

Rust Removal via Electrolysis

Ingredients:

- Rusty steel gas tank
- Arm and Hammer WASHING SODA (from the laundry aisle at the grocery store)
- Water
- Sacrificial iron anode (large nail or piece of re bar, etc) - NOT stainless steel
- Automotive type battery charger (2 - 10 amp works well)

Steps:

- Dissolve 1 tablespoon (more or less) of washing soda per gallon of warm water required to fill the tank.
- Fill the tank with the solution.
- Affix the anode inside the tank so that it doesn't touch metal to metal anywhere. You can use scraps of wood and/or electrical tape on the ends, built up to insulate it so it won't touch the tank. You may extend it with a piece of copper wire outside the tank if needed - insulate that too! The key thing is you don't want any of the sacrificial part of the circuit to touch the tank and create a short circuit.
- Apply the POSITIVE lead to the sacrificial piece of iron or copper wire lead.
- Apply the NEGATIVE lead to the steel gas tank.
- Turn on the charger and it will start the process.

Almost immediately expect to see a small stream of bubbles coming up out of the water where the rust is. Let it run overnight.

Turn off everything remove the anode, and pour out the solution into a bucket. You'll have to rinse it all very well as you may have loose rust/sludge in the bottom of the tank.

If it's really rusty, repeat the process again - you can reuse the solution just filter out the crud. Solution should be able to poured down the drain as it's like laundry soap. If the anode is dirty after the first round, take a wire brush or a scotch-brite pad to it.

The rust removal is a "line-of-sight" process so you may need to move the anode around from time to time to be sure the whole tank is affectively covered. 2-amp charger is slow but will get you there, 10-amp is faster. It does not harm the tank if left running longer than necessary. It seems to leave a black residue which wipes off and doesn't seem to harm anything.

To be sure all water is out of the tank after rinsing use some high 90%+ rubbing alcohol, or acetone to remove traces of water. If the tank is going to be stored, slosh some 2-stroke oil around in it, or some folks treat it with an epoxy motorcycle tank sealer if it had been previously very rusty and the seams might be thin.

I've also used this on tools and car parts with great success. Get a plastic storage bin or a 5-gallon bucket to act as a tank. Just remember the NEGATIVE lead goes on the part you want to clean.

Small caution: The bubbles released include hydrogen which is flammable. Keep away from flames or allow ventilation - I've never had a problem in a 2-car garage - opening the window seemed to do just fine, as it's only a small amount of gas released.

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