Understanding Your Anode Rod

A lot of people take their water heater for granted, assuming they can install it and simply forget about it. For the most part, this is true. Tank style water heaters are fairly simple devices and do fine with a minimum of maintenance, so long as your anode rod is doing fine.


A new anode rod

What is an anode rod? The short and simple answer is “Sacrificial rod used mainly in water heaters. It helps protect the lining of and generally lengthens the life of a water heater.” Okay, but what does that mean?
Right. Time for the longer answer.

Plumbing involves metals and water. When these combine, you get this thing called galvanic corrosion. Wikipedia defines galvanic corrosion as “an electrochemical process in which one metal corrodes preferentially to another when both metals are in electrical contact and immersed in an electrolyte.” So your piping, which is one kind of metal, and your tank, which is another kind of metal, and the water, together set the stage for some fantastic galvanic corrosion. This is not good.


After one year

To prevent the tank from rusting or your element from corroding, the brilliant plumbers and/or chemists of long ago created an anode rod for the water heater tank. The idea was that the anode rod would corrode first, leaving the metal of the tank (and element if you have an electric water heater) alone, saving you from a rusted hulk randomly springing leaks.
Most anode rods that come pre-installed in water heaters are formed aluminum or magnesium around a stainless steel cable. When you check your anode rod, you’ll probably see some pitting. That’s exactly what should be happening. However, to keep protecting your tank, replace your anode rod quickly when you can see a good chunk of the cable. Waiting a long time is not a good idea. Having a depleted anode rod WILL shorten the life span of your water heater.

Another problem with waiting too long? The possibility of the old water heater anode rod breaking off and falling to the bottom of the water heater. Doesn't sound so bad, does it? Unfortunately, the problem then becomes the issue of the loose anode rod bouncing around whenever water travels inside the water heater. This is bad. It will cause cracks in the glass lining of the water heater, which is another way your water heater is protected from rusting, and will radically shorten the life of your water heater.

Anode rods have a life expectancy of about five years but again, it really depends mostly on the quality of your water and how much water travels through your water heater, as well as the qualities of your water. When sodium is added to the water (such as when a water softener is used), anode rods can corrode more quickly. Water softeners can help reduce sediment, but anodes can corrode in as little as six months if the water is over-softened, so try to leave a little bit of hardness in your water, for the sake of the water heater, and definitely make sure to check your anode rod a bit more often if you have a water softener.

Now that we've explained how marvelous your water heater anode rod is, get out there and check your water heater! Make sure you know where your anode rod is and see how it's doing! After all, if you take care of your anode rod, your anode rod will take care of your water heater!

Your turn: What's your best/worst water heater or anode rod story?