





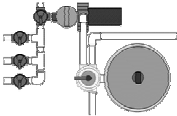


Problem	Causes	Solution	Preventive Measures
<b>Cloudy Water</b> 	High Ph Dirty Water Low free Chlorine residual High total alkalinity	Bring your pH into the desired range of 7.2 ~ 7.6 ppm. Check filtration system. Backwash if needed Bring free chlorine residual into the desired range of 1 ~2 ppm.	Maintain a proper pH level using pH reducer. Use filter cleaner each spring and fall. Maintain a proper chlorine level using granular chlorine. Lower total alkalinity in 60 -100 ppm. range by using pH reducer
<b>Green Water</b> 	Green Algae ( hazy water) Copper in fill water ( clear water)	Bring pH level to ideal 7.2 ~ 7.6 range. Shock with chlorine shock treatment.	Add Chlorine or Bromine to the tub every week. Use Metal gone to help prevent copper build up
<b>Reddish brown water</b> 	Dissolved Iron or Manganese in water	Adjust pH to 7.2 ~ 7.6 range. Use Metal gone . Let pump run until water is clear.	Add Metal gone every week at the rate of 2 ounces per 600 gallons.
<b>Eye and Skin Irritation</b> 	Combined Chlorine level to high. pH level too high or too low	Shock the spa. Let circulate and then adjust the chlorine residual. Adjust pH by using pH Increaser or pH Reducer to bring pH to ideal range.	Shock treat every week or after heavy usage. Test for chlorine residual daily. Test pH level daily and maintain pH in 7.2 ~ 7.6 range
<b>Chlorine odor</b> 	Chlorine level to high	Add Renew at the rate of 3 tablespoons. Allow to circulate.	Add Renew at the rate of 3 tablespoons twice a week.
<b>Calcium scale formation</b> 	pH too high Total alkalinity too high Calcium hardness level too high	Add pH Reducer to bring pH into 7.2 ~ 7.6 ppm. Add pH Reducer to bring down total alkalinity to 60 ~ 100 ppm. If hardness level is too high some water may have to be drained.	Maintain pH level in 7.2 ~ 7.6 ppm. range. Maintain total alkalinity level in 60 ~100 ppm. range.
<b>Corrosion of metal parts</b> 	pH too high Total alkalinity too low Calcium hardness level too low	Add pH increaser to bring pH to 7.2 ~ 7.6 ppm. Add pH Reducer to bring down total alkalinity to 60 ~ 100ppm.	Maintain pH level in the 7.2 ~ 7.6 ppm range. Maintain total alkalinity level in 60 ~100 ppm range. Maintain hardness level at 120 ~ 400 ppm range.