Corrosion is the Pits

6 Steps to Loving Up Your Tools So They Love You Back

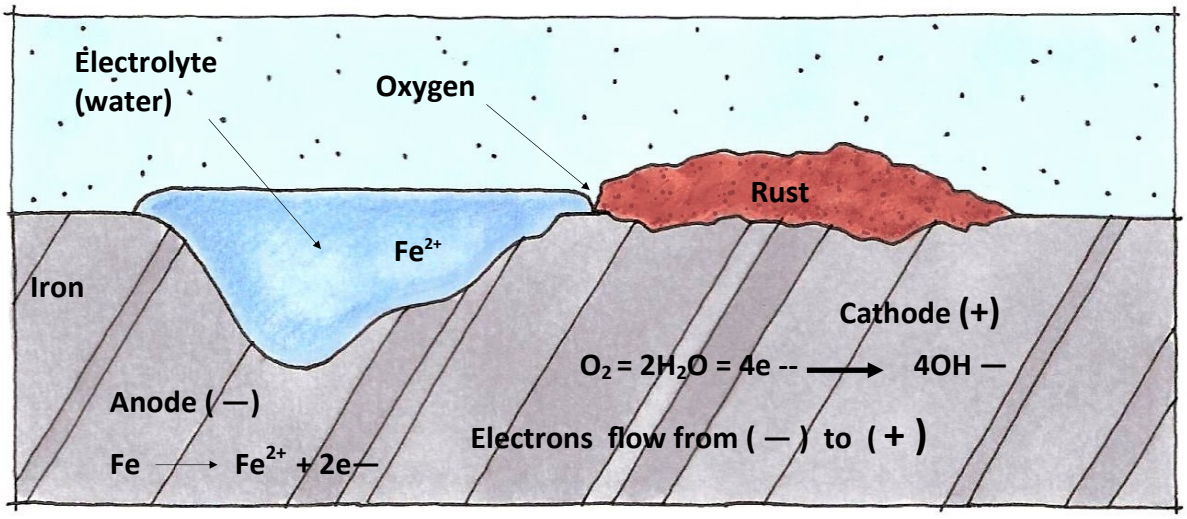
From *Sharp & to the Point; A Shameless Shill for Hock Tools*, #2/2017

Rust is the product of the oxidation of iron. Iron and oxygen are eager to combine and make rust, but for this to occur iron must be in contact with water and oxygen. Air contains both of these, depending on the relative humidity. Water in the air is readily absorbed by a speck of dust on the surface of one of your tools to form a droplet. That tiny water droplet on the iron surface is all it takes to provide the electrolyte necessary to allow oxygen to combine with the iron and water, creating an iron hydroxide molecule (Fe(OH)x). Additional oxygen in the water combines with the iron hydroxide to form hydrated iron oxide (Fe2O3,H2O), which we know so well as brown rust: a porous, absorbent coating that encourages yet more rust.

– Ron Hock, *The Perfect Edge; The Ultimate Guide to Sharpening for Woodworkers*, Popular Woodworking Books, now available for download on DVD!

Did you know that the National Association of Corrosion Engineers (NACE) estimates that corrosion costs the U.S. economy over a trillion dollars in 2015 and in 2016? We're talking corrosion in design, manufacturing, and construction, as well as indirect costs and what it costs to manage corrosion. According to NACE, corrosion is one of the largest single expenses in the US economy; yet, it rarely receives the attention it requires, even though it is over 6.2% of the GDP.

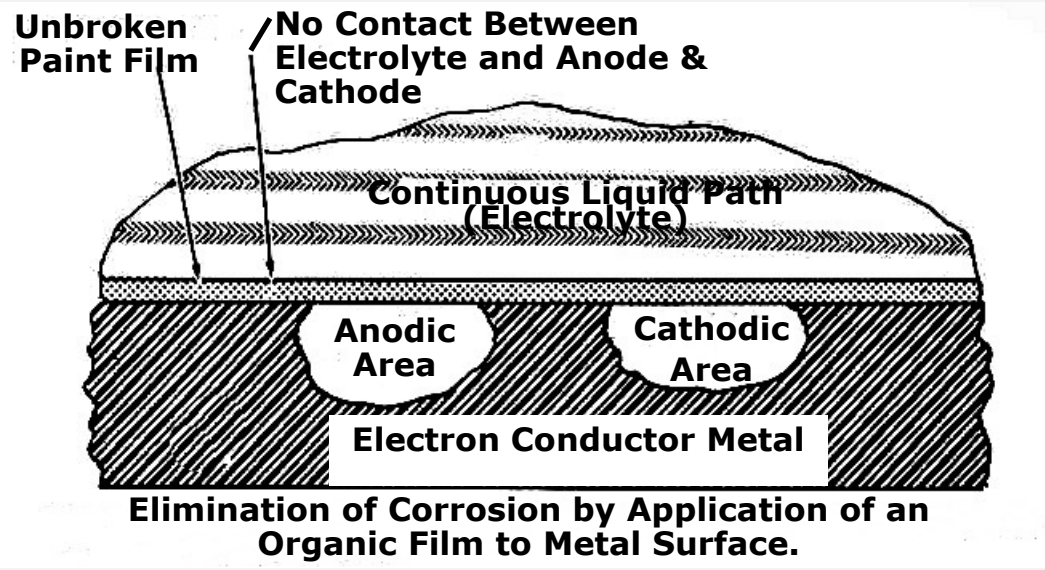
Yup, we're talking RUST, the corrosion problem most woodworkers



The Chemistry of Rust: The corrosion of iron into rust is a complex process.

deal with every day! Humid climate? Winter rain and snow? Your customer's shop in a basement or garage? Is it cooler there at night then warms in the daytime – meaning condensation? Then they've got corrosion, and corrosion is the pits!

Unless you live in a dry climate with a constant warm temperature, woodworking tools corrode. Just about every woodworker in every country experiences their own share of the indirect costs of corrosion, and having a rust resistant plan is a best practice for any shop.



Elimination of Corrosion by Application of an Organic Film to Metal Surface.

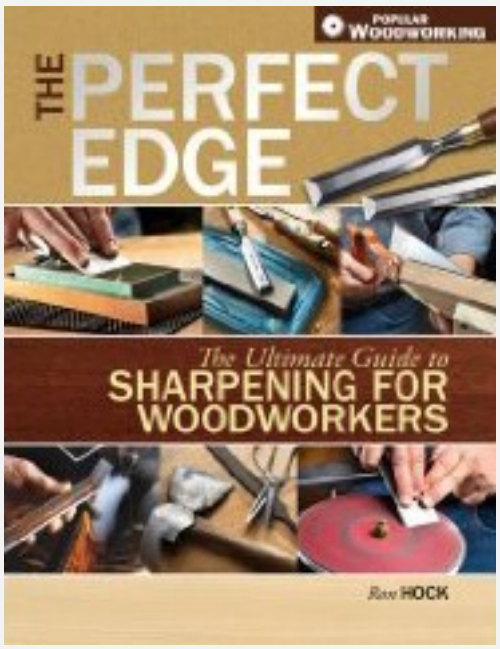
Rust, after all, is a fact nature, it's comes from the air and is in the salt in the sweat and oil from your skin. Water, water everywhere! There is no hiding from the facts of damage from rust. You must be demonstrative in your argument with nature about it.

Once you give rust the basic attention it requires, what you do

next comes down to simple management. You can help your customers by offering rust management products. And, as you know, there are many to choose from! They will appreciate your advice, which will save them money in the long run.

Steel Wool — So Simple, if used early!

Of course, if you have a copy of *The Perfect Edge*, turn to pages 35 to 41. You get Ron's two basic approaches to rust prevention, including preventing water and oxygen from sneaking into a relationship with the iron in your tools, as well as tips on how to convert iron into another compound that is better able to resist oxygen's voracious appetite for oxygen, not to mention his electrolytic actions that combat corrosions aggressive campaign to own your tools instead of you. And, even though you may find that specific situations require specific solutions, resistance to rust is never futile!



***The Perfect Edge; The Ultimate Guide to Sharpening for Woodworkers* by Ron Hock NOW IN DVD!**

Here's How You Can Help Your Customers with Corrosion Management:

1. Have them Inspect Their Tools. Woodworkers should inspect their tools on a regular basis, both handtools and power tools, checking for any signs of corrosion such as pits, bubbles, or visible red surface rust. Rust is pernicious and sometimes lurks below the surface, erupting into a blemish later. So, take the time to look closely. Also, they should keep a cloth handy to wipe away fingerprints, which are filled with rust causing chemicals.

2. Teach them to Perform Basic Rehab Right Away. Some tools require only basic rehabilitation. Visible rust can easily be removed by using gentle rust erasers and removers, lubricants and oils, mineral spirits, or WD40. Remind your customers to stay away from silicone which can interfere with finishes – no silicone!

3. **Recommend Immediate Basic Repair.** Certain tools may possess pitting and rust deeper-than-wiping-away related blemishes. These require repair. As with basic rehab, the offending rust that has eaten away the iron atoms once belonging to the iron surface must be removed. This means, too, that at this stage there is a pit, or worse, on a metal surface or edge. In this case, recommend your customer abrade to the bottom of the damage and somewhat beyond it. If the damage occurs on a bevel, or at the edge, they may have to reshape that bevel or edge. Also, this is where *The Perfect Edge* comes in handy because Ron discusses when to carefully and uniformly scrub with steel wool and when to more aggressively soldier up against the forces of oxidation by using chemical or electrolytic action. Ron describes step-by-step how to build an electrolytic de-ruster.

4. **Tell them to Treat the Surface.** All the while, and whenever exposing freshly rehabilitated metal to the air, treat the surface should be treated so that air cannot dance the corrosion dance. Again, don't let them use silicone, in any shape, spray or form. Silicone tends to wreak havoc on working surfaces, as well as finishes. But, waxes -- such as beeswax mixed together with carnauba wax (especially for long term storage), paraffin, oils, and such keep things rust-free between uses. Recommend they spray and wipe all metal surfaces with a cloth to keep fingerprints to a minimum and to keep metal surfaces protected at all times.

Oh, No! Rust Begins its attack on a Hock Tools Block Plane Blade #BW162. Get the steel wool, get the camellia oil—fast!

5. **Help them Get to Know their Resources.** Tell your customer what a woodworker who has rust under control buys from your store. Ask customers to share tips and what works in their shop and place these tips on cards in your rust prevention section. And, make sure you explain what works best for specific tools and storage durations. ***The Perfect Edge*** is extremely helpful (in more ways than rust), as are a few articles on the Internet, including:

Controlling Rust in Your Woodshop, Highland Woodworker's *Wood News Online, #59*, July 2010.

Rust Prevention for Woodworkers by Adam Cherubini in the April 26, 2012 *Popular Woodworking Magazine Shop Blog* (read the comments, too).

Electrolysis Rust Removal by George Vondriska, *Woodworkers Guild of America* (again, read all the comments, especially the one about not doing this in small spaces because of the potential for buildup in hydrogen gas – kapow!). Watch George's corresponding video ***Removing Rust with Electrolysis***. Mine the Internet for other posts and re-read your favorite woodworking magazine's articles on rust abatement and prevention.

Photo from George Vondriska's *Removing Rust with Electrolysis* online article for Woodworkers Guild of America, which is similar to Ron's electrolytic rust removal process in *The Perfect Edge*.

6. Help Your Customer Develop a Strategy that Works for Them. Whether you have a customer who is engaged in minimal or maximum rehabilitation, you will want to help them develop their own strategy against rust. Recommend they set up a schedule, decide which procedures and products in your store work for them, and then remind them to routinely love up their tools by protecting against rust. You get to sell all sorts of rust prevention products as you build your relationship with your customers and help them with the tools they buy from your store.