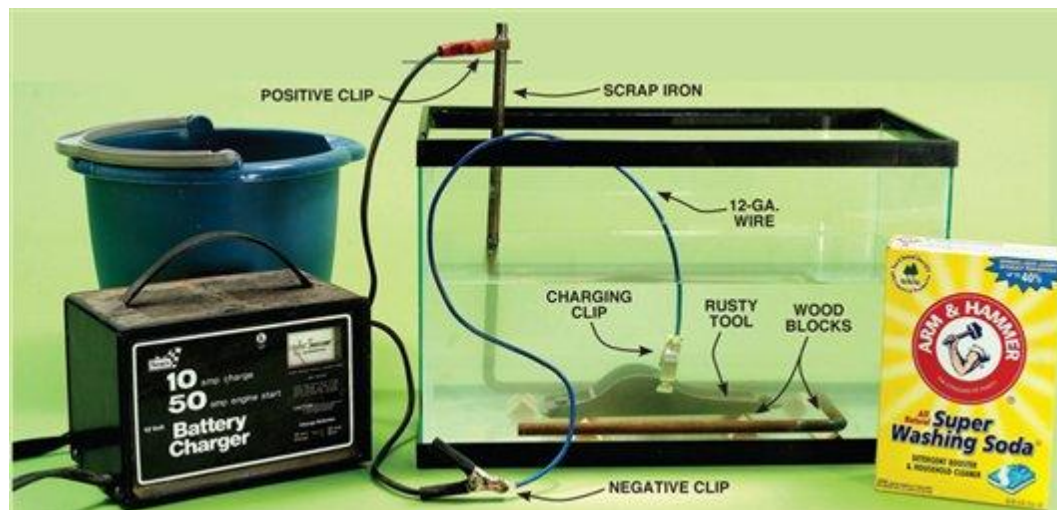


By [American Woodworker Editors](#) Posted [September 25, 2012](#) In [Shop Blog](#)

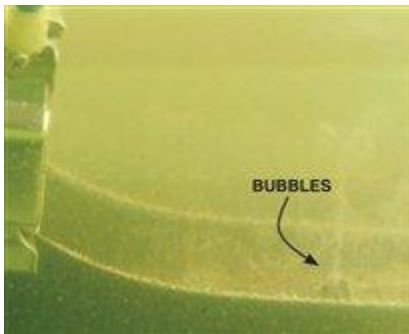
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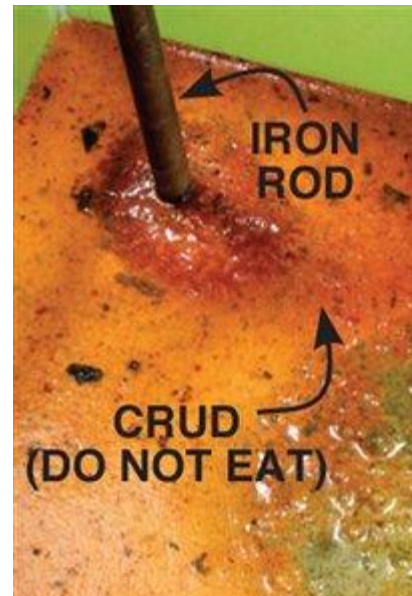
Clean Rusty Tools by Electrolysis

Electrolysis is a gentle, safe way to chemically remove all the rust from small tools, and it leaves the iron untouched. An abrasive can remove rust, too, but it may require removing a large amount of metal, either weakening the piece or destroying its value. Here's what you need: A small battery charger, a plastic or glass container, washing soda (available in the laundry-detergent aisle at grocery stores), scrap iron, a charging clip and a couple feet of wire. Here's how it works: Follow the setup in Photo 1. The tool gets a negative charge and the scrap iron gets a positive charge.

1. Electrolysis is not a complex operation. Mix one tablespoon of washing soda in one gallon of water. Pour this solution over the tool until it is covered. Hook the charger's black negative clip to the tool using a length of 12-gauge wire and a charging clip. This keeps your charger lead out of the soup. The red clip must be hooked to a portion of scrap-iron rod that is out of the water, because it would be eaten away in the water. Wooden blocks suspend the tool so the bottom gets cleaned as well.



2. Bubbles indicate the process has started. Now all you have to do is wait until the bubbles stop. This plane iron took a day and a half.



3. The orange crud on top is all that rust fleeing from the negatively charged tool to the positively charged iron rod. This is a good thing. It looks terrible, but this nontoxic sludge can be poured down the drain.

The rust flees from the negatively charged tool and is attracted to the positively charged scrap iron. The cleaning action occurs only in a line-of-sight manner, so it's best if the scrap iron surrounds the tool. When you've wired the tool and scrap-iron rod, plug in the charger. The lowest setting is all you need. Bubbles mean it's working (Photo 2). Eventually, a reddish brown crud will appear on the water's surface (Photo 3). When bubbles no longer form on the tool, you're done. Clean the tool with water and a gray 3M finishing pad. Treat your restored tool to a coat of rust-inhibiting wax or spray.



Safety Considerations: Electricity and water can be dangerous. Keep the charger away from the water in case of an accidental spill. Unplug the charger prior to placing your hands in the water.
