

WARNING OZONE GENERATOR SAFETY

Any piece of equipment can be dangerous if not operated properly. **YOU** are responsible for the safe operation of this equipment. The operator must carefully read and follow any warnings, safety signs and instructions provided with or located on the equipment. Do not remove, defeat, deface, or render inoperable any of the safety devices or warnings on this equipment. If any safety devices or warnings have been removed, defeated, defaced, or rendered inoperable, **DO NOT USE THIS EQUIPMENT!!!**

DANGER

Ozone is a lung irritant that can cause respiratory distress; ozone generators should not be used when people or animals are present. Exposure to ozone can also result in cough and chest pain on deep inhalation, eye, throat and nose irritation, and increased sensitivity to airborne allergens and irritants. The elderly, families with children, and people with respiratory diseases such as asthma are the most susceptible to the effects of ozone. Always allow ozone to completely dissipate prior to occupying the space it was used in.

Important Safeguards:

- Do Not operate equipment before reading and familiarizing yourself with all instructions, procedures, cautions and warning contained in these Instructions, and save them for later reference.
- Follow all warnings and cautions marked on the product and contained herein.
- Do Not use this product near water or in a moist environment.
- Operate equipment only with the correct electrical power specified on the backside of the case.
- Do Not operate equipment with a damaged cord or plug, it requires a properly grounded electrical outlet, do not modify the plug.
- If fans fail to rotate, after the equipment malfunctions or if it has been dropped or damaged in any manner. Return equipment to A Tool Shed immediately.
- DO NOT attempt to service this product yourself as opening or removing the enclosure may expose you to dangerous voltage or other hazards.
- Do Not put foreign objects inside the equipment, Do Not block air flow through equipment. Set equipment at least 6 inches from walls or any structure that could block the air intake, and Do Not use equipment in a flammable or explosive atmosphere

Warnings & Precautions:

OZONE IS A POWERFUL OXIDIZER THAT REACTS WITH ORGANIC SUBSTANCES AND IS CLASSIFIED BY OSHA AND EPA AS AN UPPER RESPIRATORY IRRITANT. OSHA SETS THE ALLOWABLE EXPOSURE LIMITS AT .05 PPM TO .1 PPM. ALL SAFETY PRECAUTIONS HEREIN MUST BE ADHERED TO AND COMMON SENSE PRACTICED.

The ozone produced by this Total Zone TZ-1 machine is above the allowable exposure limit as set by OSHA for inhabited areas and therefore no person or animal should remain in an area being treated by this unit. The treated area should be aired out or given enough time for the ozone to dissipate to a level below .1 PPM before people or animals are allowed to re-enter. Ozone has an average half-life of 20 minutes, so one hour should be sufficient time for an un-vented room to return to normal. If ozone odors are noticeable and irritating, the area should be vented longer until the level is reduced. The average person can detect ozone at levels as low as .003 PPM

Symptoms of prolonged or excessive exposure to ozone are: burning, watery or irritated eyes, nose, and throat, nausea, headache, difficulty in breathing, dry cough, irritation to nasal passages, throat, bronchial and pulmonary membranes.

Caution:

Only qualified personnel should operate Total Zone Ozone Generators

As with all electrical devices this equipment should not be operated in a wet or damp environment.

All precautions must be taken to prevent over exposure of ozone gas to occupied areas.

Do not disassemble the Total Zone equipment, there are no user serviceable item inside and this will void the warranty.

A Tool Shed, Inc. and International Ozone Technologies Group, Inc. assumes no liability for damages or injuries incurred by misuse of this equipment.

Theory of Operation:

This Total Zone ozone generator is the most modern, technically advanced ozone generation system on the market today. The Total Zone utilizes a patent pending “SP-ARC” (Silicate Polarized Arc) technology. This new technology consists of a module comprised of two quartz sleeves containing a proprietary, highly conductive substance surrounding a stainless-steel electrode. The two sleeves are mounted so as to facilitate a gap between of 3/32”. One electrode is connected to ground while the other is charged with high voltage as a very low current. This charge creates an arc in the air gap between the two sleeves which is known as “Corona Discharge”. When oxygen, O₂, passes through this arc some of the molecules are split resulting in free oxygen atoms. These free atoms combine back with intact O₂ molecules resulting in O₃ which is ozone. The main benefits of our new technology are that it is self-cooling and runs at a lower temperature. Also, all ozone-producing surfaces are comprised of silicate quartz with no metal components that will corrode and need cleaning on a regular basis as in most other corona discharge ozone generators. Our systems are very high output with ***no*** to ***very low*** maintenance.

General Use Guidelines:

Determine the source of the odor and remove any odor causing substance that can be found. If the odor is from a wet or flooded situation dry the entire area well before starting your ozonation procedure.

Determine the size of the area that will be ozonated. Multiply the width by the length by the height to determine the total cubic feet of the area.


The following suggestions are general. The actual time it will take to remove an odor or to purify an area depends on many variables such as pollutant load, temperature, humidity, etc.

Divide the fan output (TZ-1 = 100 cfm) into the total cubic feet to be ozonated. Example: 10’ wide x 10’ long x 10’ high room = 1000 cubic feet. Divide 100 cfm into 1000 = 10. It will take ten minutes for the TZ-1 to completely fill that area with ozone. Our general guide line is, whatever the final figure you come up with once you divide the fan cfm into the total cubic feet of the area you are ozoning you would double that time. Therefore you would run a TZ-1 for 20 minutes per 1000 cubic feet.

In some cases, you will have to go longer and in other cases you will go shorter. Once you have become experienced with using ozone for odor removal you will be able to determine the treatment times from your past experiences.

Set the ozone generator by the air conditioner return if possible. If there is no air conditioning set the unit in the middle of the area. You may want to use additional fans to help distribute the ozone. If there is AC set the thermostat on constant fan and adjust the temperature control to low (cold) setting. Ozone generators work best in a cool, low humidity environment. The secondary benefit of running the AC is that you will purify the inside of the ductwork where mold and mildew love to grow. After the treatment, when the AC is turned on, the air will be clean and fresh with no germs, pollutants or irritants blended into it. The above also should be followed when ozoning automobiles. Smoke and stale odors will stay in a car’s AC ducts if you do not run the AC.

Close all exterior doors and windows. Set the ozone generator’s timer for the time you have determined that will be needed. Make note of this timer, as you do not want to return to the treated area until at least 20 minutes after the equipment has shut off. If you must enter the area before the ozone has had time to convert back to oxygen open all windows and doors to vent the ozone. DO NOT breathe high levels of ozone. Be safe and use common sense at all times when you are using ozone.

 WARNING: Electrical cords, cables, product cords, and wire assemblies made with PVC can expose you to chemicals including DEHP, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65warnings.ca.gov

If the person receiving this handout will not be the user of the equipment, forward these instructions to the operator. If there is any doubt as to the operation or safety of the equipment,

DO NOT USE!! CALL A TOOL SHED IMMEDIATELY!!! FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN INJURY OR DEATH

Ozone Machine Uses

Attic Odors

Musty attic odors are a result of years of accumulated dust with little airflow or light. Run the unit for 2 to 4 hours in the unoccupied attic. Leave the attic closed for an additional 2 to 4 hours to allow the ozone to revert to oxygen. (For any upholstered furniture in the attic a thorough vacuuming before ozone treatment is recommended).

Automobile Odors

Vacuum the carpets, seats and headliner thoroughly. Open both the left front and right rear windows (or available windows if a 2 door vehicle) about 2 inches. Run the ozone unit for 2 hours. Leave doors closed for about 2 hours after the treatment. If possible, operate the heating/air conditioning fan on “reticulating” mode for the first 1/2 hour of ozone treatment so the ozone will be drawn through the internal ducts to eliminate odors from within. Follow with a thorough vacuuming to draw odors from deep within the fabrics and then treat with ozone for a further hour. In the case of strong animal odors or long term tobacco smoke odor additional treatments may be required.

Beer & Alcohol Odors

Bar & Restaurant owners usually operate their ozone unit for a 4 hour period after closing time. The last person out turns the unit on. The ozone will eliminate odors and have disappeared by the time workers return the next morning. For home use a 30 minute to 1 hour treatment will do the job.

Boat Odors

For boats being reopened after a period of storage, a treatment of 1 to 2 hours will eliminate mold, mildew and bilge odors.

Cottage Odors

When opening the cottage after a long period of being closed, a 2 to 4 hour treatment will eliminate odors from mold, mildew and stale air. For stronger odors such as skunk or a dead animal, two treatments of 2 to 4 hours may be required.

Cooking Odors

Operating for ½ to 1 hour in the kitchen to eliminate odors from unsuccessful coking projects, or to simply remove stronger odors such as those caused by fish and garlic.

Decorating & Renovation Odors

Treatment of 4 to 6 hours will eliminate odors caused by furniture stripping, hardwood floor finishing, painting, carpet adhesive. To be effective, paint should be allowed to dry before servicing.

Fire Damage Odors

Odors from smoke and water damage can be removed with an overnight application of ozone at full output in an unoccupied building. It is recommended that carpets, drapes & fabrics be steam cleaned and thoroughly dried prior to ozone treatment. Walls should be wiped down with chemical sponges to remove any carbon buildup. The ozone unit should be run with the central heating/air conditioning operating to help deodorize the ducting as well as other areas of the house.

Flooded Basement Odor

Carpet, upholstery and drapery fabrics must be dry before using ozone. After removing all water, and drying fabrics, operate the unit for 2 to 4 hours. This will start to deodorize carpets & upholstery. Vacuum thoroughly to bring “deep” odors to the surface. Repeat ozone treatment for a further 2 to 4 ours period. Ozone treatments on a regular basis can be used to eliminate mold & mildew odors that may leach out from behind dry walled areas and from under carpets.

Home Care

Personal and illness type odors often are one of the most annoying factors in at home medical care. Occasional ozone treatment of the patient area when the patient and other residents are absent from the home will go a long way to controlling such odors.

Mold & Mildew

Mold and mildew odors can occur in any dark, damp, or basement environment. Ozone will eliminate the odor from mold & mildew. However, any visible mold & mildew should be removed to reduce the possibility of re-occurrence. Mold & mildew that remains under carpets or behind drywall may cause the odors to return and further ozone treatment may be required.

Pet Odors

Run the unit for 15 minutes in the pet's area. The pet should not be present during, or for 1 hour after the ozone treatment.

Plant Odors

Various indoor plants grown by hobbyists may give off unwanted odors. Regular ozone treatment for ½ to 1 hour will control such odors.

Recreational Vehicle Odors

After a long winter or summer storage, an RV can develop stale, musty odors. A simple 2 to 4 hour treatment, with a window open on each side, will freshen the entire vehicle. Operating any internal reticulating ventilation system will also help eliminate any mold & mildew odor from the heating/air conditioning unit.

Rec. Room & Basement Odors

A 30 minute to 1 hour treatment in the rec. room will eliminate party, smoking, beer, mold & mildew odors.

Sewer, Gas, & Septic Backup Odors

Remove all waste water with a wet dry vac. Carpets and fabrics should be thoroughly dried with an "air mover" or "carpet drying fan" before the ozone treatment. Run the ozone unit for 2 to 4 hours. If odors return, vacuum all carpets and fabrics thoroughly and treat with ozone for an additional 2 to 4 hours. If odors leach out of the walls at a later date, an occasional 15 to 30 minute treatment will eliminate odors as they reoccur.

Skunk Odors

Operate the ozone unit for 3 periods of 2 to 4 hours with breaks of at least 2 to 4 hours between treatments. If odors persist after 24 hours, thoroughly steam clean and dry all affected carpets, drapes and furniture followed by the same ozone treatment.

Smoke Damage Odors

Smoke odor from a kitchen fire, or backed up wood stove, can be eliminated by placing the ozone unit in the area for 1 to 2 hours and then in front of the central heating/air conditioning cold air return for a further 1 to 2 hours.

Tobacco Smoke / Stale Air

Eliminate cigarette, cigar or stale air odors in the house or office with a simple 15 to 30 minute treatment in the area.

**Never stay in the same room while the Ozone Generator is operating. No pets should be in the same room while the ozone generator is operating. Prolonged exposure to ozone can be dangerous to your health.*