Step 1: Prepare the Hot Tub

1. Fill hot tub with fresh water.
   - If using source water that is high in iron or other metals, see your dealer before filling the hot tub. It may require the use of a metal control product.

2. Clean or replace filter cartridges when dirty.
   - Follow manufacturer’s instructions.

3. Balance water by following STEPS a – d in order.
   - IMPORTANT: Always follow printed instructions on the balancing chemical packages. Adding balancing chemicals in small increments at one a time with the jets on and wait 6 hours before testing again and adding any additional balancing chemicals.

   **Water Balance Guidelines**

   - **pH**: 7.2 – 7.8
   - **Total Alkalinity**: 80 - 120 ppm
   - **Calcium Hardness**: 150 - 250 ppm
   - **Total Dissolved Solids**: <1500 ppm

   **a.** Take a water sample from the hot tub and dip a FROG® Test Strip into it.

   **b.** Look at the Total Alkalinity reading first. Adjustments should be made to bring the Total Alkalinity in the range of 80 – 120 ppm prior to making any adjustments to pH even if it throws pH off further.

   **c.** After Total Alkalinity is in range, test for pH. It should be between 7.2 and 7.8. If higher or lower, adjust pH

   **d.** Lastly test for Calcium Hardness. It should be between 150 and 250 ppm. If higher, partially drain the hot tub (about 6 inches) and fill with water low in calcium. If lower, add Calcium Increaser.

   **Very Important!** Before using cartridges, establish an initial residual of 0.5 – 1.0 ppm free chlorine with FROG® Jump Start® (EPA Reg. No.: 53735-12) start-up shock, included in the package, that quickly dissolves with an effervescence fizzing action – one packet per 600 gallons.

Step 2: Set the Cartridges

1. Open cap of In-Line System and set aside. DO NOT OPEN CAP WHILE JETS ARE ON.
2. Remove holder by pushing down and turning counter clockwise before pulling out.
3. Snap the FROG Serene Mineral Cartridge into the area marked “Minerals” (top portion) and the FROG Serene Bromine Cartridge into the area marked “Bromine” or “SmartChlor” (bottom portion) making sure to line up the indentation at the top of the cartridges with the raised area on the holder.

Step 3: Put the System to Work

1. Drain and refill hot tub as direct ed by your hot tub manufacturer or every months when FROG minerals need to be replaced.
2. Run filtration system as the manufacturer recommends to maintain proper water flow through the In-Line System.
3. Regularly test water with FROG Test Strips and adjust Total Alkalinity and Calcium Hardness.

   **NOTE:** pH is affected by bather load, chemicals used, evaporation and the makeup of your source water so maintaining water balance regularly is important.

Step 4: Routine Hot Tub Care

1. Maintain at least a 1.0 ppm bromine level at all times. Note: Bromine levels are reduced to up to 50% when using FROG minerals.
2. Shock the hot tub once a week or as needed with no-chlorine shock. Heavily used hot tubs may require more frequent shocking.
3. Replace mineral and bromine cartridges as directed in Step 3: Put the System to Work.
4. Lubricate in-line holder or-ring twice a year with a silicone lubricant.

Troubleshooting

- **Cloudy Water or Low-Bromine Levels**
  - Check water balance, pH and Total Alkalinity need to be in the proper ranges for the FROG Serene In-Line System to work correctly.
  - Check FROG Serene Bromine Cartridge and replace if empty — see instructions under “Put the System to Work”.

- **High Bromine Levels**
  - Make sure your FROG Serene Mineral Cartridge is not older than 4 months as it will be ineffective and more bromine will be required to maintain the hot tub until you replace the minerals.
  - Shock the hot tub with a non-chlorine shock to regain clarity.

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- **Cloudy Water or Low-Bromine Levels**
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  - Check FROG Serene Bromine Cartridge and replace if empty — see instructions under “Put the System to Work”.

- **High Bromine Levels**
  - Measure the FROG Serene Bromine Cartridge from the In-Line System until the bromine level is down to 2.0 ppm.
  - Lower the FROG Serene Bromine Cartridge by 1 number and replace cartridge in the In-Line System.
  - Test in 24 hours. Repeat process until bromine level stays within 1.0 to 2.0 ppm.

**Learn more at frogproducts.com or call 800.222.0169**

* Compared to the minimum ANSI recommended bromine level of 2.0 in a residential hot tub.