

**Pioneer H<sub>2</sub>O Technologies Genesis Salt System**  
*versus*  
**Hot Spring ACE™ Salt Water Sanitizing System**

Comparison	Clearwater Spas Pioneer H <sub>2</sub> O Genesis Salt System	Hot Spring ACE Salt Water Sanitizing System	Comment
Price	Premiere Hot Tub \$895	Spa Expo \$1,295 - 1,495	
When was the product introduced	2001	Feb. 2010	Pioneer H <sub>2</sub> O has nearly a decade of experience with their system. Hot Spring has less than a year.
What "Salt" is used?	Sodium Bromide	Sodium Chloride	
What concentration is used?	1400 - 1700 ppm	1000 ppm	As these concentrations are below what humans can taste, the water in both systems will not taste salty.
What sanitizer is produced?	Bromine	Chlorine	<p>Bromine is the superior sanitizer in a hot tub for several reasons.</p> <ol style="list-style-type: none"> <li>1. Its sanitizing power is relatively unaffected by pH changes. Chlorine is much less effective if pH is not held in the proper range.</li> <li>2. Chlorine dissipates rapidly out of water above 97° in temperature. Bromine does not.</li> <li>3. "Combined" bromine is nearly as effective at sanitizing as bromine itself. "Combined" chlorine has little sanitizing power.</li> </ol> <p><b>Note:</b>            Combined bromine also has significantly less odor than combined chlorine.</p>
What process is used to create bromine or chlorine?	Electrolysis	Electrolysis	Both systems use the same electrolysis process to produce their sanitizing agent.
What is the electrode made of?	Graphite	The "Diamond Technology" is a microscopically thin layer of diamond that is vapor deposited on their electrode.	This "Diamond Technology" is actually a disadvantage (see below) for the spa owner, though clearly a marketing advantage for Hot Spring. "Diamond" sounds like it should be expensive – and the Hot Spring ACE System is expensive.

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			<b>Note:</b> Both Graphite and Diamond are pure forms of carbon. The difference is that diamond is a crystalline structure.
Does the spa owner have to clean the electrode?	No	Yes, Every 3 months	Due to the “Diamond Technology”, the Hot Spring ACE System does not reverse electrode polarity; hence it is not self-cleaning as the Genesis unit is.
Hot Spring claims their ACE System “Generates Five Cleaners”	Pioneer H <sub>2</sub> O make no such claims for the reasons noted in “Comments”, however the system produces the same versions of oxygen.	Four of these “Cleaners” are versions of oxygen, the 5 <sup>th</sup> is chlorine.	<b>Note:</b> Electrolysis by definition produces oxygen. The Genesis System does this also. However note that Hot Spring calls these “Cleaners”. Hot Spring does not call them “Sanitizers” because they can’t. Only Bromine & Chlorine are certified by the EPA as “Sanitizers”. Pioneer H <sub>2</sub> O simply does not try to inflate the true performance of their Salt System.
How often must the spa owner change spa water?	<b>“The Genesis can go up to 12 months before a drain and fill is required.”</b>	<b>“your spa water should last longer between changes”</b>	Why is Hot Spring not making a commitment?
Calcium Level	150 – 400 ppm  Adding Calcium to your Genesis spa will cost approx. \$5.00 / year.	50 ppm <b>“Vanishing Act™ calcium remover is the only product recommended to decrease the hardness of the spa water”</b>	There are 2 big problems here. 1. The water coming from your tap is likely in the range of 80 – 120 ppm. You will have to remove Calcium using Hot Spring proprietary “Vanishing Act”. 2. Levels of Calcium below 150ppm can damage your spa. This is a well-known fact, so we have no idea how Hot Spring plans to address this issue when future problems emerge.
Warranty	Both Clearwater & Pioneer H <sub>2</sub> O provide a 5-Year Warranty	We can find no warranty from Hot Spring for their ACE Salt System	What is Hot Spring’s commitment to the longevity of their ACE Salt System?