

Oxcon, Oxalic Acid

For many years oxalic acid has been one of the most commonly used products for brightening and preparing wood surfaces for staining. Prior to the introduction of organic solvent finish removers, the most popular paint and stain removal products were caustic chemical strippers which contain sodium or potassium hydroxide. They are still sold at most paint stores and although quite caustic and potentially hazardous, they have been used for over 100 years and are relatively inexpensive. One negative feature of using any hydroxide stripper is its extremely high pH that turns wood dark. After a hydroxide stripper is used, it is standard procedure to apply an oxalic acid solution to bring the wood back to its original color. That is how Oxcon attained its original description as a “Blonding Agent.”

Oxalic acid performs well restoring the color of the wood after the use of sodium or potassium hydroxide as well as removing metallic tannate discolorations. Over the years it gained a reputation as being a “cure-all” for other types of wood discolorations. One reason is because many discolorations that were attributed to mold were in fact not mold but metallic tannate or other inorganic complexes. Oxalic acid also gained a reputation for helping to remove grayed or photo-oxidized surface wood fibers. However, it does a rather poor job and there are much more effective products such as our Wood ReNew.

If not properly applied, oxalic acid can do more harm than good when it comes to preparing the surface for a water-based film forming finish like LIFELINE™. Film-forming water-based finishes rely on the integrity of the surface fibers to assure adhesion to the wood. If the surface fibers are damaged and the film does not have intact fibers to bond to, peeling of the finish can result. We have found, in our testing, that the use of concentrated oxalic acid or even a small amount of residual oxalic acid left on the wood can seriously affect the adhesion properties of water-based finish systems.

Like chlorine bleach, oxalic acid is subject to being misused. Even when properly diluted to our instructions and left on the wood too long, especially in hot dry conditions, the water will

quickly evaporate. As the concentration of oxalic acid increases, eventually reaching a point when damage to the wood fibers can occur. Another potential problem with oxalic acid is when it reacts with an alkaline compound, i.e. potassium hydroxide, generating an oxalate salt. Oxalate salts are mostly insoluble in water and difficult to remove with a water rinse. These salts can also interfere with adhesion of waterborne finishes.

Most finish removers that are used today contain organic solvents that do not darken the wood. Since oxalic acid does not remove grayed wood fibers or organic discolorations like brown stain, blue stain or mold, what are the valid uses for Oxcon oxalic acid?

1. Oxcon oxalic acid is the only product that removes inorganic discolorations of metal tannates and rust. If after stripping and cleaning the surface there are still dark colored streaks or blotches, a solution of Oxcon may help remove them. This includes some types of “water marks.”
2. If the stripping and cleaning process has turned the wood dark, a solution of Oxcon may help lighten it up.

To properly use Oxcon here are some guidelines that must be followed:

1. Make sure that any product that was previously applied to the wall has been thoroughly rinsed off prior to the application of the Oxcon solution.
2. Oxcon is a concentrate and **MUST** be diluted with four parts water. That is one gallon of Oxcon to four gallons of water. The use of a more concentrated solution will not work any better and may damage the wood.

3. Do not leave it on the wood for more than 15 minutes. If it is a hot, dry day, wet the wall down before applying Oxcon and keep misting it with water to keep the acid concentration from getting too high. Never, ever allow Oxcon to dry on the wood. If oxalic acid crystals form, they will be almost impossible to remove by rinsing with cold water.
4. After using Oxcon, adequate rinsing is mandatory. While rinsing pay particular attention to any cracks or crevices where the Oxcon solution may have puddled. No one should ever use Oxcon without having pH strips at hand. Just a trace of oxalic acid left on the wood will seriously affect the adhesion of the finish.

After reviewing a number of past adhesion issues, we found that many of them were attributed to the misuse of oxalic acid. There is no reason to routinely use oxalic acid in a stripping and cleaning process just because it has been done that way for years. Only use oxalic acid when it is absolutely necessary. Often, less is best.