Do-It-Yourself
MOLD, GERM & ODOR PREVENTION, INSPECTION, TESTING & REMEDIATION

A Complete Guide for BioBlaster Ozone Generators

by Phillip and Divine Fry
Certified Mold Inspectors
Certified Mold Remediators
Certified Environmental Hygienists
Certified Ozone Professionals

2025 Edition

Published for BioBlaster Ozone Generators

4456 N. Abbe Rd #103

Sheffield Village, OH 44054

DISCLAIMER: This guide is for informational purposes only. The authors and publisher are not responsible for any actions taken based on the information provided. Always consult with qualified professionals for specific mold remediation projects.

Table of Contents

Chapter 1

Mold, Germ & Odor Prevention

Prevention is the best way to battle mold growth, germ contamination, and offensive odors in your home, office, workplace, or commercial building. Airborne mold spores from indoor mold growth—whether visible or hidden inside heating/cooling equipment, ducts, walls, ceilings, floors, attics, basements, and crawl spaces—can travel through air currents to cause serious, and sometimes life-threatening, health problems.

Why Prevention Matters

According to the World Health Organization, the most important means for avoiding adverse health effects is preventing persistent dampness and microbial growth on interior surfaces and building structures. The presence of many biological agents in indoor environments is due to dampness and inadequate ventilation.

Key facts about indoor air quality and mold:

- 94% of all respiratory ailments are caused by polluted air (American Medical Association)
- Indoor air pollutant levels may be 2-5 times higher than outdoor levels (U.S. EPA)
- Most people spend up to 90% of their time indoors
- 90% of chronic sinus problems are caused by mold exposure (Mayo Clinic)

Understanding How Mold Grows

Mold spores are the primary means of mold reproduction. These microscopic spores travel through the air to find new sites for colonization. All organisms digest food, but mold does its digestion outside its body by excreting enzymes that break down materials into simpler compounds.

Mold needs three things to grow:

- An edible substrate (organic materials like wood, paper, fabric)
- Air with adequate humidity (generally above 60%)
- A thin film of moisture at the surface

The Four Most Dangerous Indoor Molds

The following toxic mold species are most frequently found growing in homes, apartments, offices, and commercial buildings:

- Stachybotrys ("Black Mold") - requires very wet conditions, extremely toxic

- Cladosporium - can grow at lower humidity levels, common allergen
- Penicillium - produces mycotoxins, spreads rapidly
- Aspergillus - causes serious lung diseases, especially dangerous for immunocompromised individuals

Common Mold Health Symptoms

A mold victim may experience one or more of the following symptoms:

- Allergies and asthma attacks
- Breathing difficulties and coughing
- Chronic fatigue and general malaise
- Headaches and memory difficulties
- Skin rashes and dermatitis
- Sinus congestion and recurring colds
- Eye irritation and vision problems
- Central nervous system effects

Essential Prevention Strategies

Follow these proven strategies to control moisture and prevent mold in your environment:

Control Indoor Humidity

- Maintain indoor humidity between 30-50% using a digital hygrometer to monitor levels
- Use dehumidifiers in basements, crawl spaces, and other damp areas
- Avoid using humidifiers unless indoor humidity drops below 30%
- Run exhaust fans during and after showering or cooking

Fix Water Problems Promptly

- Repair all leaks within 24-48 hours—mold can begin growing in just 24 hours
- Ensure proper grading around your foundation (slope away from the house)
- Keep gutters clean and downspouts directed away from the building
- Waterproof basement walls and floors as needed

Improve Ventilation

- Ensure all exhaust fans vent directly outside (not into attic or walls)
- Open windows when weather permits to increase air circulation

- Move furniture away from walls to allow air circulation
- Install programmable exhaust fans in attics and crawl spaces

Ozone Treatment for Prevention

High-output ozone generators, like the BioBlaster series, are highly effective for killing mold spores, eliminating odors, and preventing future mold growth. Ozone (O3) is a powerful oxidizer that destroys mold, bacteria, viruses, and odor-causing compounds at the molecular level.

Benefits of ozone treatment for mold prevention:

- Penetrates porous materials where mold spores hide
- Reaches areas impossible to clean manually
- Eliminates musty odors at the source
- Kills airborne mold spores throughout the entire space
- Leaves no chemical residue

For preventive treatments, run a BioBlaster ozone generator for 2-4 hours in each area quarterly, or after any water intrusion event. Always ensure the space is unoccupied during treatment and allow adequate time for ozone to dissipate before re-entry.

Chapter 2

Mold, Germ & Odor Inspection

Effective and comprehensive mold inspection has two essential parts: a thorough physical examination of your property for evidence of water intrusion and mold problems, and actual mold testing in suspect areas to determine the extent of any infestation.

Your Best Inspection Tools: Your Nose and Your Eyes

Smelling mold is one of the best indications of a potential mold problem. While people's sense of smell varies, a musty or moldy odor is a clear warning sign that should not be ignored. Use your eyes to look for visual signs of mold growth, water stains, and moisture damage.

The Three Factors That Enable Mold Growth

- Organic nutrients: clothing, drapery, leather, carpet, drywall, insulation, wood, and cellulose-based materials
- Moisture or wetness: lasting longer than 24 hours or humidity above 60%
- Poor air circulation: prevents drying of wet materials

Comprehensive Inspection Checklist

Use a flashlight to see in dark corners and recesses. During your inspection, look for:

- Musty or moldy odors in any area
- Visible mold growth (may appear as black, green, white, or orange spots)
- Water stains on ceilings, walls, or floors
- Peeling paint or wallpaper
- Warped wood or buckling floors
- Condensation on windows or pipes
- Efflorescence (white powder) on concrete or masonry
- Rust or corrosion on metal surfaces

Key Areas to Inspect

Bathrooms

- Under sinks and vanities
- Around toilets, tubs, and showers

- Tile grout and caulking
- Exhaust fan condition

Kitchen

- Under sink and around dishwasher
- Behind refrigerator (drip pan)
- Around range hood and exhaust fan

Basement & Crawl Spaces

- Foundation walls and floors
- Sump pump area
- Water heater and HVAC equipment
- Stored items and boxes

Attic

- Roof sheathing for stains or mold
- Insulation for moisture or mold
- Ventilation adequacy
- Around bathroom exhaust vents

Roof Leak Inspection

Roof leaks are a major source of water intrusion. Inspect from both inside and outside:

From the inside (attic):

- Look for water stains, dark-colored wet wood, and soft spots
- Turn off lights and look for daylight coming through holes
- Mark wet spots with chalk for later repair

From the outside:

- Check ridge line for straightness
- Inspect flashing around chimneys, vents, and skylights
- Look for damaged, curled, or missing shingles
- Examine gutters and downspouts for damage

Chapter 3

Mold, Germ & Odor Testing

After completing your visual inspection, the next step is to conduct mold testing to determine the extent and type of any mold problem. Testing provides objective data to guide your remediation efforts.

Types of Mold Testing

Air Sampling

Air sampling captures airborne mold spores to measure their concentration. This helps determine if indoor levels are elevated compared to outdoor (control) samples.

Surface Sampling

Surface samples are collected from visible mold growth using tape lifts, swabs, or scrapings. This identifies the specific mold species present.

Bulk Sampling

Physical samples of contaminated materials are collected and sent to a laboratory for analysis.

DIY Mold Testing Steps

Follow these steps for effective do-it-yourself mold testing:

1. Purchase quality mold test kits with settling plates (petri dishes with growth medium)
2. Always collect an outdoor control sample first (away from the building)
3. Test each room separately, including closets and storage areas
4. Test HVAC registers by holding the plate in the outward airflow
5. Incubate plates for 5-7 days at room temperature
6. Compare indoor results to outdoor control sample
7. Submit samples showing significant growth to a laboratory for species identification

Testing HVAC Systems

Your heating and cooling system can harbor and distribute mold throughout your entire building. Test the following:

- Air flow from each supply register

- Return air intake area
- Filter condition (look for discoloration)
- Drip pan under air handler
- Inside ductwork (may require professional inspection)

Interpreting Test Results

Compare your indoor samples to the outdoor control:

- If indoor colony counts are HIGHER than outdoor: indicates a possible indoor mold source
- If indoor samples show mold types NOT present outdoors: indicates indoor contamination
- If toxic mold species are identified (Stachybotrys, Aspergillus): professional remediation recommended

Chapter 4

Mold, Germ & Odor Removal & Remediation

This chapter provides comprehensive guidance for safely and effectively removing mold from your property. Remember: the biggest challenge in mold removal is eliminating the mold without spreading it further in the process.

Critical First Steps

- Stop the water source immediately—no remediation will be effective if moisture continues
- Respond within 24-48 hours to prevent mold outbreak after water damage
- Remove occupants, especially those with respiratory conditions, from affected areas
- Do NOT use chlorine bleach—it is ineffective at killing mold in porous materials

Personal Protective Equipment (PPE)

Always wear appropriate protection when working with mold:

- N-95 or P-100 respirator mask (minimum)
- Full-face respirator with organic vapor cartridge for large projects
- Protective goggles without ventilation holes
- Disposable coveralls (Tyvek suit) or long sleeves and pants
- Rubber or nitrile gloves extending to mid-forearm
- Disposable shoe covers or rubber boots

The 25 Steps for Safe & Effective Mold Remediation

Phase 1: Assessment & Preparation

8. Document the damage with photographs before starting work
9. Identify and stop the moisture source
10. Conduct mold testing to identify species and extent
11. Turn off HVAC system to prevent spore distribution
12. Gather all necessary supplies and PPE

Phase 2: Containment

13. Set up containment barriers using 6-mil plastic sheeting

14. Cover HVAC registers with plastic and tape
15. Create a double-door entry system with overlapping plastic
16. Establish negative air pressure using exhaust fan vented outside
17. Run HEPA air scrubber inside containment area

Phase 3: Removal

18. Remove and discard porous materials that cannot be saved (drywall, insulation, carpet)
19. Double-bag all contaminated materials in heavy contractor bags
20. HEPA vacuum all surfaces to remove loose spores
21. Scrub structural materials with Borax solution (2 cups per gallon water)
22. For stubborn mold on wood, use wire brush or sanding

Phase 4: Treatment with Ozone

23. Run BioBlaster ozone generator for 4-6 hours in containment area
24. Ensure area is unoccupied—ozone is harmful to breathe at high concentrations
25. For HVAC treatment, place ozone generator at return air intake while system runs on fan mode
26. Allow 2-4 hours for ozone to dissipate before re-entry

Phase 5: Verification & Prevention

27. Apply antimicrobial coating (Tim-Bor or boric acid) to all treated surfaces
28. Conduct post-remediation mold testing to verify success
29. Ensure all areas are completely dry before rebuilding
30. Address the original moisture source to prevent recurrence
31. Monitor humidity levels and maintain below 50%

Using Your BioBlaster Ozone Generator

BioBlaster high-output ozone generators are essential tools for effective mold remediation. Ozone (O3) penetrates porous materials, reaches hidden areas, and destroys mold spores, bacteria, and odors at the molecular level.

Recommended ozone treatment protocol:

- Small rooms (up to 400 sq ft): 2-4 hours of treatment
- Medium rooms (400-800 sq ft): 4-6 hours of treatment
- Large areas (800+ sq ft): 6-8 hours, or use multiple units
- HVAC systems: 4-6 hours with generator at return air intake

- Vehicles: 1-2 hours with windows closed

IMPORTANT SAFETY NOTE: Never occupy a space during ozone treatment. Remove all people, pets, and plants. Allow adequate time (typically 2-4 hours) for ozone to dissipate to safe levels before re-entry.

Materials That Cannot Be Saved

The following water-damaged or moldy materials should be discarded:

- Drywall and plasterboard
- Insulation (fiberglass, cellulose)
- Carpet and padding
- Ceiling tiles
- Mattresses and upholstered furniture
- Paper products and cardboard boxes
- Fabric items that cannot be laundered in hot water

Chapter 5

Workplace Mold, Germs & Odors

Workplace mold problems present unique challenges due to building size, occupancy requirements, liability concerns, and the need for minimal business disruption. This chapter addresses the specific considerations for commercial and institutional buildings.

Common Workplace Mold Sources

- HVAC systems and ductwork
- Roof leaks (especially flat commercial roofs)
- Plumbing leaks in walls and above ceilings
- Condensation on cold surfaces
- Flood damage and poor drainage
- Inadequate ventilation in interior spaces

Employee Health Considerations

Workers in mold-contaminated buildings may experience:

- Increased sick days and reduced productivity
- Respiratory symptoms that worsen at work
- Complaints of headaches, fatigue, and difficulty concentrating
- Allergic reactions and asthma attacks

If multiple employees report similar symptoms that improve when away from the workplace, investigate for indoor air quality issues including mold.

Workplace Remediation Strategies

- Schedule remediation during off-hours or weekends when possible
- Establish containment to protect occupied areas
- Use commercial-grade HEPA air scrubbers
- Consider phased remediation for large affected areas
- Hire certified professionals for large-scale projects

Commercial Ozone Treatment with BioBlaster

For commercial applications, BioBlaster contractor-grade ozone generators provide the high output needed for large spaces and HVAC systems. Treatment can be performed overnight or on weekends to minimize business disruption.

Commercial applications include:

- Office buildings and retail spaces
- Hotels and hospitality facilities
- Schools and daycare centers
- Healthcare facilities (with appropriate protocols)
- Restaurants and food service areas
- Warehouses and storage facilities

Chapter 6

Hurricane & Flood Insurance Claims

When water damage from hurricanes, floods, or other disasters leads to mold growth, understanding the insurance claims process is essential for recovering your losses.

Immediate Steps After Water Damage

32. Document everything with photographs and video immediately
33. Contact your insurance company within 24 hours
34. Begin water removal and drying immediately—don't wait for the adjuster
35. Keep damaged items for the adjuster's inspection
36. Keep all receipts for emergency repairs and temporary housing
37. Create a detailed inventory of damaged property

Understanding Mold Coverage

Review your policy carefully. Mold coverage varies significantly:

- Some policies exclude mold entirely
- Others cover mold only if it results from a covered peril (like sudden pipe burst)
- Coverage limits for mold may be separate from overall policy limits
- Flood insurance (NFIP) has specific mold-related provisions

Tips for Successful Claims

- Get multiple repair estimates from licensed contractors
- Consider hiring a public adjuster for large losses
- Document the timeline of water intrusion and mold discovery
- Obtain professional mold testing and inspection reports
- Keep a detailed log of all communications with your insurer

Chapter 7

Frequently Asked Questions (FAQ)

Prevention Questions

Q: What humidity level should I maintain to prevent mold?

A: Keep indoor humidity between 30-50% year-round. Use a digital hygrometer to monitor levels, and run dehumidifiers when needed. Humidity above 60% creates conditions favorable for mold growth.

Q: Are indoor plants safe if I'm concerned about mold?

A: Indoor plants can harbor mold in their soil and on leaves. If you're mold-sensitive, minimize indoor plants or use only silk/artificial plants. Never overwater plants, and ensure pots have proper drainage.

Q: What flooring is best for mold prevention in basements?

A: Ceramic tile or concrete with waterproofing compound is ideal. Avoid carpet in basements, as it traps moisture and provides food for mold. If you want softer flooring, use washable area rugs that can be removed and cleaned.

Testing Questions

Q: How do I know if I need professional mold testing?

A: Professional testing is recommended if: you smell mold but can't find it, you've had significant water damage, occupants are experiencing health symptoms, or you're buying/selling a property. DIY test kits are good for initial screening.

Q: Can I test my HVAC system for mold myself?

A: Yes. Hold a mold test plate in the direct airflow from each supply register for 15-20 minutes while the system runs. Also test the return air area. Compare results to an outdoor control sample.

Remediation Questions

Q: Why shouldn't I use bleach to kill mold?

A: Chlorine bleach is ineffective on porous materials like wood and drywall. The chlorine cannot penetrate the surface—it only kills mold on the very top. The water in bleach actually provides moisture that helps remaining mold grow. Use Borax, boric acid, or Tim-Bor instead.

Q: How long does ozone treatment take?

A: Treatment time depends on the size of the space and severity of contamination. Generally, 4-6 hours is effective for most rooms. For HVAC systems, run the generator

for 4-6 hours with the system on fan mode. Always allow 2-4 hours for ozone to dissipate before re-occupying.

Q: Is it safe to stay in my home during mold remediation?

A: This depends on the extent of contamination. For small, localized problems, you may be able to stay if proper containment is established. For significant mold growth, especially toxic species like Stachybotrys, temporary relocation is recommended, particularly for children, elderly, and those with respiratory conditions.

Ozone Treatment Questions

Q: How does ozone kill mold?

A: Ozone (O3) is a powerful oxidizer. The extra oxygen atom breaks away and destroys the cell walls of mold spores, bacteria, and viruses. Unlike surface treatments, ozone gas penetrates porous materials and reaches hidden areas.

Q: Is ozone safe?

A: Ozone is safe when used properly. During treatment, the space must be unoccupied—no people, pets, or plants. After treatment, ozone naturally converts back to regular oxygen (O2) within 2-4 hours. Once levels return to normal, the space is safe to occupy.

Q: How often should I use my BioBlaster ozone generator for prevention?

A: For ongoing prevention, quarterly treatments are recommended. Run the unit for 2-4 hours in each area, including treating the HVAC system. Also treat immediately after any water intrusion event, or whenever you notice musty odors.

Appendices

Appendix 1: Indoor Air Quality Inspection Form

Use this form to systematically document your mold inspection findings:

Date: _____ Inspector: _____

Property Address: _____

Outdoor Humidity: _____% Temperature: _____°F

For each room, record:

- Room name/location
- Humidity level (%)
- Temperature (°F)
- Visible mold (Y/N) - describe if yes
- Musty odor (Y/N)
- Water stains (Y/N) - describe if yes
- Evidence of leaks or moisture (Y/N)
- Condition of walls, ceiling, floor
- HVAC register condition

Appendix 2: Mold Inspection & Testing Agreement

When hiring a professional mold inspector, ensure the agreement includes:

- Scope of inspection (areas to be inspected)
- Testing methods to be used
- Number and location of samples
- Laboratory to be used for analysis
- Timeline for receiving results
- Total cost including lab fees
- Inspector's certifications and insurance

Appendix 3: Containment Setup Guide

For effective mold containment during remediation:

38. Use 6-mil clear plastic sheeting

39. Seal edges with duct tape or spray adhesive
40. Create double-door entry: First sheet with vertical slit in center, second sheet overlapping on outside
41. Cover all HVAC registers inside containment area
42. Establish negative air pressure using box fan exhausting outside
43. Plastic should be "sucked in" toward work area when negative pressure is achieved

Appendix 4: Self-Analysis & Interpretation Guide

Interpreting your DIY mold test results:

Normal Results:

- Indoor colony counts similar to or lower than outdoor control
- Same mold types indoors as outdoors
- No toxic species identified

Elevated Results (Action Needed):

- Indoor counts significantly higher than outdoor control
- Mold types present indoors that are absent outdoors
- Any presence of Stachybotrys (black mold)
- High counts of Aspergillus or Penicillium species

When to Seek Professional Help:

- Toxic mold species identified
- Large area of contamination (over 10 square feet)
- Mold in HVAC system
- Occupants experiencing health symptoms
- Hidden mold suspected in walls or ceilings

About BioBlaster Ozone Generators

BioBlaster Ozone Generators are professional-grade ozone generators designed for effective mold remediation, odor elimination, and indoor air quality improvement. Our units produce high-output ozone that penetrates porous materials to kill mold spores, bacteria, viruses, and odor-causing compounds at the molecular level.

Contact Us

BioBlaster Ozone Generators

4456 N. Abbe Rd #103

Sheffield Village, OH 44054

Thank you for choosing BioBlaster for your mold remediation needs!