

# PREVENTATIVE MAINTENANCE CHECKLIST

Biozone's comprehensive preventative maintenance checklist is designed to ensure that your equipment is operating at peak performance and to help identify any potential issues before they become major problems.



## IMPORTANCE OF MAINTENANCE AND SERVICING

- Regular maintenance ensures that the equipment is functioning optimally and efficiently, that results into better air and water quality . This can help prevent issues such as respiratory problems and infections that may be caused by poor air and water quality.
- Regular maintenance also helps to identify potential issues, before they turn into major problems that require expensive repairs or replacements. This can help save money in the long run by avoiding costly repairs and downtime.
- Regular maintenance is often required by Biozone in order to maintain the equipment warranty. If regular maintenance visits are not scheduled with our team, you may risk voiding the equipment's warranty.

# MAINTENANCE CHECKLIST

We believe that a quality preventative maintenance plan is the best method of keeping your equipment working and keeping your overall operation and maintenance (O&M) costs low. Biozone Manufacturing will customize a preventative maintenance plan for your ozone generator. Ozone generators with integrated oxygen use more parts than a standard Ozone generator. Each component is important and must be maintained timeously and properly for the ozone generator and treatment system to operate reliably.

Biozone Manufacturing will provide maintenance or maintenance parts for each component in your Ozone generator to ensure your system continues operating smoothly for the long term.

Preventative Maintenance for Ozone Generators	Steps when assessing an Ozone Generator
<ul style="list-style-type: none"> <li>All ozone generators, parts and components require regular maintenance and servicing.</li> </ul>	<ul style="list-style-type: none"> <li>Disconnect the ozone generator from the main electrical 220v supply</li> </ul>
<ul style="list-style-type: none"> <li>Poorly maintained ozone generators produce poor results.</li> </ul>	<ul style="list-style-type: none"> <li>Disconnect all pipes from ozone tubes and make sure that there is no moisture or dirt inside the tubes.</li> </ul>
<ul style="list-style-type: none"> <li>Ozone generator maintenance and servicing can be simple if it is performed regularly.</li> </ul>	<ul style="list-style-type: none"> <li>If there is any moisture or dirt in the tube, clean and dry or replace the tube with a new one.</li> </ul>
<ul style="list-style-type: none"> <li>Feed gas systems are commonly neglected.</li> </ul>	<ul style="list-style-type: none"> <li>When it is done return all pipes to the original positions.</li> </ul>
<ul style="list-style-type: none"> <li>Ozone leak sensors require calibration.</li> </ul>	<ul style="list-style-type: none"> <li>Check all pipes for leaks and cracks and replace them if needed and Check all pipe connections and tighten or repair if needed.</li> </ul>
<ul style="list-style-type: none"> <li>Ozone tubes and power packs should be kept clean and dust free.</li> </ul>	<ul style="list-style-type: none"> <li>Check all electrical equipment for any faults.</li> </ul>
<ul style="list-style-type: none"> <li>Check valve / non return valves and water traps must be in working condition. Ensure regular maintenance of the Teflon non return valves, keep the non return valves ball, spring and seal in good condition.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the filter pads and replace them if necessary and clean and lubricate all cooling fans.</li> </ul>
<ul style="list-style-type: none"> <li>If neglected, repairs will cost far more than routine maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>Remove dust from the inside of the generator.</li> </ul>

# MAINTENANCE CHECKLIST

## OZONE GENERATOR / WATER TREATMENT PLANT SERVICE

Biozone can conduct on-site services of your integrated system as needed or set-up a Service Level Agreement.

- We offer monthly, quarterly, bi-annually, and annual services.
- Proper service and maintenance is required for long lasting equipment.
- Many times preventative maintenance will cost less than costly repairs.

Examples maintenance Biozone Manufacturing offers:

### OZONE GENERATOR

- Corona cell cleaning to remove contaminants and nitric acid
- Clean high voltage terminals
- Replace/rebuild check valves
- Check and test safety components
- Replace oxygen/dry air feed-gas filter
- Check for and repair ozone leaks
- Check and record proper operating parameters
- Disassemble the ozone cell(s) and clean out nitric acid and other contaminants from high voltage surfaces.
- Replace gaskets, O-rings, fuses, bushings, spacers, and rebuild kits recommended by the manufacturer at least annually.
- Clean high voltage transformer, circuit boards, and electronics of dust buildup.
- Replace cabinet foam filter mats and check cooling fan operation.
- Rebuild check valves and check the backflow device for proper operation.
- Clean gas flow meter(s) and distribution manifolds of nitric acid buildup.
- Test safety interlocks - use an Ohm meter to confirm proper operation.
- Purge the oxygen system as per manufacturer's recommendations before producing ozone.
- Check for ozone leaks.
- Check for proper volts, amps, pressure, vacuum, gas flow, etc. and log parameters daily.

### OXYGEN CONCENTRATOR

- Replace air filters
- Rebuild/replace oxygen purge solenoid valves
- Rebuild/replace drain valve and moisture traps
- Refill/replace molecular sieve material
- Check for proper operation and function of all valves and purging
- Check and record oxygen purity and dew point
- Replace sensor with pre-calibrated sensor
- Perform on-site calibration of sensor
- Verify relay operation for safety interlocks

# MAINTENANCE CHECKLIST

## OXYGEN CONCENTRATOR

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- Rebuild/replace oxygen purge solenoid valves.
- Rebuild/replace drain valve and moisture traps.
- Refill/replace molecular sieve material.
- Check for proper operation and function of all valves and purging.
- Check and record oxygen purity and dew point.

## AIR DRYER

- Ensure silica gel beads are blue. Pink silica gel beads require drying.
- In wet atmospheric conditions the gel will absorb moisture and change colour. As humidity varies greatly with location, the installation of air dryers is an option on some ozone generators. When this happens the silica gel must either be heated up and dried or replaced. The heating up can be done in the oven, microwave oven or direct sunlight.
- First remove the drier from the body of the generator by pulling the two plastic connections out from the side panel connection.
- To remove the silica gel for drying, unscrew the end cap, perforated plate and foam rubber insert. Place the silica gel into a glass or ceramic container and gently heat up until the colour changes back indicating removal of moisture.

## AIR COMPRESSORS

- The air driven ozone generators use a diaphragm air pump and don't require maintenance.
- The air compressors in the oxygen driven ozone generators requires a routine inspection and maintenance.
- Drain the air compressor tank.
- Regularly inspection of the power lead.
- Check the pressure.
- Check the compressor's behavior.
- Check for leaks.
- Check the air filter.
- Visually inspect your air compressor.
- Check the safety valve.

## WATER CHILLER

- Check/refill chiller water
- Replace/flush chiller water
- Rebuild check valves and relief valves
- Rebuild circulation water pump

# MAINTENANCE CHECKLIST

## OZONE/WATER MIXING SYSTEM

- Rebuild injection pump
- Rebuild/replace check valves
- Replace venturi
- Check for proper air vent operation
- Verify accuracy of pressure gauges

## OZONE DESTRUCTOR

- After the unused ozone gas is removed by the de-gas valve, it is sent to the ozone destruct unit. The destruct unit uses a chemical reaction and heat to break down the ozone gas and turn it back to air. Preventive maintenance is required.
- Check catalyst bed differential indicators and replace the catalyst when needed.
- Check vortex blower and heating element operation.
- Check the water trap level and fill the trap with water as needed.
- Check for proper vacuum, temperature, operation and log parameters daily.

## ULTRA VIOLET SYSTEMS

- Preventive Maintenance is required.
- Clean the UV bulbs and components as needed but at least annually.
- Check for proper operation and log parameters daily.

## MEDIA, BAG, AND CARTRIDGE FILTERS

- Preventive Maintenance is required.
- All types of filters require service - backwashing, bag and cartridge replacement, and media change are required daily, weekly, monthly, and annually.
- Check for proper pressure and operation and log parameters daily.

## OZONE MONITORS

### Dissolved ozone

- Replace ORP or dissolved ozone probe
- Replace dissolved ozone probe electrolyte solution and membrane
- Calibrate monitors

# MAINTENANCE CHECKLIST

## SERVICE LEVEL AGREEMENTS

Consider a Service Level Agreement with Biozone - keep your ozone generator systems maintained and serviced.

The Service Level Agreement indicates the ozone generator / treatment system applicable, how often that particular system requires servicing and the estimated cost of the basic maintenance and services for the duration of the SLA period. Our service team will ensure the service is completed on time and as specified in the Agreement.

- Should you require servicing to be done by our technicians please send the unit to our office in North Riding, Johannesburg, for assessment and quote. Our technicians may also service on-site however, this will be quoted accordingly for call out, on-site labor and travel costs.
- For technical assistance or further enquiries please contact us on +27 11 791 4403, [sales@biozone.co.za](mailto:sales@biozone.co.za)
- For account or quote enquiries please contact +27 11 791 4403 [office@biozone.co.za](mailto:office@biozone.co.za)

## CONTACT US

### JOHANNESBURG

Unit 177, Northlands Business Park,  
Olympic Duel Road, Off New Market Road,  
North Riding 2162  
+27 (0)11 791 4403  
[sales@biozone.co.za](mailto:sales@biozone.co.za)

**BIOZONE.CO.ZA**

