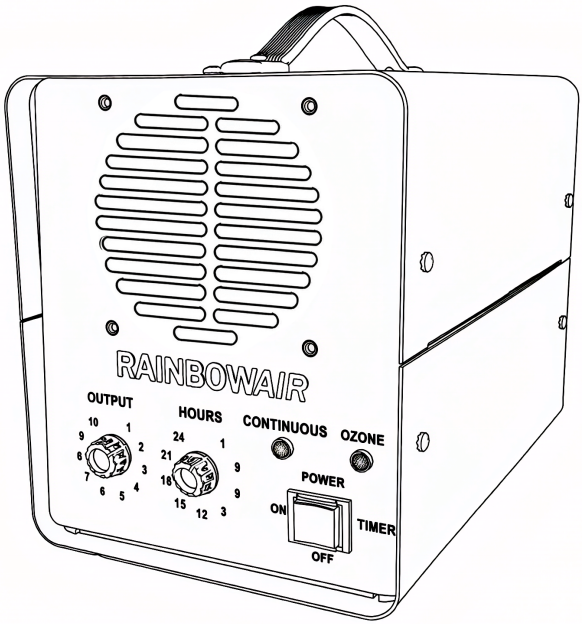
OPERATING INSTRUCTIONS

RAINBOWAIR®

ACTIVATOR 1000 SERIES II

Ozone Generator Model 5401-II



Queenaire® Technologies
9483 State Hwy 37, Ogdensburg, NY 13669
866-676-9663 • info@queenaire.com • queenaire.com
EPA Establishment No. 105458-NY-1

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SPECIFICATIONS

Model	5401-II	Dimensions	11.75"L x 7.5"W x 9"H
Coverage Area	Up to 10,000 sq. ft.	Weight	10.2 lbs.
Ozone Output	Up to 1,000 mg/hr	Electrical	120V, 60 Hz, 57W, 0.5 Amps
Output Type	Variable	Filter	MERV-6
Fan Output	103 CFM	Power Cord	Removable, 6 ft.
Cabinet Color	Black	Life Expectancy	10-15 Years
Timer	Up to 24 hours, or continuous	Warranty	5-Year Limited

SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS — READ BEFORE USE.

⚠ DANGER

For industrial use only. Use only in unoccupied spaces. Health hazard: emits ozone. Ozone at high concentrations is harmful to health and may cause eye, nose, throat, and lung irritation. Remove all people, animals, and plants from the treatment area before operation. Do not re-enter until treatment is complete and the re-entry requirements in this manual have been followed.

⚠ CAUTION

Repeated long-term ozone exposure can degrade natural rubber, certain plastics, electronics, and some natural fibers. Avoid directing prolonged treatment at sensitive materials or equipment.

General Safety Rules

1. Do not operate before reading and understanding all instructions in this manual.
2. Do not use near water or in a wet or damp environment.
3. Operate only with the correct electrical supply voltage specified on the unit label.
4. Do not attempt to service this product yourself — opening the enclosure may expose you to dangerous high voltage. Do NOT put hands inside the unit while it is plugged in.
5. Do not put foreign objects inside the equipment.
6. Do not operate with a damaged power cord or plug.
7. Do not operate if the fan fails to rotate, the unit malfunctions, or it has been dropped or damaged. Return to manufacturer or authorized repair facility.
8. Do not block airflow. Keep at least 6 inches from walls or any structure that could block air intake.
9. Do not use in a flammable or explosive atmosphere.
10. Do not use an extension cord to power this unit.
11. Do not cover the unit during operation.
12. Unplug the unit when not in use and before cleaning or servicing.
13. Keep away from children and pets.
14. Use only for intended purposes as described in this manual.
15. This equipment requires a grounded (3-prong) outlet. Do not alter the plug in any way.
16. Remove all people, animals, and plants from the area before operating.

SAFETY INSTRUCTIONS

Ozone Exposure Limits

Ozone (O_3) is a powerful oxidizer classified by OSHA and the EPA as an upper respiratory irritant. The following permissible exposure limits apply:

Agency	Limit	Duration	Notes
OSHA	0.10 ppm	8-hour average	Legal workplace limit
NIOSH	0.10 ppm	Ceiling, never exceed	Recommended workplace limit
FDA	0.05 ppm	Any time	Limit for medical devices indoor

Possible Effects of Ozone Exposure

The following chart shows what people typically experience at various ozone levels:

Concentration	What You May Notice	Health Concern
Under 0.05 ppm	Faint, fresh smell	Early warning, but smell fades quickly
0.05–0.10 ppm	Noticeable odor	Irritation in sensitive individuals
0.10-0.30 ppm	Strong odor	Cough, throat and eye irritation
0.30–5.0 ppm	Strong, overpowering odor	Chest tightness, lung irritation; leave the area
Over 5.0 ppm	Overpowering	Immediately dangerous to life

Odor detection alone is not a reliable safety measure. People may become desensitized to ozone or may not detect it in all conditions. Always follow the re-entry guidelines regardless of whether you can smell ozone.

Accidental Exposure

If accidental exposure occurs:

1. Evacuate to fresh air immediately.
2. Seek medical attention if any symptoms develop:
   - Burning, watery or irritated eyes
   - Nose and throat irritation or dryness
   - Coughing, chest tightness, or difficulty breathing
   - Nausea or headache
3. Call Poison Control at 1-800-222-1222 for health questions and guidance.
4. If symptoms are severe, call 911.

SAFETY INSTRUCTIONS

⚠ CAUTION

People with respiratory conditions such as asthma or COPD are particularly sensitive to ozone and should avoid any exposure. Never permit at-risk individuals in or near areas being treated.

Recommended Re-Entry Guidelines

- Allow at least 1 hour after the unit shuts off before re-entering the treated area.
- For treatments longer than 1 hour, allow additional dwell time before re-entry. As a general guideline, allow approximately the same amount of time as the treatment duration.

  Example: A 2-hour treatment should generally be followed by about 2 hours of dwell time.
- If an ozone odor is still noticeable upon re-entry, allow additional time and ventilation before occupying the space.
- Opening windows and operating the HVAC system can help speed up ventilation.
- For commercial or professional applications, a calibrated ozone monitor provides the most reliable method of confirming that ozone has returned to a safe level before re-entry.

Emergency Shutdown

If the unit continues operating beyond the set timer duration:

1. Turn off power to the room at the main breaker — this eliminates the need to re-enter.
2. Follow re-entry guidelines above before entering.
3. Have the unit serviced before next use.

Regulations governing the sale and use of ozone-generating equipment may vary by state and local jurisdiction and by type of facility or application. The purchaser and operator are responsible for verifying and complying with all applicable requirements before use.

HOW OZONE WORKS

How the Activator 1000 Generates Ozone

The Activator 1000 uses a process called corona discharge to produce ozone. A high-voltage electrical current passes through the air gap between two ceramic generator plates, stripping apart normal oxygen molecules (O_2) into free oxygen atoms. Those atoms are highly unstable and immediately bond with nearby O_2 molecules to form ozone (O_3). The output dial controls how much electrical current is applied — and therefore how much ozone is produced.

How Ozone Eliminates Odors

Ozone destroys odors through oxidation. The extra oxygen atom in each O_3 molecule is loosely bonded and readily transfers to odor-causing compounds, bacteria, mold, viruses, and other organic contaminants it contacts — breaking apart their molecular structure permanently. This is fundamentally different from air fresheners or fragrances, which simply mask odors. Ozone seeks out and eliminates the source. Because ozone is a gas, it disperses throughout a treated space and reaches surfaces that filters and sprays cannot — penetrating fabrics, walls, ceilings, carpet, and furnishings where odors are deeply embedded. Once its work is done, any remaining ozone naturally reverts to ordinary oxygen (O_2) with a half-life of roughly 20–30 minutes at typical indoor temperatures, leaving no chemical residue behind.

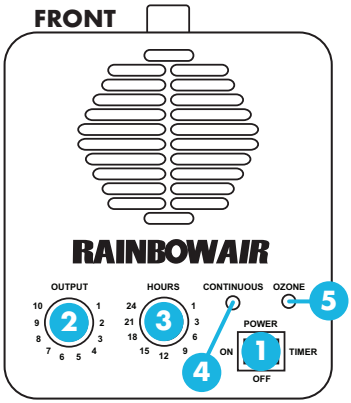
Common Ozone Treatment Applications

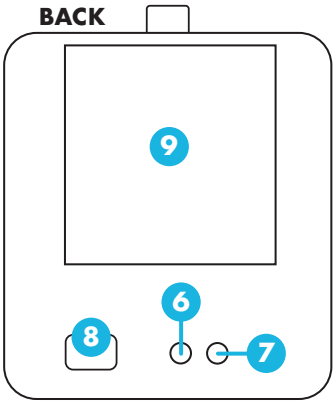
- Smoke odors (cigarette, cigar, cannabis, fire damage)
- Pet odors
- Mold, mildew, and musty odors
- Cooking odors and food odors
- Renovation VOCs (paint, carpet, adhesives)
- Water damage odors
- Certain airborne and surface contaminants

Automobile & Vehicle Treatment

The Activator 1000 can deodorize vehicle interiors with the optional Auto Kit (AUTO-KIT), which directs ozone into the vehicle without placing the unit inside. Available through your preferred distributor or at ozoneexperts.com.

CONTROLS & FEATURES





1. **POWER SWITCH:** Three positions. TIMER runs the unit for the time set on the Timer Dial, then shuts it off. ON runs the unit continuously until it is switched OFF. OFF (center) turns the unit off.
2. **OUTPUT DIAL:** Adjusts ozone output from approximately 100 mg/hr at the lowest setting (1) to 1,000 mg/hr at the highest setting (10).
3. **TIMER DIAL:** Sets treatment time in hours, up to 24 hours, when the Power Switch is set to TIMER. Unit shuts off automatically when the timer expires. For continuous run, set the Power Switch to ON instead. ***Note:*** *The timer knob does not visibly move during operation.*
4. **CONTINUOUS LIGHT:** Lights when the Power Switch is set to ON (continuous run). Not lit in TIMER mode.
5. **OZONE LIGHT:** Lights when the unit is producing ozone.
6. **1 AMP FUSE:** Main power fuse. Check if the unit fails to power on.
7. **0.5 AMP FUSE:** Generator circuit fuse. Check if the unit powers on but produces no ozone.
8. **POWER CORD:** Removable 6 ft. grounded cord. Do not alter or use an adapter.
9. **MERV-6 FILTER:** Air intake filter on the rear. Replace when visibly dirty or discolored.

APPLICATION GUIDE

Use the table below to select the appropriate output level and treatment duration based on room size and odor severity. These are guidelines — actual results vary depending on humidity, temperature, airflow, and contamination level.

Odor Severity	Room Size	Output Setting	Timer Setting
Light / Maintenance	Up to 6,000 sq. ft.	1-2	1 hour
Light / Maintenance	6,000–10,000 sq. ft.	3-5	1 hour
Moderate	< 10,000 sq. ft.	5	2 hours
Moderate	10,000 sq. ft.	6-8	3 hours
Severe / Restoration	Up to 10,000 sq. ft.	9-10	3-6 hours

For severe or long-term contamination, a single treatment may not be sufficient. Repeat the treatment after the full re-entry dwell time if odors persist.

OPERATING INSTRUCTIONS

⚠ WARNING

Remove all people, animals, and plants from the area before operating. This unit produces ozone levels above safe limits for occupied spaces.

Ozone is heavier than air. For best results, place the unit as high as possible in the room — on top of a dresser, shelf, or armoire — with the front facing the center of the room. Turn on the HVAC fan or a portable fan to help circulate ozone throughout the space.

Environmental conditions can affect ozone treatment. Higher temperatures and humidity can cause ozone to break down more quickly, potentially requiring adjustments to treatment time or output.

In humid environments or during humid months, moisture can build up on ceramic plates and cause the high-voltage fuse to blow. Before turning the unit on in humid conditions, blow a hair dryer or heat gun through the front panel for 30–60 seconds to dry out any moisture inside the unit.

Before You Begin

- Clean the space first — ozone is most effective when the odor source has been physically cleaned or removed where possible.
- Ensure all surfaces are dry before starting treatment.
- Open all interior doors (closets, bathrooms) within the treatment area.
- Close exterior doors, windows, and HVAC vents that connect to other spaces.
- Post signage at all entry points noting the treatment start time and expected re-entry time.

Step-by-Step Operation

1. Remove all people, animals, and plants from the area.
2. Position the unit on the tallest available surface with the front facing the center of the room. Keep at least 6 inches from any wall.
3. Turn the HVAC fan to ON, or set up a portable fan to help circulate ozone.
4. Plug into a properly grounded outlet. Do not use an extension cord.
5. Set the Output Dial to the desired level based on odor severity. See the Application Guide for recommendations.
6. Set the Timer Dial to the desired treatment duration. See the Application Guide for recommended times.
7. Set the Power Switch to TIMER and immediately exit the room.
8. The unit shuts off automatically when the timer expires. Do NOT re-enter during operation.
9. Wait for the required dwell time before re-entering (see Recommended Re-Entry Guidelines on page 5).

Continuous Mode: With the Power Switch set to ON, the unit runs until it is switched to OFF. Use TIMER whenever possible to avoid over-ozonating. To end a continuous treatment without entering the space, turn off power at the breaker.

MAINTENANCE & CARE

⚠ WARNING

ALWAYS disconnect the power cord before performing any maintenance or inspection. DO NOT put hands inside the unit while it is plugged in.

The life expectancy of your Activator 1000 Series II is 10–15 years with proper care. Perform routine maintenance every 3–6 months, or sooner if ozone output appears reduced. More frequent service may be needed in dirty or humid environments.

Cleaning the Ceramic Generator Plates

Dirty or damaged plates are the most common cause of reduced ozone output. Inspect and clean regularly.

1. Unplug the unit and allow it to cool completely.
2. Open the top cover by removing the two upper screws on the left and right side of the unit. Lift top cover straight up.
3. Gently slide the ceramic generator plate(s) straight up and out of the generator frame. Handle with care — plates are ceramic and will break if dropped.
4. Inspect each plate carefully for cracks, chips, breaks, heavy discoloration, or burn marks. Replace any plate that is cracked, broken, or has irremovable stains. If signs of arcing or burning are visible on the white generator frame material, call Queenaire Technologies — do not use the unit until this is corrected.
5. If the plate is damp, wet, or has particulate buildup (from fire, smoke, flood, or high humidity use), clean with warm soapy water or denatured alcohol using a stiff bristle brush. Scrub the entire surface area.
6. Rinse thoroughly with clean water. Allow to dry completely — a hair dryer or heat gun will speed drying. Plates must be fully dry before reinstalling. A damp plate will short out and need to be replaced.
7. Wipe the interior of the generator frame with an alcohol wipe, including the metal contact plates. Remove all dust, dirt, and contamination.
8. Reinstall the dry plate(s) into the generator frame, making certain they are seated properly.
9. Replace the top cover and secure all screws.

Verifying Operation After Maintenance

After reassembly, take the unit to a room you can darken. Set the Output Dial to maximum and turn the unit ON. Look into the plate area through the front panel only:

- A consistent purple glow in the plate area indicates normal, correct operation.
- Any other unusual electrical activity — irregular arcing, sparking, or no glow at all — indicates a problem. Turn off immediately and contact Queenaire Technologies before using the unit.

MAINTENANCE & CARE

Replacing the MERV-6 Filter

- Locate the MERV-6 filter on the rear of the unit.
- If the filter appears dirty or discolored, remove and discard it.
- Install a new MERV-6 filter from kit RAKIT54-II.

Checking & Replacing Fuses

Your Rainbowair unit is protected by two user-replaceable fuses located on the rear panel. Always disconnect the unit from power before inspecting or replacing a fuse, and replace blown fuses only with the same type and rating. To remove, push the fuse holder in and turn counter-clockwise until loose, then pull straight out. Do not use pliers.

If a replacement fuse blows repeatedly, it may indicate an underlying issue, such as moisture inside the unit or a damaged generator plate. Allow the unit to dry completely and inspect the generator plate before installing another fuse.

General Care

- Wipe the exterior with a damp cloth. Do not use abrasive cleaners or solvents.
- Store in a dry, clean location when not in use.
- Do not stack objects on top of the unit.
- Contact Queenaire Technologies for replacement parts or authorized service.

Maintenance kit RAKIT54-II is available through your preferred distributor or at ozoneexperts.com. Kit includes: (4) ceramic generator plates, (2) fuses, (6) alcohol wipes, (6) MERV-6 filters, (1) soft bristle brush, and instructions.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Unit Does Not Turn On	Power cord not fully plugged in	Ensure cord is firmly inserted at both the unit and the outlet.
	No power at outlet	Test outlet with another device. Check circuit breaker.
	1 Amp main fuse blown	Inspect and replace fuse. Diagnose moisture or plate issue first if fuse blows repeatedly.
	Damaged power cord	Do not use. Contact Queenaire Technologies.
Fan Runs But No Ozone	Ceramic plate(s) loose or unseated	Remove top cover and reseat plates firmly in the generator frame.
	Cracked, broken, or burned plate(s)	Inspect and replace any damaged plates. Check for arcing or burn marks on the generator frame — if present, call Queenaire Technologies before using.
	Plate(s) damp or wet	Remove plates, clean, and dry thoroughly with a hair dryer. Reinstall only when fully dry.
	0.5 Amp generator fuse blown	Inspect and replace fuse. Diagnose moisture or plate issue first if fuse blows repeatedly.
Reduced Ozone Output	Dirty generator plates	Clean plates thoroughly per Maintenance & Care Section on page 9.
	Dirty or blocked MERV-6 filter	Replace filter on rear of unit.
	Plate worn or discolored	Inspect and replace plate(s) if needed.
Fuse Blows Repeatedly	Moisture in unit	Dry out interior with hair dryer through front panel before operating. Perform maintenance per Maintenance & Care Section on page 9.
	Damaged or shorted generator plate	Inspect and replace plates per Maintenance & Care Section on page 9.
Unit Runs Past the Set Timer	Timer failure	Enter briefly, turn unit OFF, unplug, vacate for at least 2 hours, then have unit serviced before next use. If unable to re-enter safely, turn off power at the main breaker.

LIMITED WARRANTY

30-Day Money-Back Guarantee

Every Rainbowair product comes with our 30-day money-back guarantee. Return the unit within 30 days of purchase in its original carton with all packing materials and proof of purchase for a full refund. Products that have been mistreated, damaged, or altered are not eligible.

5-Year Limited Warranty

Queenaire Technologies warrants the Rainbowair Activator 1000 Series II to the original purchaser to be free from defects in materials and workmanship, when used properly, for a period of five (5) years from the date of original purchase.

Ceramic generator plates are warranted for six (6) months against defects in materials and workmanship, but not against breakage. Any repair performed under warranty is covered only for the remaining unexpired portion of the original warranty period.

What This Warranty Covers

- Defects in materials or workmanship under normal and proper use.
- Repair or replacement of defective parts at Queenaire Technologies' sole discretion.

What This Warranty Does Not Cover

- Units that have been altered, misused, or neglected.
- Damage caused by accident, improper handling, or unauthorized repair.
- Normal wear, consumable items, and breakage of ceramic plates.
- Service performed by anyone not authorized by Queenaire Technologies.

Warranty service must be performed only by an authorized Queenaire Technologies repair center. Proof of purchase and maintenance history must be provided upon request.

Product Registration

Register your product to activate your warranty. Visit queenaire.com/warranty or scan the QR code below.