



## *Why Titanium!*

Poor water chemistry can be damaging to a heater element, particularly when amplified by abuse or neglect. Additionally, fill water that is naturally high in salt, lime, and calcium can also promote a slower but premature failure as well. Below you will learn why titanium provides a superior defense against “adverse” water conditions and will extend your element’s useful life.

### **Chemical Failure**

Corrosion is the etching and rusting effect that happens to ferrous metals. As water becomes acidic (low in pH) or overly chlorinated, corrosion is accelerated and your heater element is most at risk. Titanium is not a coating and is non-ferrous (less than .03% iron), and therefore will withstand greater chemical punishment without the pitting, etching, and surface breakdown of typical nickel alloys.

### **Mineral Failure**

Lime and calcium can naturally collect on the element’s surface and form a white “scale” coating. This insulating layer will slow heat transfer, resulting in lower efficiency, longer run periods, and higher internal temperature. This excess buildup will not let heat escape efficiently, and in time the element will cook itself to death.

### **Titanium is the Solution!**

Titanium has quickly become the solution to heater longevity and has long been the best defense against chemical and mineral abuse. Even with today’s salt chlorinating systems, there has been no other material that has improved heater longevity like titanium.

**Titanium doesn’t allow scale to harbor onto the surface.** Titanium naturally produces a dioxide film that continually migrates to the surface and detaches harmful content. Additionally, titanium’s surface pores do not open when heated and will not allow harmful chemicals or particles to collect and harbor. This “self scaling” miracle can be verified in your own dishwasher. As heavily concentrated detergents are added weekly, your element remains nearly scale free for years. All commercial and most residential dishwashers are equipped with titanium elements for this reason.

**Titanium contains no iron and therefore cannot rust or corrode.** Given the worst water conditions, titanium can resist pitting, oxidizing, and surface breakdown up to five times better than typical nickel alloy elements. Titanium is not magnetic and will not attract materials that can attach and promote deterioration. Additionally, titanium has an exceptionally low thermal expansion rate, and this will reduce the stress that can cause structural fatigue and fracture.

**Titanium provides your best defense against common recreational water chemicals and becomes more beneficial and is a much better value when water chemistry is less than perfect!**