connection.
3. If using tablets, dissolve them separately in clean drinkable water. Only HOCl should be used in the reservoir.
4. Ensure the unit is placed on a flat, level surface before starting. **Do not move the unit while in operation.**

2. Dry Misting Application

1. Position the machine in the center or at key points for full room coverage.

2. Turn on the machine and mist for the recommended time (5–15 minutes per 5,000 cubic feet).

3. Watch the mist pattern — it should rise evenly and spread throughout the space. Use the laser to observe the mist and detect airflow to ensure correct equipment placement and effective coverage.
    - Airflow is the key to properly filling a space.
    - Once you can see a solid laser beam across the room and into each corner, the space is filled.
    - Make sure airflow is not pushing the mist out of the room; the mist should hang in the room for approximately 45 minutes at minimum.
    - Over-fogging can set off smoke detectors. Do not place equipment directly under smoke detectors.
    - In more humid environments, a towel may be necessary in front of the unit to capture condensation in the immediate splash zone and prevent wet floors or surfaces.

4. Record the misting duration for future reference.

5. Ensure the unit remains stationary and level during operation.

3. Laser Verification of Coverage

1. After misting, scan the room with the laser beam.

2. Pass the beam horizontally, vertically, and diagonally — check corners and under surfaces.

3. A fine visible haze in the beam path means proper coverage.

4. If some areas show no haze, re-mist those zones.

5. Never point the laser at people; avoid direct eye exposure.

4. Contact Time

1. Allow the mist to settle and stay in contact with surfaces for the required dwell time.

2. Do not ventilate the area until contact time is complete (unless directed by facility policy).

5. Post-Application Steps

1. Ventilate the room if needed (usually unnecessary at ≤ 300 ppm).
2. Complete the log (see template below).
3. Follow a consistent misting schedule — for example, daily at 6 AM.
4. If using the Ayrus, the unit should be fully drained before storing.

Maintenance & Storage

- Wipe the exterior of the machine daily after use.
- Rinse the tank weekly with clean drinkable water and let it air-dry.
- Never store HOCl inside the tank for more than 72 hours.
- Keep HOCl solution away from direct sunlight and heat; store between 50°F – 80°F.
- Replace any worn hoses, discs, or nozzles immediately.
- Keep laser lenses clean for accurate visibility.
- Keep lasers charged for best use.

Troubleshooting Guide

Issue	Likely Cause	Action
Weak mist output	Low solution level, clogged disc or line, or damaged misting component	Ensure that there is solution in the machine, check for clogged lines (Luvian), and inspect for cracked coins in the Ayrus. Follow the instructions for replacing the coins if necessary.
Uneven coverage	Poor placement or airflow	Monitor airflow using the laser, reposition

Issue	Likely Cause	Action
		the unit, and let the airflow do the work for you. Ventilation may need to be turned off.
Laser beam faint	Dirty lens or weak battery	Clean lens, charge battery, and ensure you're using a 3000-meter high-powered laser (available directly from GEIA or your distributor).
HOCl odor strong	Concentration too high	A light pool smell is normal, but if the odor is very strong you may have too high of a dilution. Ensure the solution is 300 ppm or under.
Luvian not fogging	Unit empty or in initial tank charge phase	Ensure that there is solution in the unit. Remember that there is a 7–10 minute 'charging the tank' period before fogging begins when filling the machine for the first time or after it has been emptied. Turn the unit on with a 15-minute timer and wait for fog to begin flowing from the fog stacks.

Documentation & Log Template

Date	Time	Operator	Area / Room	HOCl Concentration	Run Time (min)	Laser Verification OK (Y/N)	Notes / Re-Mist Areas	Supervisor Initials

Daily Operator Checklist

1. Premix HOCl solution at 300 ppm maximum.
2. Fill the unit appropriately.
3. Place the unit in the correct spot, ensuring it is on a flat and level surface.
4. Turn on the unit and set the time appropriate for the size of the space. **Do not move the unit while in operation.**
5. Monitor the mist using the laser to verify proper airflow and coverage.
6. Turn off the machine once the space is appropriately filled. Store and/or drain the unit as needed.
7. Place the laser on its charger or store it with the unit to prevent loss.
8. Store any unused HOCl in a cool, dark place.
9. Update your log according to your facility's requirements.
