

MCP METEORITETM CORROSION PROTECTION

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Corrosion and Iron meteorites = RUST

"NANTAN" is synonymous with rust, corrosion and a deteriorating meteorite. It has earned a very bad reputation as an "instant ruster" with little hope for a cure. No serious collector wants to own a constantly deteriorating specimen.

The list of other rusting irons is well known. Now there is a solution to this age old problem. A new technology prevents ionic vapor phase corrosion by providing a monomolecular protective film layer bonded to the meteorite surface. When you stop vapor moisture transmission to a substrate, you stop its ability to corrode.

From the Paleo-Bond research laboratory at Uncommon Conglomerates Inc., comes a technology developed with rusting meteorites in mind. Working in cooperation with Cortec® Corporation, which developed anti-corrosion systems for the military, we are able to stop cold the corrosion of the iron meteorites in your collection.

A "Getting Started Kit" is available that will permit you to de-rust an iron meteorite in your own shop. Then coat it to prevent corrosion. If you should chose not to coat your specimen, we have emitters that will stop rust in your display cases.



THE PROCESS

SPECIAL NOTE:

If you purchased a meteorite coated with an unidentified clear coat and rust is observed, chances are it is rusting under the coating. You will have to remove the coating chemically to get at the rust. Vapor moisture transmission through poorly formulated coatings means RUST.

CLEANING If your meteorite has rust, and is either a big guy or just a slice, it can be cleaned and restored to its' former un-rusted self. To accomplish this, you will need a combination of mechanical and chemical tools. Your mechanical tools range from air chipper hammers, micro-blasters, a putty knife, and then abrasive sanding and polishing. BUT all of this is a waste of time without chemical interaction to do the present cleaning and to assure that re-occurrence of rust never happens.

Chemicals are used to dissolve corrosion residue (rust) and to prevent it's reoccurrence.

Corrosion in meteorites is the result of out-earth's chemistry that greets the visitor from outer space. Combining with the ferrous element in Galvanic action at the exterior surface of the meteorite and the boundary with the outside atmosphere. A meteorite held in a vacuum will never corrode. For corrosion to proceed, you must have air, water and a few other gases. Just consider that the corroding metal is trying to return to its' former ore status.

For chemical cleaning we'll use a few unique ACID cleaners. The first is a thin liquid that penetrates into the surface and down into cracks. The second is a gel that sits and works on tough, built-up rust areas. Use the nylon scrub brush and the putty knife to help in removal of the oxides. The big difference with our chemistries is that they contain a patented formula that stops Galvanic action. It's called a "Vapor phase Corrosion Inhibitor". This VpCI is in all our supporting products. They are both environmentally friendly and safe to use. After the acid cleaning, neutralize any trace of the acid. Again, VpCI compounds are build into the neutralizer.

SAFETY FIRST

We recommend using safe practices when handling kit materials

- Plastic Nitril Gloves
- Safety Glasses
- Plastic Apron
- Paper Towels
- Polyethylene Table Cover and Utensils

DRY your meteorite in an oven at 150°F for an hour. This will get rid of any remaining moisture that may be present. Let it cool to room temperature.

ETCHING your meteorite is possible now with either Nitol or Ferric Chloride solutions.

NEUTRALIZE the Acid Etching solutions and dry your specimen.

COATING with our special formula clear acrylic solution with VpCI will give you a beautiful finished meteorite.

METEORITE RUST REMOVAL AND PRESERVATION KIT

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This is a "Getting Started Kit" for your initial work in controlling corrosion in meteorites.

The price of the kit is \$50.00.

THE KIT CONTAINS:

- 4 oz.VCI 426 Liquid Acid
- 4 oz.VCI 426 Gel Acid
- 4 oz.VCI 416 Acid Neutralizer (concentrate)
A rust preventive for sawing and grinding solutions.
- 4 oz. M 435 (concentrate)
- 12 oz.VCI 286 Clear Coating Aerosol
- Nylon Scrub Brush
- Acid Application Brush
- Pipette Applicator
- Polyethylene Cups
- VpCI Zip lock bags
- 3M Scotch Brite® Pad
- Detailed Instructions

LARGER QUANTITIES AVAILABLE...CALL

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Detailed Process for Rust Removal & Preservation

THE METEORITE SPECIMEN

A sliced individual specimen is relatively easy to work on, depending of course on the size. Small pieces can be dipped and scrubbed of their oxidation using a plastic cake tray. BIG Slices are a different matter. Prepare them one side at a time and stick with the project until both sides are completed. Cover your work table with polyethylene plastic sheet. Cut three small wood blocks to act as a platform for your specimen. Clean the backside first [usually the unsanded side with saw marks visible] If you treat big slices one side at a time a better overall final result is achieved.

Step #1 - Rust Removal with VCI 426 Acids (Liquid and Gel). Start with an examination of the specimen. If it has rust that measurably sits on top of the surface, take a sharp putty knife and scrape the rust aside. Next, apply the VCI-426 Liquid Acid with a brush. Let it work until you are satisfied the rust is gone [20 minutes+]. Where the rust is deep, use the VCI-426 Gel. It has a slow rate of evaporation allowing the acid to penetrate deep into the rust. Use the stiff nylon brush in your kit to scrub the rusted spots. If you have a deep pit of rust, use an air abrade tool to get down to the un-rusted base surface. Flush with acid again.

Step #2 - Wash off the acids with water. Use bottled water without chlorine. We discovered that using neutralizer immediately after the acid cleaning left a slight white residue. Washing first eliminated this.

Step #3 - Neutralize acid with VCI 416. This step does several things; first, it neutralizes the acid on or in your meteorite. It also allows you to take a break in your processing. The VpCI additive in the neutralizer stops any corrosion for a couple of months. You don't have to rush to the next processes.

Step #4 - Drying. Oven dry your specimen at 150°F [70°C]. Bake for 60 minutes. Obviously, if the specimen is a BIG boulder, it will take a long time to heat through. If your meteorite is dry - it will not rust. Set aside to cool for final process.

Step #5 - Coating. VCI 286, Aerosol Spray Clear Coat. This final coating will build a monomolecular protective barrier that prevents any vapor moisture transmission into the meteorite surface. The all-important VpCI/MCI chemistries provide the needed protection that prevents further galvanic corrosive action.

Meteorite slab finishing:

Preparing a surface for etching is simple if you go through a sequence of abrasives, 280-400-600-1200 grit. Guidance details upon request. ETCHING with either Nitol solution or Ferric Chloride should be done between steps #2 and #3. Again, help is available.

VCI-M435. A new product for preventing rust during cutting, grinding or sanding operations. It will keep laps from rusting and your meteorite from rusting while in the processing sequence over a period of weeks and months. Add to cutting fluids and coolants. VCI-M 435 will be your new best friend.