



U.S. ENVIRONMENTAL PROTECTION AGENCY
 Office of Pesticide Programs
 Antimicrobials Division (7510P)
 1200 Pennsylvania Ave., N.W.
 Washington, D.C. 20460

EPA Reg. Number:

83498-2

Date of Issuance:

6/23/15

NOTICE OF PESTICIDE:

Registration
 Reregistration
 (under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Chem-Saver Spa System

Name and Address of Registrant (include ZIP Code):

EcoSmarte Planet Friendly, Inc.
 1600 East 78th Street
 Richfield, MN 55423

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Antimicrobials Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A). You must comply with the following conditions:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

Elizabeth K Watkins for

John Hebert, Chief
 Regulatory Management Branch I, Antimicrobials Division
 (7510P)

Date:

6/23/15

2. You are required to comply with the data requirements described in the DCI identified below:

a. Copper Oxides GDCI-022501-1258

You must comply with all of the data requirements within the established deadlines. If you have questions about the Generic DCI listed above, you may contact the Reevaluation Team Leader (Team 36): <http://www2.epa.gov/pesticide-contacts/contacts-office-pesticide-programs-antimicrobial-division>

3. Make the following label changes before you release the product for shipment:
 - Revise the EPA Registration Number to read, “EPA Reg. No. 83498-2.”
4. Submit one copy of the final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If you fail to satisfy these data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 4/14/2015

If you have any questions, please contact Elizabeth Watkins by phone at 703-347-0241, or via email at Watkins.Elizabeth@epa.gov.

Enclosure

MASTER LABEL



ACCEPTED

06/23/2015

Under the Federal Insecticide, Fungicide
and Rodenticide Act as amended, for the
pesticide registered under

EPA Reg. No. 83498-2

Chem-Saver[®]
Swimming Pool & Spa System
Model No. ECOPPR
Replacement Cell Model No. ECO2CU

COPPER IONS RELEASING DEVICE

Active Ingredient: Copper (as metallic) 66.5%

Other Ingredients: 33.5%

Total Ingredients: 100%

Controls algae in swimming pool and spa waters.
A maximum of 50,000 US Gallons of water can be treated
with the Chem-Saver[®] Swimming Pool & Spa Device.

KEEP OUT OF REACH OF CHILDREN

CAUTION: Staining of pool surfaces may occur due to deposit of copper salts.
Excessive levels of copper will increase the probability of this occurrence.

NOTICE TO USER: This control product is to be used only in accordance with the
directions on this label. Read the label and operating manual before using.

EPA REG. NO. 83498-XXX
EPA EST. NO. 83498-MN-001

ECOsmarte[®] Planet Friendly, Inc.
1600 East 78th Street, Richfield, MN, USA, 55423

PRECAUTIONS

Keep out of reach of children. Store in a closed, original container in a cool dry place. Do not store in direct sunlight.

STORAGE AND DISPOSAL

Dispose of packaging in household garbage or recycling stream.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or EPA Regional Office.

DIRECTIONS FOR USE

The Chem-Saver[®] Swimming Pool & Spa System assists in controlling algae growth by producing copper ions that bond with organic matter, killing algae. A registered chlorine sanitizer **MUST** be used with the product when the pool is used for bathing. **DO NOT USE** in conjunction with bromine or any solid or granular chlorine sanitizer.

Set up and operate the system according to manufacturer's instructions to deliver 0.3 to 0.7 ppm of copper. Copper concentration in the water must not exceed 1 mg/L.

1. Make sure pool water is chemically balanced by regular testing as directed on the label for the sanitizer you are using.
2. Test the copper levels in the water weekly using an appropriate copper test kit. Copper levels are directly proportional to ionizer run time. Should the copper level approach or exceed 1 mg/L, simply unplug the ionizer or reduce ionizer running time until the recommended level is reached. To increase copper levels increase the ionizer running time.
3. Check sanitizer levels regularly and refer to the directions for use of your chlorine sanitizer for appropriate water parameters.

NOTICE TO USER: This control product is to be used only in accordance with the directions on this label. Read the label and operating manual before using.

ECOsmarte[®] 2" cu/oxy chamber has been certified to NSF 61 under the Gold Seal Program of the Water Quality Association (WQA).

APVMA APPROVAL NO. 9599/01/1005

EPA REG. NO. 83498-XXX

PMRA REG. NO. 30976

Operating Manual

1



PLANET FRIENDLY®

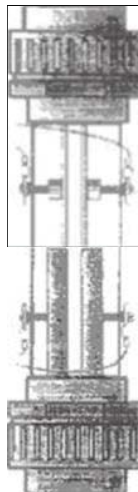
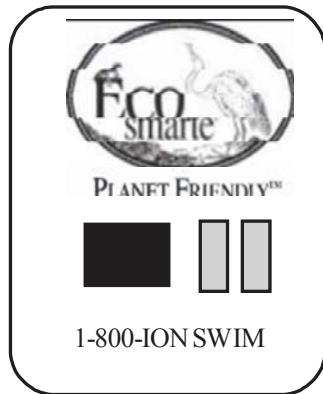
CHEM-SAVER®

SWIMMING POOL & SPA SYSTEM

Model No. ECOPPR, Replacement Model No. ECO2CU

FOR POOLS to 50,000 US Gallons

**READ THIS MANUAL BEFORE
INSTALLING RETAIN THE MANUAL FOR
FUTURE USE**



WIRE HOOK -UPS

BLACK/WHITE

RED/GREEN

(Connect both to
front side of
chamber.)

The *Electrode Chamber* may be installed either horizontally or vertically with our Quick Change Unions. Install the *Electrode Chamber* between the pump and filter or between the filter and pool on the pressure side of your piping. The *ECOsmarte Electronic Box* can be installed indoors or outdoors. The *Electronic Box* is water resistant and comes with pre-wired leads to be connected to the *Electrode Chamber*. If installation requires additional wire, you may order it from your local *ECOsmarte* dealer.

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OWNERS MANUAL

CONTENTS: 2014 ECOsmarte Owners Manual

P. 1 Installation	P. 9 Water Vocabulary
P. 3 Start-Up Procedures	P. 11 Problem Solving
P. 5 Testing Your Water	P. 14 Maintenance
P. 7 Pool and Water Talk	P. 15 Chamber Installation

OVERVIEW

INSTALLATION: The *ECOsmarte Chamber* is installed on your return line anywhere between the pump and pool. Your power must be within 10 feet of your selected install for the gray chamber leads coming from the *ECOsmarte* Box to reach the chamber.

Current National Electrical Code requires a 110 V GFCI outlet near your pool pump. In Canada the absence of this outlet requires a dedicated hardwire by a licensed electrician.

The *ECOsmarte Chamber* is marked showing the proper direction for the chamber to be installed. Have your *ECOsmarte* Pool Manager Test kit available for start-up.

START-UP

- (1) With the normal chlorine residual in the pool (1.0 min.), lower your pH to 7.2. using muriatic acid. Check your pH daily the first week to insure that it stays in the range of 7.2 -7.4.
- (2) Adjust your calcium hardness upward if needed to a minimum of 300 ppm. Calcium levels must be between 200 ppm and 400 ppm.
- (3) Select "IONIZE" on your ECOsmarte Control Box and with pump and filter running constantly, ionize the pool 24-72 hours until a minimum of .5 ppm copper is achieved. You may now drop the chlorine residual to .6 ppm under Canadian and Australian Law.



See P. 15



See P. 2, 15



See P. 5

WEEKLY: The first few weeks after start-up your *ECOsmarte System* requires just two simple tests in addition to the normal backwashing and vacuuming:

- (1) Test your pH weekly, adjusting downward to 7.2. The acid demand of your pool should be predictable by the third week.
- (2) Confirm and adjust your copper level by using the IONIZE mode for 6 to 12 hours per week. The number of hours should also be predictable by the third week.

SEE IMPORTANT SAFETY INFORMATION ON PAGE 13



FREE FACTORY SUPPORT: Six Days Per Week Toll-Free
1-800-ION-SWIM (466-7946) or (612) 866-1200

ONLINE: onlinesupport@ecosmarte.com



ECOsmarte Pool & Spa System Owner's Manual – North America

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As we begin to protect your water against algae by ionization, the first seven days are critical. You need to closely monitor two water factors in particular: pH and Copper. pH levels above 7.4 will render the copper ions *ineffective* and will prohibit accurate copper measurements. Copper ions are the algacide in the water. The water in your pool needs a pH below 7.4. Ideally, begin ionizing after adjusting the pH to 7.2 and expect the pH to rise. The total alkalinity of the pool will fall as you lower your pH. The proper range of alkalinity is 80 to 120 ppm.

During Start-Up the *ECOsmarte Pool & Spa System* will require more attention. This process will require you to backwash or clean the filter media until most of the contaminants have been removed. A slight increase in filter pressure indicates your filter is functioning. Expect increases in filter pressure and pH rises during Start-Up (first 2-3 weeks).

Switch the *ECOsmarte Electronic Box* to the Ionize position. After 24 hours of ionizing take a second copper and pH measurement (see TESTING YOUR WATER). Test the pH first and adjust it if necessary with muriatic acid diluted with water. Once your pool has achieved 0.5 ppm copper, switch the *ECOsmarte Electronic Box* to Oxidize. If your pool registered copper prior to installing the *ECOsmarte Pool & Spa System*, then ionize until you achieve 0.7 ppm, or until initial false copper has been filtered out of the pool. At this point, your pool should have a copper residual between 0.5 ppm to 0.7 ppm, with chlorine levels per the manufacturer's directions. If this is not the case, consult the PROBLEM SOLVING section of this document. A minimum of 0.5 ppm copper is required to protect your pool. Swimmers, rainfall, evaporation and algae will cause your copper residual to decrease. **Once your minimum copper residual is reached, your control box is always in the oxygen or "oxidize" mode unless your weekly water test indicates 0.5 ppm copper or below.**

PRELIMINARY STEPS

- (1) Confirm 1.0 ppm Chlorine residual. Salt or Bromine users must drain and refill the pool.
- (2) Backwash or clean filter thoroughly.
- (3) Install *ECOsmarte Electrode Chamber* either horizontally or vertically.
Note: If chlorine is at or near zero add one quart Algacide 60 to the pool and enough liquid chlorine to achieve 1.0 ppm residual.

CONVERSION STEPS

- (1) Lower pH to 7.2 - 7.4 range (neutral)
- (2) Measure copper, see TESTING YOUR WATER
- (3) Turn *ECOsmarte Electronic Box* to Ionize, High setting for northern pools, Low setting for Southern pools. High setting for all pools recently filled. Take second Copper test after 24 hours, check pH again.

ELECTRONIC CONTROL BOX

To Ionize, set the *ECOsmarte Electronic Box* in the ionize position. A single, circling light indicates power to the *Electronic Box*. A small glow-lamp diode at the *Electrode Chamber* indicates power to the electrodes.

You will oxidize, unless a copper measurement indicates a need for copper ions. On average, oxidize 13 days, ionize 1 day, depending on your bather load. *ECOsmarte* recommends turning the water over in your pool once per day, running the *ECOsmarte Pool System* only when filtering your water. When the *Electronic Control Box* is in the Oxidize position, your pool water will be oxidized as it passes through the *Electrode Chamber*.

The lights on the *Electronic Control Box* will indicate the mode of operation, confirm polarity shift, and alert you to certain problems. Under proper operating conditions a single light will circle whether in the Ionize or Oxidize mode, and a single steady light will appear next to the selected mode. If:

- (1) A mode light appears next to both Ionize and Oxidize positions regardless of mode selection, then power is feeding back from the selected electrodes to the other electrodes. This is caused by highly conductive water. As long as the lights are not blinking, leave unit in high mode; check again the second season.
- (2) One or more mode lights blinks, then water is extremely conductive. Switch **Box** to Low. Leave box on high if both lights are on but not blinking.

If any of these problems persist consult the **PROBLEM SOLVING** section of this manual or call 1-800-ION-SWIM your toll-free support line.

TESTING YOUR WATER

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The ECOsmarte Pool System requires you to measure two aspects of your water chemistry: Copper Ions and Potential Hydrogen (pH). Each test needs to be performed weekly with your registered sanitizer test.

pH TEST

Maintain pH within the specified range. *pH must be between 7.2 and 7.4.* Any pH test kit should work fine. Follow the directions included with your kit. Remember to:

- (1) Fill the sample container with pool water from at least 18" below the surface of the pool. Avoid taking samples near the skimmers and return-jets.
- (2) **Test pH before testing Copper pm.**
- (3) Hold tester at arms-length (preferably out of direct sunlight) above the horizon. Look at the sample water and compare to the color standard included with the test kit. Read the pH value once a match is obtained.
- (4) If a pH adjustment is necessary, use muriatic acid diluted with water in a 5 gallon bucket. (Dilution is to prevent "shocking" any metals out of solution.) See **PH TALK**.

NOTE: Be certain the calcium hardness is at least 200 ppm, 300 ppm is ideal. There is usually no need for you to adjust calcium or alkalinity more than once per season.

pH TALK

- We can train your pH to become predictable, 7.2 to 7.4.
- **The first two weeks after installation your pool may consume acid on a regular basis. This is not unusual. If high consumption continues into the fourth week, then possible nitrate and phosphate residuals are creating this problem and a percentage of water may need to be drained back. If phosphates are present in the water, we recommend the use of ZERO PHOS.**
- **Radical changes in pH are not recommended.**
- **Rule of Thumb: If your pool is 15,000 gallons with a pH 7.6 or above, add at least 1/2 gallon of acid; if your pool is 25,000 gallons or above, add at least a full gallon.**
- **Acid consumption will vary according to pool water. However, pH measurements are algorithmic. That is, your pool will need considerably less acid to move from 7.4 to 7.2, then it will to move from 7.8 to 7.2.**
- **DILUTE ACID BEFORE PUTTING IN YOUR POOL.**
- **You may want to consider using CO2 injection as an alternative to using muriatic acid to control pH. For more information on CO2 injection contact your ECOsmarte dealer or call 1-800-ION-SWIM (466-7946) or (612) 866-1200.**

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COPPER TEST

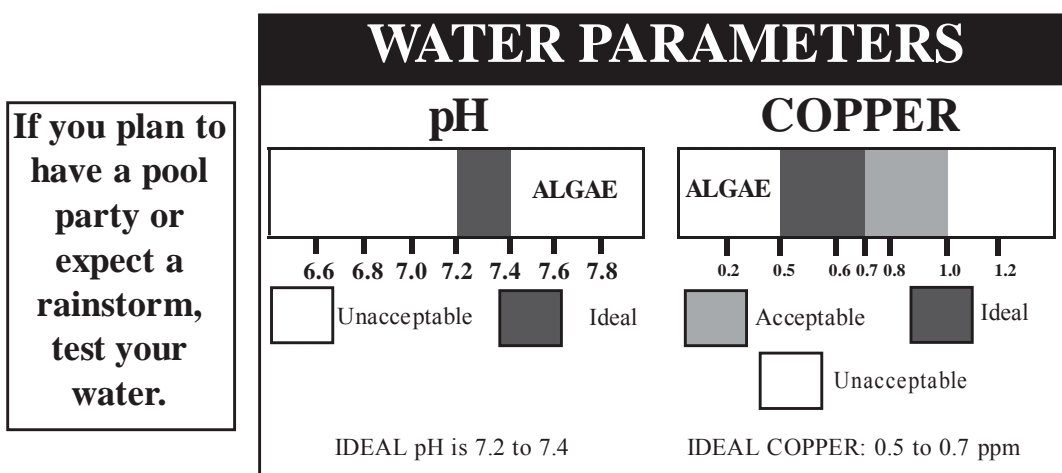
6

Always test pH before Copper. If pH is above 7.2, adjust pH level and wait for pH to come down. If the pH is above 8.0 you may create copper chloride which can stain your pool and bathers. Neither condition is permanent or harmful, but both can be avoided by keeping low pH. The Copper Test procedure for the *EC-70 Liquid Copper Kit*, is as follows.

- (1) Fill test tube with pool water to black line. Be sure to take sample from a level 18" or more below the surface of the water. Also, avoid samples near the skimmer and return-jets.
- (2) Add five (5) drops of Copper Reagent A to test tube. Cap and invert.
- (3) Remove cap and add five (5) drops of Copper Reagent B to test tube. Cap and invert.
- (4) Remove cap and place tube in test-kit holder. Allow to stand for approximately two minutes.
- (5) While holding the tube, place color standard chart 1/2" underneath the vertical tube. Measure the level of copper by looking directly down into the test tube at a white portion of the color standard provided with the kit. Match the shade of blue and record in parts per million.

INCOMPATIBLE PRODUCTS

NOTE: Magnets, metal removers, copper algaecides, sequestering agents, and other chelating agents will create false copper readings. **Salt users or previous bromine users will need to drain the pool before start-up.**



REFER TO THE DIRECTIONS FOR USE OF YOUR CHLORINE SANITIZER FOR APPROPRIATE WATER PARAMETERS. DO NOT USE CYANURIC ACID OR OTHER STABILIZED FORMS OF CHLORINE. DO NOT USE BROMINE.

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TURNOVER CYCLES

Use the conversion charts on pages 4 and 6 to determine the time necessary for your pump and filter to completely cycle the water in your pool once. The *ECOsmarte Pool & Spa System* requires one complete cycle per day in order to maintain crystal-clear water. The time required for one complete cycle varies among pools. Take care not to exceed the recommended cycle time as over oxidation may result in tiny aeration bubbles in your pool from the oxidize mode.

ECOsmarte recommends letting the *Pool & Spa System* work for you. In other words, be patient, the *System* will work. *ECOsmarte* understands circumstances exist where a "quick-fix" is necessary, or desired. In cases such as these the following is a list of compatible products. Note that the list is exclusive and anything outside the list is not recommended.

- Stabilizers and Conditioners:** incompatible
- Non-Chlorine Shock:** potassium monopersulfate (*Oxybrite* is the best)
- Alum-based Flocculants:** any, but use sparingly
- Microfloc:** Proteam *Ion Magic*, avoid these generally
- Non-Metallic Algaecide:** any, but use sparingly
- Filter Cleaner:** TSP and Muriatic Acid
- Borax:** use sparingly for stain prevention
- Chlorine:** sodium hypochlorite or liquid chlorine only is recommended for ideal results.

WHAT CAUSES ALGAE PROBLEMS?

There are over 21,000 known varieties of algae! Algae spores constantly enter the pool, brought in by wind, rain or even contaminated swimsuits or equipment. When conditions are right, an algae bloom can occur seemingly overnight. These conditions include imbalanced water, warm temperatures, sunlight, and the presence of nitrates. Of course lack of proper filtration, circulation, and sanitation may be the primary causes of algae. **A suction vacuum is highly recommended with the *ECOsmarte System*.**

Algae is a living aquatic creature that multiplies rapidly in warm, sunny conditions. Containing chlorophyll, algae utilizes photosynthesis to grow. That is, they take in carbon dioxide and expend oxygen as a byproduct.

Two main problems with algae are, first, people do not want to go swimming, and second, it takes time and money to rid the water completely of algae. Algae itself is not harmful to swimmers, but pools with algae may also be residence to other pathogens.

Proper water balance and filter maintenance are necessary to prevent algae growth. Regular brushing prevents dirt from harboring in the pores of your pool surface, where algae colonies like to start. If the walls and bottom of the pool are not brushed on a regular basis the use of specialty chemicals or algaecides may be necessary as a back-up to the *ECOsmarte Pool & Spa System* and existing filtration. Filtration upgrades will solve 99% of these problems.

Again, *ECOsmarte* recommends allowing the system to defeat algae on its own. You will want to adjust valving for optimum circulation and allow your pump and filter to run 24 hours a day until the pool clears (the *ECOsmarte Pool & Spa System* can be shut off after a single cycle of oxidation, providing Copper ppm levels are above 0.4). Turn on any automatic cleaners to stir things up. Continue to brush the walls. If the pool is real "swampy" algaecide 40 or 60 may be a good choice. If you cannot see the bottom of the pool and it is filled with leaves and debris, you must get all leaves and debris out to clean the water.

POOL VOLUME

- To calculate the amount of water in your pool, insert the requested measurements in the correct equation.

Rectangular Pool:

LENGTH		WIDTH		AVG. DEPTH		7.5	=	GALLONS
<input type="text"/>	X	<input type="text"/>	X	<input type="text"/>	X	7.5	=	<input type="text"/>

Circular Pool:

DIAMETER		DIAMETER		AVG. DEPTH		5.9	=	GALLONS
<input type="text"/>	X	<input type="text"/>	X	<input type="text"/>	X	5.9	=	<input type="text"/>

Oval Pool:

MAX. WIDTH		MAX. WIDTH		AVG. DEPTH		5.9	=	GALLONS
<input type="text"/>	X	<input type="text"/>	X	<input type="text"/>	X	5.9	=	<input type="text"/>

- You will use this number to calculate your CYCLE TIME

WATER VOCABULARY

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pH

The technical term for the measure of acidity or alkalinity of water, pH is measured on a logarithmic scale from 0 to 14. At a pH of 7.0 and a water temp of 80°, water is neutral. A reading above 7.2 means the water is alkaline. A reading below 6.8 means the water is acidic. During the swimming season, check the pH level weekly and after heavy rainstorms. Everything that enters your pool has a pH value. Adjustments should be made to keep the pH within the 7.2 to 7.4. Muriatic acid has an extremely low pH, and, consequently, is used to lower pH. Sodium bicarbonate, or baking soda, has a high pH and is alkaline. With the *ECOsmarte Pool & Spa System* it is important to maintain a pH within the specified range. The effectiveness of the copper ions depends on keeping the pH within 7.2 to 7.4 range.

COPPER

The *ECOsmarte Pool & Spa System* generates copper ions. Adding copper ions to body of water protects itself against simple organisms such as algae.

TOTAL ALKALINITY

A close cousin of pH, Total Alkalinity is a measurement of all the carbonates in the water: Carbonate, Bicarbonate, and hydroxides. The pool industry has yet to develop a true Total Alkalinity Meter. Available Alkalinity test kits measure the amount of **carbonate alkalinity** in the water. Low Total Alkalinity can cause "pH bounce." "pH bounce" shows itself as large changes in pH after additions of acid or alkali. High alkalinity causes pH to drift upward and will cause pH to require twice weekly testing. Most of the *ECOsmarte* pools will balance at or near 80 total alkalinity.

pH is alkalinity dependent; that is, alkalinity is defined as the ability of the water to resist changes in pH.

CALCIUM HARDNESS

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Calcium hardness affects pool water quality. Low calcium hardness can promote pool corrosion extremely. High calcium hardness can cause cloudiness. Ideal calcium hardness content is 200 to 400 ppm as measured by a suitable test kit. Calcium hardness will need to be tested annually, always at start-up and one week later, adjusted if below 200, and only tested again if your pool is refilled.

POOL STORE COMPUTERS

Can be a useful tool to double check your ph and calcium hardness. Do not however adjust alkalinity unless below 80 or copper based on the results as most of the copper readings are in ppb not ppm. Rely only on the Lamotte Copper test kit included with your ECOsmarte System to use the ionize mode and add copper to the pool.

TIPS FOR pH & ALKALINITY

- **For a reduction in Total Alkalinity experts recommend "pooling" the acid in a small area of low current. Normally, ECOsmarte Pools need no downward alkalinity adjustment.**
- **Upward alkalinity adjustments should be done in 4-lb increments per day. Any more and "pH bounce" may result, causing you to waste time and money on acid.**
- **Upward alkalinity adjustments can be made with sodium bicarbonate (baking soda).**
- **For a reduction in pH, walk acid around the pool and distribute it to the entire pool, having diluted the acid with water in a 5 gallon bucket.**

CLOUDY WATER

Can be filter or water parameter related. Do not shock the pool unless a pressure rise has occurred in the filter AND the water parameters are confirmed.

To speed up the cleaning process, you should:

- (1) Clean filter media thoroughly, sand filter & DE owners should break down filter each spring.
- (2) Test pH and Copper ppm and adjust as needed.
- (3) Oxidize water for two cycles per day.

ECOsmarte recommends the above procedure. If a cloudy condition persists beyond three weeks the filter media may be inadequate. Waiting for pressure rise removes the smaller particles and aids your filter in their removal. Glass Media is an alternative replacement media for sand filters. (Sand must be changed every 3 years minimum.)

ALGAE BLOOM

The *ECOsmarte Pool & Spa System* requires a pH between 7.2 and 7.4. If an algae bloom appears it is usually because the pH drifted above 7.4, or the copper residual is below 0.5. The active algaecide in the water is the copper ion. Measure your copper levels and adjust as needed (between 0.5 and 0.7 ppm). The *ECOsmarte Pool System* does not "vaporize" organic matter. The *System* will kill algae. Adequate filtration and circulation is necessary to run a crystal-clear pool. If an algae bloom occurs, there are a few things you can do to speed up the removal of algae.

- (1) Clean filter media thoroughly.
- (2) Measure pH and Copper ppm and adjust as needed.
- (3) Brush algae toward main drain daily.
- (4) Backwash media when filter pressure rises 6-10 lbs. **Not Before.**

Too much backwashing can cause cloudy or algae water.

ECOsmarte recommends the above procedure. If an algae bloom persists beyond one week, use a Non-Metallic Algaecide for additional help. Finally, without adequate filtration dead algae will remain in a pool and a "bad" filter will spin algae through the filter and back into the pool. Note: A DE Filter pool with visible algae should use 1 quart non-metal algaecide to sanitize grids in the DE filter itself. A suction style vacuum versus a sweep or "pop-ups" is recommended.

NEW VINYL LINER OR GUNNITE SURFACE

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The most effective way to cure a new vinyl liner or gunnite surface is to lightly chlorinate it above normal sanitizer levels for 10 to 14 days. This process is designed to remove plaster dust before it gets in your filter and creates a season of problems. The chlorine residual in the pool will stabilize after the curing process is complete. **Use: 1 gallon of liquid sodium hypochlorite per 10,000 gallons each week for 4-6 consecutive weeks to oxidize the gases from the vinyl or plaster dust from gunnite surfaces. No metal remover should be added to the pool.**

CYCLE TIME CALCULATION	
GALLONS (from p 4) <input type="text"/>	THIS IS YOUR CYCLE TIME <input type="text"/>
PUMP GPM* <input type="text"/>	
$\frac{\text{GALLONS}}{\text{PUMP GPM} \times 60} =$	
EXAMPLE	• If my pool is 40' x 20' with an average depth of 5', and a GPM of 70, then...
$40 \times 20 \times 5 \times 7.5 = 30,000$ gallons	use this number...
$\frac{30,000}{(70 \times 60)} =$	7.14 hour cycle About 7 hours, 8 minutes

* To calculate your cycle time, enter the appropriate measurements into the equation.

* Gallons Per Minute (GPM) can be found on the side of filter pump or written within pump instruction manual. Usually 55 or 70 GPM.

WINTERIZING

MAIN DRAIN

- (1) With skimmer valves closed, open main drain valve.
- (2) Open hair and lint basket (sump) at pump. Remove basket. Replace drain plug.
- (3) Pour approximately two gallons of RV Anti-Freeze into hair and lint basket. Close basket cover.
- (4) Blow from suction side of "blow spot" with main drain valve open, until you can see small trace of Anti-Freeze entering the pool.
- (5) Close valve quickly.

- Stuff rag or sock in each end of "blow spot." Rubber-band or duct-tape rags in place.
- If you have a slide, water-powered vacuum (*Polaris, Kreepy Krauly*, etc.), or water-fill hose installed on your pool they will need to be blown out and filled with Anti-Freeze. Use above procedure in most cases. Some slides, however, may need to be blown from the spot of disconnection.
- **Set sand filter 7-way Valve to the "Winter" or "Closed" position.**
- Remove ladder and railings. Lift cover plate and unfasten 7/16" or 1/2" bolts.
- If diving board is greater than 8' long and snow is expected, remove and store inside for the winter.
- Cover pool with winter cover. If water bag cover is used, fill water bags half-full to prevent winter cracking. Also, allow cover's slack to fall into pool and anchor with as little on deck as possible (1 to 2 feet is ideal). This will prevent the cover from collapsing into the pool under a load of snow.

OPENING NOTES:

New *Ecosmarte* pools that were chemically treated the previous year should use identical opening procedures as before with *Ecosmarte* turned on after water is clear.

SAFETY INSTRUCTIONS

- **WARNING: To reduce the risk of injury, do not permit children to operate this device.**
- **DO NOT** add pool chemicals directly to the skimmer. This may damage the unit.
- **Check the expiry date of the test kit as test results may be inaccurate if used after that date.**
- **For electrical devices: Follow all aspects of the local and National Electrical Code(s) when installing the Chem-Saver Swimming Pool & Spa System device.**
- **Use sodium hypochlorite (liquid) to maintain an appropriate chlorine residual in the water.**
- **The expected life expectancy of the copper electrodes is 4 years or 650 hours under normal outdoor use conditions.**
- **When replacing the electrode, only use replacement electrodes having a label that clearly states that it is a replacement electrode for the Chem-Saver Swimming Pool & Spa System, REGISTRATION NUMBER XXXXX.**



MAINTENANCE and OWNER RESPONSIBILITY

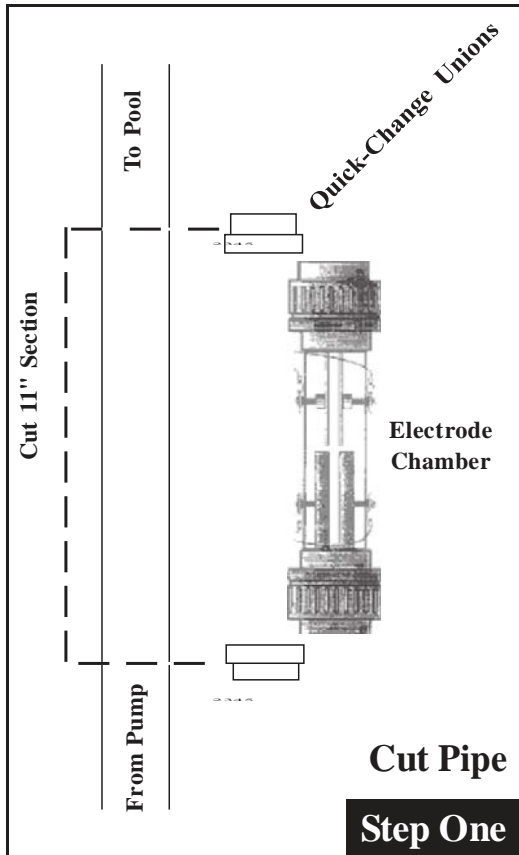
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- (1) **ECOsmarte System:** Following the detailed procedure below, the *ECOsmarte Electrode Chamber* should be cleaned every other month of operation or as needed under certain water conditions.
- (2) **Filter Maintenance:** Adequate filtration is required in order to operate a clear swimming pool. Sand filters can be cleaned by soaking sand with one gallon of muriatic acid overnight. Apply the undiluted acid directly to the sand once per year. Cartridge filter elements must be soaked in 2:1 muriatic acid and water solution, then TSP and water for one hour each (as needed). Replace the cartridge every 6 months for spas and every 18 months for pools. DE Filter elements need the same muriatic bath as cartridges as well as TSP bath for one hour. (Sand filters backwash twice after 6lbs. rise, DE filters three times after 12lbs. rise.)
- (3) **Pool Maintenance:** Gunnite pools require pool brushing of areas where automatic vacuum does not reach on a weekly basis. A cavitating pump will run our Electrode Chamber dry and result in poor automatic vacuuming. **Vinyl, Gunnite, and Fiberglass pools work best with suction wall vacuum, not a sweep.**

ELECTRODE CLEANING PROCEDURE

- (1) Mix solution of 5 parts water to 1 part acid in a bucket. When adding acid to water be careful not to spill or be down wind when pouring.
- (2) Disconnect terminal clips*. The Red & Green wires attach to the copper side of the chamber, the Black & White to the titanium side. **If uneven electrode wear is noted on copper electrodes you must reverse position of the Green & Red terminal clips after cleaning.**
- (3) Place entire Electrode Chamber in bucket for 10 to 15 minutes. The build-up will slowly dissolve. Do not scrape the surface of the electrodes. If you will be cleaning yourself, consider cleaning caps to cut acid use and speed this process. Cleaning caps from your dealer will cut acid use and simplify this procedure.
- (4) Remove Electrode Chamber from bucket and rinse with garden-hose pressure. Make sure to rinse your hand as well.
- (5) Wipe terminal clips dry and reconnect leads after reinstalling Electrode Chamber in pressure line. Remember: Red & Green connect to the copper side, Black & White to the titanium, as indicated on the silver decal on the chamber.

* **DO NOT DISASSEMBLE THE CHAMBER FOR CLEANING.**



The *ECOsmarte Electrode Chamber* may be installed either between the pump and filter or, preferably, after the filter. The copper electrodes should be aligned nearest the pool (see diagram). If you have a spa in line with your pool filter system, ensure the *Electrode Chamber* is located before the valves that divide return water to the pool and spa.

Tools List:

- Hack Saw
- PVC Cleaner
- Felt-Tip Marker
- Tape Measure
- PVC Cement

