

## **METALS IN WATER**

The problem is most people don't realize they have metals in their water. Even trace amounts of these metals (iron, copper, manganese, lead, nickel, cobalt and silver) can cause staining.

In fact, there's enough copper in ONE penny to completely stain an average sized swimming pool! Obviously, the conditions have to be right. This is where prevention & good, proper care come into play.

Here's what happens: metals come into your pool whenever fresh, make-up water is added. These metals are already dissolved in the water. Whether you use municipal water or well water, metals can be present.

As the metals accumulate, the greater the chance that they will eventually come out of solution. Once out of solution, they make the water cloudy or worse, they "plate out" on the pool's surfaces & stain. Metals can come out of solution through a variety of ways. But there's two that typically happen

### **IRON'S EFFECT**

When a pool is shocked whether with chlorine or a non-chlorine oxidizer, the shock oxidizes everything in the water, including metals. Oxidized metals become "rust" in the case of iron or "Verdigris" in the case of copper.

### **COPPER'S EFFECT**

In the second way, metals come out of solution or are left "exposed" when the pH, Total Alkalinity and / or Calcium Hardness are left unchecked & allowed to go low (pH below 7.2, Total Alkalinity below 80 ppm [non-pristine blue pools], Calcium Hardness below 100 ppm.) The water becomes aggressive & the metals are more susceptible to oxidation. In many cases, pool-owners don't properly test their water & more likely rely on the "look" of the water (the water's clear, everything must be alright). This is typically the case with blonde hair turning green – low pH helps bring copper out of solution & "plates" it out on the person's hair! Then people blame the chlorine! It's the copper in the water.

When it comes to testing, remember that you can only test for metals when they are in solution. Once oxidized, the metals come out of solution & cannot be tested. That's why once a metal stain has occurred, the metal test will NOT show any metals present.

Here's how to prevent metal stains:

Keep the water balanced. pH 7.4-7.6; Total Alkalinity 125-150 ppm (vinyl pools), 80-125 ppm (plaster/ gunite pools) (Please note that these TA values ARE NOT applicable in Pristine Blue treated pools where the TA is to be maintained at no higher than 80 ppm); Calcium Hardness 200-250 ppm (vinyl pools), 225-275 ppm (plaster/ gunite pools).

**\*\*After filling your spa be sure to add a Metal Gone/Metal Free agent along with your chemicals to prevent iron from the water adhering to the stainless steel parts. Add this as needed to prevent future iron from the water adhering to the stainless steel parts. If you notice any discoloration on the stainless steel, it is the iron from the water collecting on the stainless steel and it makes a rust substance. Clean it off, polish with a compound and add the Metal Gone/Metal Free agent to the water.**