Prozone CSS5-1

Salt Chlorine Generator - Ozonator for Spas

Owner's Instructions & Troubleshooting Guide

Prozone CSS5-1 is designed for minimal emissions of chlorine and will not over produce chlorine as long as these instructions are followed. The low emissions may not be visible on test strips or other forms of water testing. Higher chlorine levels can be achieved by increasing the salt added. However, adding more than the recommended amount of salt may cause reddening and burning of the eyes and foul smelling water. The blue light from the Ozonator and bubbles in the generator indicate the unit is working properly even though testing may not show chlorine in the water.

Balancing the Water:

The Association of Pool and Spa Professionals has established the following levels for the highest water quality. Total Alkalinity should be adjusted before making any other adjustments.

pH	7.2 to 7.6
Alkalinity	80 to 120 ppm
TDS	Less than 2,000 including salt
Salt Levels	1,500 to 3,500 ppm
Calcium Hardness	0 to 300 ppm

Adding Salt:

USE ONLY POOL GRADE SALT SOLD AT POOL SUPPLY STORES. USE OF TABLE SALT WILL DESTROY THE UNIT.

Salt (ppm)	Pounds of Salt Number of Gallons of Water in Spa				
	200	300	400	500	600
1,600	2.7	4.0	5.3	6.0	8.0
1,800	3.0	4.5	6.0	6.8	9.0
2,000	3.3	5.0	6.7	7.5	10.0
2,200	3.7	5.5	7.3	8.3	11.0
2,400	4.0	6.0	8.0	9.0	12.0
2,600	4.3	6.5	8.7	9.8	13.0
2,800	4.7	7.0	9.3	10.5	14.0
3,000	5.0	7.5	10.0	11.3	15.0
3,200	5.3	8.0	10.7	12.0	16.0
3,400	5.7	8.5	11.3	12.8	17.0
3,600	6.0	9.0	12.0	13.5	18.0
3,800	6.3	9.5	12.7	14.3	19.0
4,000	6.7	10.0	13.4	15.0	20.0

This table indicates the amount of salt needed to reach the desired levels. The GREEN highlighted area represents most common usage for spas. The PINK highlighted area represents the recommended requirements for initial start up and after each subsequent refill after cleaning.

The water temperature in the spa must be at a minimum temperature of 95°F before adding salt.

Add salt to a bucket filled with warm water and stir mixing thoroughly. With the pump(s) on high, pour the mixture into the spa away from the filter and skimmer basket. Repeat as necessary until all the salt is added and has dissolved.

Operation of Spa After Addition of Salt

After salt has been added to the spa, run all pumps on low speed for at least 48 hours to ensure that an adequate amount of chlorine is generated. Look for a blue glow around the top and bottom of the gaskets to verify the Ozone Generator is working. Monitor the filter and remove excess precipitants. Wash the filter after 48 hours to remove any excess debris.

Maintaining Normal Operation

The system generates Chlorine and Ozone when the pump is running and the Ozone Generator has been turned on at the topside control. It is recommended that the Ozone be turned on for a minimum of 6 hours each day to guarantee adequate amounts of chlorine are generated. Continuous operation of the Ozone Generator will not harm your spa. If you run the Ozone Generator continuously, it is recommended that you allow excess gasses to dissipate by opening the spa cover for 10 minutes before entering the spa.
Water with high calcium levels will result in scaling of the cell. Use muriatic acid to clean the cell regularly to ensure the unit continues to operate with maximum efficiency.

Cleaning the Cell

Calcium build up can occur on the edges of the salt generation plates. This is normal but the cell should be cleaned before the build up begins to block the flow. To clean the cell:

Detach the Ozone feed line to the injector from the check valve outlet.
Insert this end into a 4 oz bottle of muriatic acid while the pumps are on low speed.
Allow suction to draw acid into the cell and shut off circulation.
Turn off the pumps and allow system to sit for 10 minutes.
Reconnect the Ozone feed lin to the injector.
Restart the pumps.

Primary System Components

The Ozone Generator: Generates ozone, which acts as the primary oxidant in the water treatment process. Ozone is generated with a specialized high intensity ultraviolet lamp.
The Salt Chlorine Generator: Chlorine is generated when the chlorine in dissolved salt is converted to a useful disinfectant. The chlorine generator consists of a power supply in the main body of the unit and water passing through an electrolytic cell.
The Venturi Injector: The venturi creates suction when water flows through it drawing Ozone into the water.

The Water Treatment Process

Oxidation is a process by which chlorine or ozone react with contaminants in the spa which worsen water quality and provide an environment which promotes the growth or microorganisms. In a chlorine only spa, the creates combined chlorine which are a source of odors and irritation.
Ozone, which is the most powerful oxidant available, replaces chlorine as the primary oxidant in the spa. Ozone reacts with contaminants so it ban be removed by filtration.
Disinfection is the process by which microorganisms are killed. Although most people associate water treatment with disinfection, it actually consumes relatively little chlorine.
Water Treatment equals Oxidation plus Disinfection. The CSS5-1 unit provides both functions - Ozone for oxidation and chlorine for disinfection. Ozone dose most of the work in water treatment. The chlorination level is set such that there is only enough residual is produced to kill the remaining microorganisms. The amount of chlorine required is very low - so low it cannot be recognized by test strips.

Troubleshooting

The most common problems are covered here. If need additional assistance, please call technical support at 877-722-4097. Technical Support is available Monday through Friday from 8:30 am to 5 pm Monday through Friday.

Water Turns Cloudy or Foamy

Even clear water can contain dissolved solids, oils or other contaminants which will be precipitate by Ozone. This can be immediate or take several days to occur. When water clouds or foams, it means the ozone is reacting with and removing contaminants from the water.

Correction

Once the ozone precipitates contaminants, they must be removed by filtration. Cloudiness is a sign that the filter needs to be cleaned or replaced. Wash or replace the filter as necessary. You may have to clean the filter several times to allow all contaminants to be filtered.

Little or No Chlorine Residual

The CSS5-1 system is designed to produce a low level of chlorine that ensures the spa has adequate disinfection. The quantity of chlorine can be as much as 90% less than a chlorine only spa. Normal test kits measure chlorine residual or combined chlorine). Since ozone will normally keep contaminants at very low levels, combined chlorine levels are too low for most test kits to detect. To ensure enough chlorine is generated, the Ozone Generator should be allowed to run for 6 hours a day.

Corrections

Ensure Ozone Generator and pump is on for 6 hours a day.
Clean chlorine cell as described above.

Ozone Light Not Visible

A blue line of light should be visible at the top and/or bottom of the unit through the gasket between the endplates and main body of the unit. The light can be difficult to see, especially in sunlight.

Correction

Look for the light in low light conditions. If a blue glow is not visible, the unit may need to be replaced.