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MAKING RUST RETREAT METAL RESCUE

By Jim Allen

If you go to car shows or watch “car TV,” you’ve seen various rust removal products demonstrated. Like you, we were prone to briefly watch, yawn, and move on. We found one product worth staying tuned-in to and thought you might like to see it real-world tested.

Metal Rescue®, from Armor Protective Packaging, is an engineered liquid with molecules that are attracted to iron oxide... a.k.a. rust. They call it, “selective chelation,” whereby synthetic molecules are designed to be attracted only to iron. They bond to iron molecules but because they are too weak to pull the iron molecules out of the steel, they can only work on the iron oxide on the surface and put them into solution. You’d be forgiven to assume that some nasty, caustic chemicals are involved but the reality is that it’s safe to work with using your bare hands

and it’s harmless to most materials, including paint. It’s non-flammable, non-toxic and biodegradable. Those facts kind of defy logic but we’ve seen it for ourselves.

When the Metal Rescue arrived, we were in the midst of an engine overhaul. We had a particularly rusty part from a turbocharger, so we tossed it into a plastic bucket of the product (don’t use metal buckets). This happened to be in the midst of winter and the shop is barely heated enough to stave off frostbite. Not much happened in a bit over two hours and that was no surprise, since we were using

▼**The obligatory before shot shows a rusty turbo mount. Cleaning this up the old fashioned way would have involved the use of a sandblaster, which is not suitable for all parts that get rusty, or a lot of time with a wire brush. With Metal Rescue, you just dump it in a bucket and do something else while those little rust-seeking molecules do their work..**



it exactly wrong. We measured the temperature of the liquid at 40°F. The instructions list a 60-155°F operating temperature range. Efficacy improves with temperature and Metal Rescue recommends 140°F for best results. Yes, we did read the instructions but, hey, this is a test.

We then snuck the bucket into the utility room in the house (shhh... don’t tell the wife!) and sat it in a sink filled with 130° hot tapwater. Very quickly, the Metal Rescue warmed up, started turning dark (the indication that it’s working) and two hours later, we removed the part, rinsed it in hot water and snapped some pictures of the results. It needs a few more hours to get the remainder of the rust, but we were pretty impressed by what a two hour bath with those busy little molecules could do.

Because Metal Rescue only goes after the iron oxide, you can soak a painted part and, as long as that paint is covering clean metal, it won’t be removed or harmed. If there is rust under the paint it may flake off. Some paints (mainly reds and oranges) contain iron oxide pigments and these paints are vulnerable to discoloration. Metal Rescue is generally harmless to anodized surfaces, chrome, nickel plating, power coating or other metals you might find attached to a steel piece, though it’s best to check them often and not to leave them in long. Likewise, Metal Rescue is harmless to rubber plastic, glass and cloth. You can also use Metal Rescue on parts you can’t immerse by placing a rag or sponge soaked in it on the rusty part

▼**Because the Metal Rescue is such a safe product, using it indoors in a household sink likely isn’t a big deal. The iron oxide in solution might stain a white sink but given the harmless nature of the product itself, many people simply dump the used-up product down the drain. Metal Rescue doesn’t specifically recommend that, suggesting you’re checking local regulations first, but they seem pretty confident of their product’s environmental safety.**



► After about an hour into the “bath” the cast iron had already lost much of its rust and the fluid had turned very dark. Here, we are keeping the bucket in hot tapwater to improve performance. Eventually we got the Metal Rescue up to about 130°F and that’s when it really started cooking!

▼ After two hours at 130°F in Metal Rescue, it’s obvious work was being done. It took about three more hours to render this part rust free but we had to finish up later on a warmer day to avoid getting “busted” for using the laundry room sink to clean car parts. Ahem!



and covering it with plastic wrap to keep it from drying out. The Metal Rescue website has a lot more detailed information on its use.

Despite turning dark, the Metal Rescue will still work well. You can’t filter it, because the iron oxide is in solution but you can prolong the effectiveness of the product by getting rid of the loose, flakey rust before you soak the part. Why waste those molecules on stuff that comes off easily. A gallon of the product will hold approximately 1/2 pound of iron oxide in solution. When it goes jet black, and you see the results decreasing, you know its reached the end of a useful life. If you want to go “Science Guy,” you can measure the specific gravity with a hydrometer. When it reaches about a specific gravity of 1.06, that’s pretty much it.

If you’re like us, you will be gobs-macked that you can drop a rusty part into a bucket of Metal Rescue ... with your bare hands... pull out a rust-free part and not suffer with wire brushing, sandblasting, or toxic chemicals. ▲

SOURCE

Metal Rescue
www.metalrescue.com
800-365-1117