



Know-How · Solutions · Parts

THE BASICS	ROTTEN-EGG ODOR ISSUES	COMMERCIAL HEATERS AND STORAGE TANKS	FOR CONTRACTORS
SITE MAP	THE TANK: A FORUM FOR WATER HEATER MATTERS	TROUBLESHOOTING	FUN STUFF
LOST? THEN CLICK HERE	THE FUTURE OF WATER HEATING: TOWARD A MORE EFFICIENT TOMORROW		PRODUCTS

The Cause of Rotten Egg Odor

The most common cause of smelly water is anaerobic bacteria that exist in some water and react with the magnesium and aluminum sacrificial anodes that come with most water heaters to produce hydrogen sulfide gas, making the classic rotten egg odor. The problem is most common in well systems, either private or municipal.

Softening can make smelly water *much* worse.

What *Not* to Do to Get Rid of Smelly Water

We've heard of plumbers or handymen advising people to remove the sacrificial anodes from their water heaters as a solution to smelly water. It's a solution all right, but one that will ensure your water heater rusts out in record time. There is a reason why removing an anode voids the warranty.

Additionally, people have been told to replace a magnesium anode with an aluminum one. Don't. Aluminum causes just as many rotten eggs as magnesium.

This Won't Fix Stinky Water Forever, But It's a Start

Cheap, simple, effective, but not forever. Shut off the cold water valve to your water heater, open a hot faucet somewhere in your house to relieve pressure, drain some water from the tank, open the plumbing on one side, and dump in a few pints of hydrogen peroxide. Close everything up, turn on the cold water again, and let some water run from all spigots and taps. You should be odor-free until the next time you go out of town and allow the water heater to sit, unused. Then you'll have the problem again. For details on this procedure, go to [Know-How](#).



By the way: use peroxide, not chlorine bleach. Either will work, but peroxide is much safer.

One caveat: if you have smelly water at one sink, but not all of them, dump the peroxide down the basin overflow, instead of into the water heater. Sometimes bacteria can build up in there, too.

And apropos to that: make sure it's really the hot water that smells. There are places where there is so much sulfur in the water that hot AND cold water smell. Applying these procedures won't solve that. But if the water smells like rotten eggs, and you can smell it at every hot fixture, then these solutions will work.

Another caveat: if you have a vacation cabin with odor, click [here](#).

The Complete Fix, in Most Cases ...

Very often, replacing the standard magnesium or aluminum anode rod with an aluminum/zinc alloy anode will solve the problem. The zinc is a key ingredient, since pure aluminum anodes will also reek to high heaven.

For most folks, an aluminum/zinc anode is the cheapest fix for this problem and we urge you to try it first before

considering the alternatives -- unless you soften your water. More on that in a moment.

Contrary to our usual advice, we do not think you should put two anodes in your tank, even aluminum/zinc ones, as it may worsen the odor.

These anodes come in four flavors: standard hex-head, flexible hex-head, standard combo, flexible combo.

Those terms, doubtless, mean nothing to you, but they're important if you're to choose the right anode.

The photo at right shows hex and combo anodes. The latter is also called an outlet anode.

Hex-heads go in their own hole on top of the water heater. In most cases, you'll be able to see the hex head. If you can't, the anode is either hidden under the sheetmetal, or possibly under a plastic cap, or your tank has a combo anode.

Combo anodes share the hot-water-outlet port. If you're not sure if there is an anode in there, try to run a long screwdriver down it. If there is an anode, the screwdriver won't go more than a few inches. This used to be easier, when nobody used heat-trap nipples. If you can't do this, unscrew the nipple to see if there is an anode beneath it.

Some water heaters have two anodes. Not only is it important to put an aluminum/zinc anode into the heater; it's also important to remove all previous anodes or the hot water will still smell.



Standard hex-head anodes need 44 inches of overhead clearance. Standard combos need 48. Flexible anodes are loose links connected with flexible wire. They are good down to 12 inches overhead clearance, and can be cut shorter if they are too long for the tank.

... But, If You Have Softened Water

We have had a few people buy an aluminum/zinc anode and the odor didn't go away. That's vexing for them and us. The cases involved softened water. Softening can speed up anode consumption by increasing the conductivity of the water. That can increase the amount of hydrogen sulfide gas produced.

So we've started offering powered anode rods. A sacrificial anode creates an electrical reaction inside a water heater as it corrodes. A powered anode does the same by feeding electricity into the tank. Since there is no magnesium or aluminum, there's no smell. We don't recommend them for everybody, though, because they're several times more expensive than sacrificial anodes. But they are permanent: they aren't sacrificial, so they don't need replacement.

One more thing: There are several configurations of residential water heaters. Most have a hex-head anode in its own port somewhere on the top of the tank. A few do not. Some of Bradford White's, A.O. Smith's and State's residential tanks employ a combo anode/hot-water outlet/nipple in the hot port. A powered anode can be used with those tanks by adding a galvanized tee to the hot port. The bottom port of the tee will connect to the tank; the plumbing to the house will go out the side port; the powered anode will screw into the top port with the element hanging down inside the tank.

Additionally, we came up with a third flavor, because somebody had just bought a heater and was afraid that if he cut the sheet-metal top to accommodate the wider hex nut of the powered anode, that it would void the warranty. So we also offer a combo-type powered anode, but with a plastic-lined nipple and galvanized coupling, to move the anode up a couple of inches from the surface of the heater.

How do you tell if an anode is hex or combo? It's a fair question because some heaters do have a hex anode but it's hidden under sheetmetal, or perhaps under a plastic plug in the top. Visit [Know-How](#) for strategies on uncovering hidden

anodes. The easy acid test though, for a combo, is to disconnect the hot-side plumbing and unscrew the nipple to see if it's just a nipple or has an anode attached to it. It's worth doing this test even if your tank has a hex anode because if there is a standard anode anywhere in the water heater, you'll have rotten eggs, no matter what anode you employ elsewhere.

Issues With Aluminum

In other parts of our site, we warn of issues with aluminum anodes. Those issues are exactly the same with aluminum/zinc anodes, which are about 92 percent aluminum. So if you install an aluminum/zinc anode, get in the habit of running the cold water for a few seconds before drinking it or cooking with it. That will flush out any aluminum-laden water from the water heater that has cooled off in the piping since the last use.

Finally, If Your Water Heater Sits Idle a Lot

If your odor problem involves a vacation cabin or second home, then installing even a powered anode may not solve your problem. If that is so, don't buy any of this stuff. Instead, check out the [Peroxide Gambit](#). It's not as simple as an anode, but it should resolve your problem for almost nothing.

Pricey Alternatives

There are a couple of other potential solutions you can consider. One is Rheem's Marathon electric heater, which is plastic-lined and has no anode. However, it costs several times more than a standard water heater and might be expensive to operate in some parts of the country where the utility rate structure favors gas.

Another is an instantaneous heater. We're not overly fond of those. They cost several times more than a tank-type heater and have their own problems. To see what we think is the downside, read [Tankless](#). Still, this is one place where they might be a solution.

Why Me, Oh Lord?

There have been a number of situations where people replaced their water heater and found they had smelly water with the new one even though they didn't with the old one. All we can do is speculate on the causes. All the action in water heaters takes place where nobody can see and it never happens in a scientific laboratory testing environment.

It might be that toward the end of the life of a water heater, there was too little anode left to make much hydrogen sulfide gas. Or it might be the water supply changed in some way. Our own water heater once had smelly water and required an aluminum/zinc anode, and now it doesn't.

There's something few realize: water is a chemical and one that is constantly changing. The water that flows out of the tap this evening may be different from that from this morning, either because of what's in the ground or because water companies have changed their sources of supply or added something new to it..