INSTRUCTION BOOK



Eco - Oxidizer



www.bionizer.com.au

Please read before you call us for advice.

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INTRODUCTION

PLEASE TAKE THE TIME TO READ THESE INSTRUCTIONS CAREFULLY AND NOTE HOW THEY APPLY TO YOUR PARTICULAR POOL AND EQUIPMENT.

Traditional pool maintenance has been to "shock" the water with chlorine... this process "oxidizes" contaminants that cause cloudy or dull water. If an Eco-Oxidizer is attached to your pool system, the water stays healthy, fresh and clear without any toxic substances polluting your swimming environment.

The Eco-Oxidizer goes to work whenever your pool pump and filter are running... it utilises a safe, low DC current that passes between two specially coated, long life titanium electrodes. This process oxidizes (eradicates) contaminants from your pool. As the unit consumes very little power it is a far better option than continuing to use harsh chemicals to regularly oxidize or shock your pool water.

Chloramines and other nasty compounds that are created when chlorine combines with organic matter such as skin or hair, are destroyed on contact.

So... Now there is no requirement to "shock" your pool because the powerful Eco-Oxidizer literally tells you that your pool water is out of balance. You can then check and rectify your pool's Calcium Hardness, Phosphates or Total Alkalinity levels well before they reach critical imbalance levels because a cloudy pool that has an Eco-Oxidizer is really saying "Hey! Check my balance levels!".

Wishing that your pool would look sparkling clear is now a wish come true. Installing an Eco-Oxidizer is a fitting way to get your wish... a fresh, clear and healthy pool without the chemicals and the fuss.

Unbalanced water is cloudy water

The Eco-Oxidizer is not able to clarify pool water that has become cloudy or opaque due to the water being out of balance. Leading causes of cloudiness in pools include high/low calcium, high/low total alkalinity, high phosphates and high Total Dissolved Solids (TDS). Test and rectify water balance levels if required before using the Eco-Oxidizer.

Ozone units operate in a quite similar way to the Eco-Oxidizer in that they are not designed to clear up pool water that has become cloudy due to incorrect balance levels including water that has high levels of TDS. (TDS should not be confused with salt levels which are sometimes expressed as TDS levels using pool shop tests that do not distinguish between the two.) The answer is to maintain correct water balance at all times so your pool remains free of that cloudy appearance due to unbalanced water.

Chlorine... A Sledge Hammer Approach

Chlorine is a man-made chemical and is not a natural solution to water control. It is a bleach and suppresses everything under most conditions if used in great enough quantity. Heavy use of chlorine can overcome water conditions such as high pH and even fairly high levels of phosphates. This gives the impression that pools work well under chlorine however the levels of chlorine required to maintain badly balanced pools creates unhealthy and hazardous swimming conditions. Not an optimum swimming environment. Please see the section "Eco-Oxidizer and Chlorine" on page 11 for further information on how the Eco-Oxidizer will save you and the planet if you plan to use a lower Hydrogen Peroxide or Chlorine level in your pool.

Optimum conditions are created when a Bionizer and Eco-Oxidizer are used in tandem and attention is paid to the maintenance and balance of the pool. These pool owners reap the rewards of a healthy and safe swimming environment. It saves them time, money, protects the environment and conserves water... after air, water is our most precious resource and necessary to all life on Earth.

INTRODUCTION

As with all Bionizer products, ensure that the pool water is correctly balanced before installing the Eco-Oxidizer. The Eco-Oxidizer can be safely used on new and existing pools.

Take note of the few "do's and don'ts" and you will have a simple and trouble free start up.

Bionizer is committed to creating a more healthy environment... the Eco-Oxidizer is one integral component of our ongoing journey in this direction.

Our other products were also created to advance us all along the path back to a toxic free world. They include the fully digital Bionizer all natural pool and spa purifer, and also the amazing pH BOSS, totally automatic pool pH controller.

If you use a pool care service you can reduce the time they visit... they are now almost redundant. Let them visit once a month and sweep the pool, check the skimmer and you do no pool care whatsoever.

This is the Bionizer "Ultimate Solution" to Pool Care...

and your commitment to help us all return to a toxic free Planet for your children to enjoy. This is the Bionizer promise to you.

Bionizer creates products that enhance our lives and protect us and the Planet. Our clients are our major focus and we do not rest until each individual client is happy with their Bionizer product and understands the Bionizer difference. The difference the Bionizer makes to pools is profound but the difference in operating parameters between other pool systems and the Bionizer System is small. There is no mystery and no "extra hassle" with our system...the real difference lays in the way your perspective around your pool and lifestyle will change.

- Got a pool problem?... call us.
- Need advice about anything at all?... call us.
- Want advice re the latest pool equipment?... call us.
- Want the best pool system available?... CALL US.

Bionizer designs and manufactures our own products...that is your safeguard right there.

Our famous 90 day "no questions asked" money back guarantee means you simply can't lose...

Winning designs, superior knowledge and exceptional service have created satisfied, happy and pool savvy clients who have all...

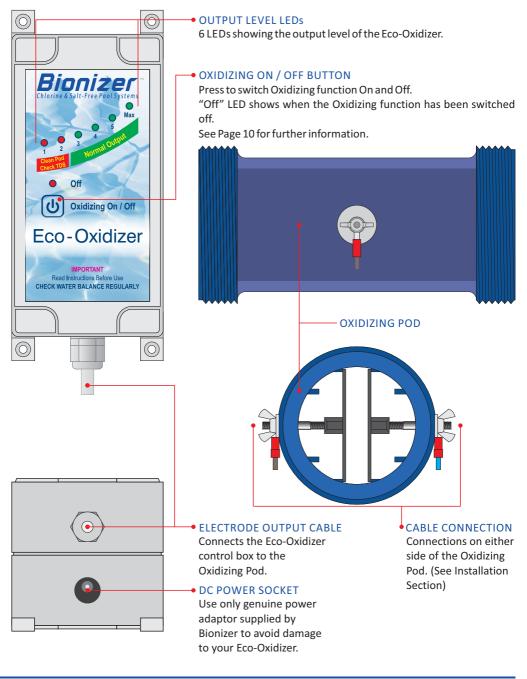
- reduced their power bills by an extra mile,
- reduced their maintenance time by hours per month,
- reduced their water waste by thousands of litres per year,
- reduced corrosion and rust of their pool equipment and pool surrounds to virtually zero,
- · reduced their chemical and salt use by truckloads

The Pool owner who uses a Bionizer system does so because they have made a superior choice...for all the reasons above...and for the health and enjoyment of their families.

Thank you for trying the Bionizer System for your swimming pool...

...the risk is ours, not yours.

ECO-OXIDIZER ILLUSTRATION



SAFETY INSTRUCTIONS - READ

IMPORTANT:

It is important to follow basic safety precautions when installing and using this electrical equipment, including the following:

- 1. Ensure you read and follow all instructions.
- WARNING Do not allow children to use this product unless they are closely supervised at all times. This is to prevent accidental injury.
- Keep all cables visible and do not bury them. Also, position them so that they do not get damaged by lawn mowers, hedge trimmers and other equipment.
- WARNING To prevent electrical shock, replace damaged cords immediately.
- 5. Read these instructions and keep the instruction manual in a safe place.

CAUTION:

Your warranty could become invalid should you fail to observe the following:

- The Eco-Oxidizer must be installed and operated as specified.
- The life of the unit will be extended (as with most other pool equipment) if it is placed indoors or in an enclosed structure.
- Always power the Eco-Oxidizer from a genuine Bionizer power adaptor. An incorrect adaptor could damage the Eco-Oxidizer and will void your warranty.

ECO-OXIDIZER INSTALLATION

The Eco-Oxidizer can be installed onto a new pool or an existing pool with minimal pool preparation. Ensure that the pool is clean and correctly balanced. See Initial Operation section on page 9.

- Installing your Eco-Oxidizer takes around 30 minutes.
- 2. Alternatively engage a competent person to do the job.

- 3. If installing it yourself you will need:
 - PVC pressure glue and primer.
 - A fine tooth saw.
 - Philips Screwdriver
 - For masonry walls: hammer drill with 6mm or 1/4" masonry bit.
 - Sandpaper or small file.

CONTROL BOX INSTALLATION

The control box MUST be mounted vertically, with the cables at the bottom, in order to be weather resistant. Any water ingress due to the unit being incorrectly mounted is not covered by warranty.

- 1. Choose a position that will allow you to see the Eco-Oxidizer LED readout easily. Fix the control box in position using the 4 screws supplied. Ensure that the Eco-Oxidizer is positioned near enough to a power outlet and to the Oxidizing Pod so the cables reach without straining.
- Make sure that the unit is undercover to avoid UV damage from long term exposure to sunlight.
- 3. Plug the power adaptor into a suitable power outlet. The Eco-Oxidizer should only be powered on when the pool pump is running. This can be done in several ways:

- For new version Bionizer with 12V DC outputs sockets, use the adaptor cable to connect the Eco-Oxidizer to the Bionizer.
- For earlier Bionizer or other systems with a pool pump power outlet, plug the power adaptor into the outlet provided. Use a double adaptor if necessary.
- Use a separate timer switch, which has been tuned to the same times as the timer controlling the pool pump.
- Connect the low voltage plug to the Eco-Oxidizer DC Power Socket (see Page 5). Use only a genuine Bionizer power adaptor. Use only a genuine Bionizer power adaptor or warranty may be void.

DO NOT SWITCH THE POWER ON UNTIL INSTALLATION HAS BEEN COMPLETED.

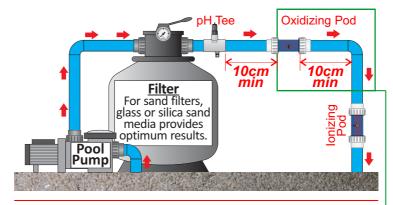


INSTALLING THE OXIDIZING POD

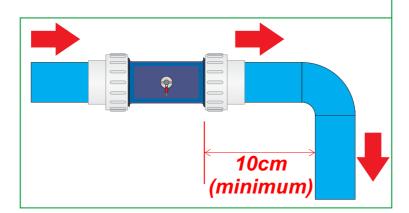
- Locate a section of pipe where the Pod can easily fit. The Pods must be fitted on the pipe that sends water back to the pool after it has been filtered (the "Return Line").
- The Pods can be fitted horizontally or vertically, so it can be mounted anywhere installation is convenient and easy.
- If you are also installing a Bionizer and/or pH BOSS the fittings MUST be installed in this order:
 - 1. pH BOSS Probe and Injection Tee
 - 2. Eco-Oxidizer Oxidizing Pod
 - 3. Bionizer Ionizing Pod

The Oxidizing Pod can be fitted horizontally or vertically, as long as it is after the pH BOSS Tee and before the Bionizer Ionizing Pod.

 HINT: Even if you are not installing a pH BOSS now, you may want to leave a space for the pH BOSS Tee-Piece Fitting. This requires 20cm of HORIZONTAL pipe BEFORE the Ionizing Pod.



NOTE THAT THE 10cm SPACINGS SHOWN ABOVE ARE FROM THE EDGES OF THE PODS, NOT THE CENTRE OF THE PODS.

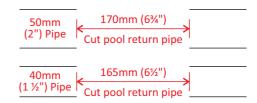


INSTALLING THE OXIDIZING POD

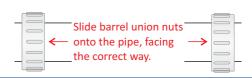
ALWAYS USE PVC PRIMER ON BOTH SURFACES BEFORE GLUEING ANY PVC PARTS.

50mm (2") Pipe: Cut out a 170mm (6¾") section
of pipe sufficient for the Oxidizing Pod and barrel
unions.

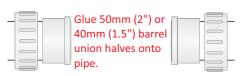
40mm (1½") Pipe: Cut out a 165mm (6½") section of pipe sufficient for the Oxidizing Pod and barrel unions PLUS reducing bushes.



Slide the barrel union nuts onto the pipe. Ensure that the threads are facing the correct way, so that the nuts can be screwed onto the Pod at the last stage of installation.



3. Glue the barrel union halves onto the pipe. Use either the 50mm (2") or 40mm (1½") barrel union halves, depending on your return pipe size. Do not lose the O-rings from the unions, and ensure that they are in place before fitting the Oxidizing Pod in place.



 Fit the Oxidizing Pod into place and secure the barrel union nuts. Hand tighten only - do not use a tool.

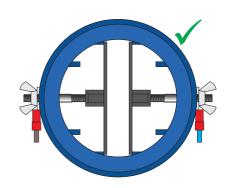
Fit the ring connectors onto the bolts on each side of the Oxidizing Pod and tighten the wing nuts securely. The rings can be fitted to either titanium anode bolts. There is no +/- polarity for the connections.



Fit Oxidizing Pod and tighten barrel union nuts. Fit ring connectors onto bolts on each side of Pod.



Scan this QR Code with your smartphone or tablet to go to the instruction video page on the Bionizer web site. (Ionizing Pod shown, but procedure is the same)



OPERATION OF THE ECO-OXIDIZER

To switch the Oxidizing function On and Off:

The Oxidizing function of the Eco-Oxidizer can be switched on and off as needed. You would normally switch the Oxidizing function on whenever the pool pump is running, but it can be switched off at times such as if you ever need to add clarifier to the pool.

Press the Oxidizing On/Off button to switch the Oxidizing function On or Off.

When the Oxidizing function is switched Off, the OFF LED will flash.

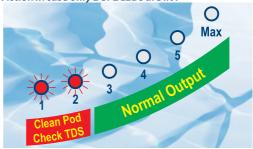


When the Oxidizing function is switched On and the pool pump is running, the Eco-Oxidizer will oxidize your pool at the highest level that it can, depending on your pool balance. The LEDs will indicate to what level the unit is oxidizing:



In most situations, the Eco-Oxidizer will be able to oxidize at its maximum level. If the LEDs indicate an oxidizing level anywhere from 3 to Max, then the unit is operating normally and no user action is required.

Action in case only 1 or 2 LEDs are lit:



If only 1 or 2 LEDs are lit, then the following actions are required:

- Inspect the Oxidizing Pod. The metal plates should be a dull black colour. If there is visible coating (for example white or grey calcification), then the plates need to be cleaned. See page 12 for cleaning instructions.
- Check the TDS of the pool water. You may need to take a sample of your pool water to a professional pool shop to obtain this measurement. The Eco-Oxidizer only requires 1,000 ppM of TDS to operate correctly. If the TDS measurement is lower than this, add 2 bags of pool salt per 50,000L (13,000Ga) to the pool.
- If neither of the above restore the LEDs to the Normal Output range, then contact your Bionizer distributor or Bionizer directly for further instructions.

NOTE

Outputs from 3 to Max LEDs are normal for low salt operation. If your unit is displaying 3 to 5 LEDs and you would like to obtain "Max" output, then you may add 2 bags of pool salt per 50,000L (13,000Ga) to the pool.

Magnesium based mineral salts are compatible the Eco-Oxidizer system.

INITIAL START-UP OPERATION

PLEASE READ THIS IMPORTANT INFORMATION BEFORE OPERATING YOUR ECO-OXIDIZER.

BEFORE OPERATING THE ECO-OXIDIZER:

- Balance the Pool according to the Pool Balance information below. This is also shown on the Snap Pool Balance chart supplied with the Eco-Oxidizer. Feel free to take that chart to your pool shop if you prefer them to test your water.
- It is not advised to use skimmer basket type clarifying cubes that treat Total Dissolved Solids (TDS) and Phosphates when operating the Eco-Oxidizer.
- Backwash your filter if it is a sand filter, or wash your filter if it is a cartridge type filter. Refer to your filter's handbook.

NORMAL OPERATION

- Set the Oxidizing function to Off for 2 days after adding flocculents, clarifiers, waterline scum detergents and some phosphate removers.
 - There is no need to switch Oxidizing to Off for phosphate removers whose active ingredient is Lanthanum Chloride, including **Bionizer PFP** powder.
 - See page 10 for instructions on switching Oxidizing Off.
- 3. If the pool water becomes cloudy at any time we suggest testing the various pool balance levels and re-balancing the pool water according to the Pool Balance information in the Snap Balance Chart (page 15). Feel free to take that chart to your pool shop if you prefer them to test your water.
- 4. Check the pressure gauge attached to your filter regularly. If the pressure is more than 50kPa above the clean running pressure, then the filter must be cleaned. Sand filters must be backwashed, and cartridge filters must be disassembled, washed with water, and reassembled. Refer to your filter's handbook.

- 5. To depend on the Eco-Oxidizer to remove the cloudiness and restore clarity before testing the water balance levels is asking the Oxidizing unit to fix a problem that only has one solution. Correct water balance and efficient filtering with a clean filter will restore clarity...if this does not clarify the pool water then it is most likely requiring more oxidation.
 - To put it more simply... if the filter is operating normally, with no heavy bather load upsetting the water clarity, then any cloudy or hazy appearance in the water is most likely due to the pool water being unbalanced.
 - If correct pool balance has been confirmed and your Bionizer equipment is running correctly, you may use **Bionizer Blue** clarifier to restore clarity to your pool. Use in accordance with the instructions on the **Bionizer Blue** label.
 - Remember to switch the Eco-Oxidizer's Oxidizing function to Off for 2 days after adding **Bionizer Blue**.

MAINTENANCE

A LITTLE MAINTENANCE WILL HELP YOU GET THE MOST FROM YOUR ECO-OXIDIZER

The Eco-Oxidizer features a self-cleaning system for the electrodes. However, periodic cleaning in acid may still be required, especially when used in marble sheen pools with higher calcium hardness levels than usual.

Cleaning is recommended every 12 months, or earlier if excessive white calcium build-up can be seen on the electrode surfaces.

If the Eco-Oxidizer is only showing 1 or 2 LEDs on the front panel when the unit is operating, this could also indicate that cleaning is required.

For installations where a pH BOSS is installed in the same pipeline (as per INSTALLATION section), the acid will often eliminate the need for cleaning entirely.

Cleaning Procedure

- Always wear gloves, eye protection and protective clothing when handling acid.
- Never rub the Titanium surface or use any abrasive paper or cleaning product. The Titanium surfaces are electroplated with a special coating that has a dull black appearance. If this is rubbed off, the system will not function correctly and the titanium anode pod will need to be replaced.
- Prepare a bucket of salt chlorinator cell cleaning solution, without diluting. We recommend to use a standard 10 Litre bucket.
- Alternatively, prepare a bucket of diluted pool acid. We recommend to use a standard 10 Litre bucket. Fill with around 4 Litres of water FIRST, then add around 0.5 Litres of pool acid. ALWAYS ADD ACID TO A LARGER VOLUME OF WATER. NEVER ADD WATER TO ACID.

- Unscrew the two barrel union nuts. Hold the Oxidizing Pod in place to ensure that it does not drop onto the ground when removing the barrel union nuts.
- Place the Oxidizing Pod into the solution for approximately 5 minutes, or until the deposits have been visibly dissolved off.
- Remove the Oxidizing Pod from the cleaning solution and RINSE ALL OUTSIDE SURFACES WELL WITH FRESH WATER. The diluted acid will not affect the electrical connections as long as the Oxidizing Pod is rinsed well.
- To dispose of the used cleaning solution, simply tip the bucket into a sink or drain with copious amounts of fresh water to dilute it. Rinse the bucket well with fresh water.
- Re-install the Oxidizing Pod as per the INSTALLATION section.

TROUBLESHOOTING

CHECK THIS SECTION BEFORE CALLING OR SENDING YOUR ECO-OXIDIZER FOR SERVICE.

The Eco-Oxidizer is a simple, reliable device. Should you have any problems or difficulties, please consult this troubleshooting section before contacting Bionizer.

Bionizer also has a comprehensive **HELP** page on the Bionizer web site.

Type "www.bionizer.com.au/troubleshooting" into your browser's address bar, or scan the QR Code on the right with your smart phone or tablet mobile device.



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Symptom	Possible Causes and Remedies
Not all of the LEDs on the front panel are lit when the Eco-Oxidizer	 If the unit lights up to 3, 4, 5 or Max, the Eco-Oxidizer is operating normally and no further action is required. See page 10 for further information. If the unit only lights up to 1 or 2 LEDs during normal operation, then check the condition of the titanium anodes of the Oxidizing Pod, and the TDS of the pool water.
is operating.	Electrodes have accumulated a coating, which prevents adequate electrical current to flow. • Clean the electrodes, as per the MAINTENANCE section on page 12.
	Pool water TDS is too low, which prevents adequate electrical current to flow. • Add two bags of pool salt per 50,000 Litre (13,000 Gallon) pool size.
	Faulty electrical connection to electrodes. Check the cable from the Eco-Oxidizer control box to the Oxidizing Pod. Ensure that the connections at the Oxidizing Pod are clean, tight and without corrosion. Faulty connections can be repaired by persons with technical experience, or can be returned to Bionizer for repair.
Unit does not power up.	Faulty AC/DC power adaptor Replace power adaptor. Please contact your distributor or Bionizer. Faulty Eco-Oxidizer main unit. Return to Bionizer for repair.
All LEDs flash and unit beeps every second.	 Short circuit in the system Check that the Eco-Oxidizer output cable is attached to either side of the pod, not both to the same side (see diagrams below). Electrodes inside Pod are touching. Replace Pod or return for Repair. Faulty Eco-Oxidizer main unit. Return to Bionizer for repair.

ECO-OXIDIZER AND CHLORINE

The advantage of the Eco-Oxidizer, when used in pool systems which also employ Chlorine sanitiser.

When Chlorine reacts with molecules that contain Ammonia and other nitrogen compounds (found in urine and other pollutants), it can form compounds such as Chloramine. These undesirable compounds are the cause of red eyes, itchy skin, and Chloramine is responsible for the "Chlorine smell" when people often (incorrectly) assume there is too much Chlorine in the pool.

The formation of Chloramines happens even more readily at low Chlorine concentration, because the level of "good" Chlorine (hyperchlorous acid) is too low to oxidize them away.

These compounds can be oxidized back to Hypochlorous acid (the desirable form of Chlorine) and gaseous Ammonia by break point chlorination. This is simply the addition of enough Chlorine to achieve around 10ppM Chlorine.

Whilst this method is effective, it has its own problems. Firstly, it can take some days for the Chlorine to return to a concentration that is safe for swimming. It also adds to the hazards of large volumes of dangerous chemicals being transported and used in and around swimming and spa pools. Thirdly, the high Chlorine concentration can damage pool equipment such as pool cleaners, and stainless steel ladders and other fittings.

The Eco-Oxidizer will oxidize Chloramines and other undesirable compounds using electrical current instead of high Chlorine concentration. The Oxidizing output is active continuously when there is water flow through the return-to-pool pipeline, after the filter. In this way, the undesirable compounds will be oxidized as they are formed in the pool, so they are not able to increase to a concentration that is noticeable or harmful to humans.

When used in this way, the Eco-Oxidizer can be used not just as a Chlorine replacement device, but also as a complimentary product to allow the pool operator to maintain very low chlorine levels (0.2 to 0.5ppM), without causing undesirable Chloramine build-up.

Testing in swimming pools has shown safe, healthy water with no combined Chlorine during hot summer conditions, whilst maintaining under 0.5 ppM of Chlorine. The tests showed a vastly reduced Chlorine usage. Pool balance was easier to maintain, with buffer and acid usage also reduced.

The most important result, is that the bathers in the test pools were not subjected to unnecessarily high levels of chemical while swimming.

Snap Pool Balance

	•		
Water Balance Tests	Required Range	Treatment Product	Period
1. рН	7.2 to 7.6 pH (7.4pH is ideal)	Hydrochloric Acid (50mL / 10,000L / ⊕pH 0.1) (2.0 FL 0Z (50mL) / 2,500 Ga /⊕pH 0.1)	Weekly
2. Copper Ions (Cu ²⁺)	0.5 to 0.6 ppM (0.3 to 0.5 ppM adequate in winter with <25°C water temperature and no bather load)	Bionizer Program Settings (Turn output % Up or Dn)	Weekly
3. Total Alkalinity (TA)	80 to 100 ppM	Buffer / Soda Bi-Carbonate (200gm / 10,000L / ⊕10ppM) (7 0Z (200gm) / 2,500 Ga /⊕10ppM)	Monthly
4. Phosphates	< 0.2 ppM (200ppB)	Bionizer PFP Phosphate Remover See Bionizer PFP Label	Monthly
5. Calcium Hardness	200 to 250 ppM Ideal (Up to 450 ppM OK)	Hardener / Calcium Chloride (100gm / 10,000L / ⊕10ppM) (3.5 OZ (100gm) / 2,500 Ga /⊕10ppM)	Monthly
6. Total Dissolved Solids (TDS) 1000 to 4000 ppM (Pool Shop Test) (Ideal 1000 to 1500 ppM)	1000 to 4000 ppM (Ideal 1000 to 1500 ppM)	1 Bag Pool Salt per 25,000L / 6,500Ga Bionizer is compatible with Magnesium salt	Quarterly
Note: Please check instructions on the	Strengths of chemicals me label of each product and	Note: Strengths of chemicals may vary from packet to packet. Please check instructions on the label of each product and add the units required to match the volume of your pool.	our pool.



SAVE THE ENVIRONMENT SAVE TIME & MONEY SAVE YOUR LONG-TERM HEALTH

Did you purchase your Bionizer products from a pool shop or was it installed by your pool builder?

If so, then please click on the QR Code to head to the Bionizer Warranty Registration page. Enter the information for each of your Bionizer units to ensure that you obtain your full 5 year warranty.



If you purchased your Bionizer products from Bionizer directly, your 5 year warranty has been automatically registered for you.

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