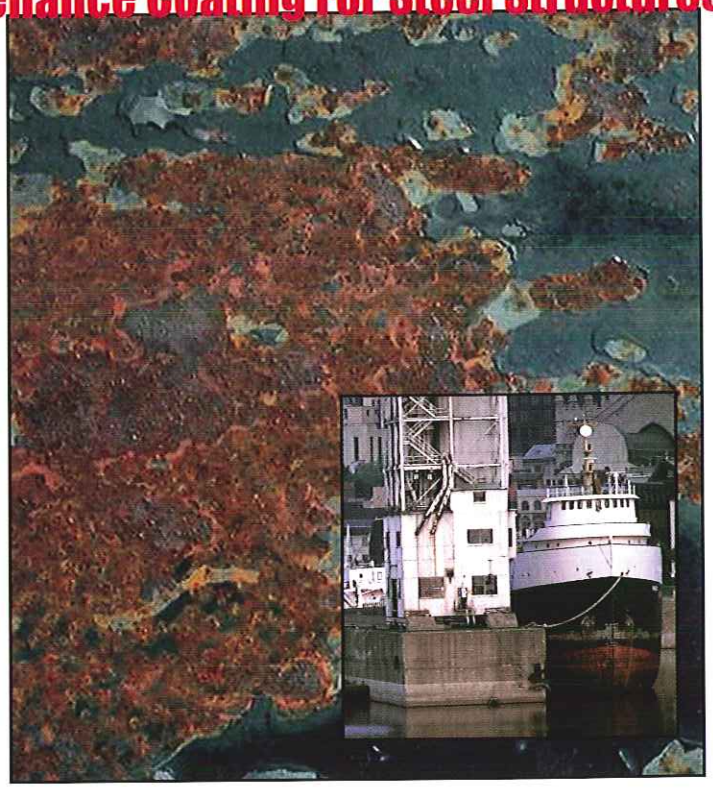
RustCure® H100

The High Performance Maintenance Coating For Steel Structures

Do You Have A Problem With Removing Rust Before Painting?

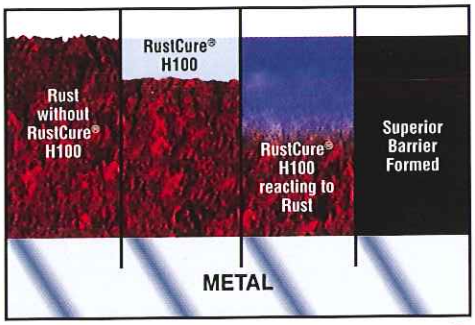
RustCure® H100 offers the answer when blast cleaning is uneconomical, impractical or unsafe.



DESCRIPTION:

RustCure® H100 is a single-component water-based rust converter/primer for use on rusty metal surfaces. It has the ability to penetrate effectively into corroded steel surfaces where an active constituent of the paint reacts with the rust to form a stable layer. It is capable of converting rust in 30 minutes. The rust-stabilizing process is further reinforced by the high performance copolymer latex emulsion which dries to produce a coating with superior barrier properties.

The transmission rate of water and aggressive species (e.g. chloride ions) through the coating is thus significantly reduced. Since corrosion requires water and oxygen, and because the reaction is generally aggravated by the presence of chloride ions, **RustCure® H100** offers enhanced protection to the coated steel substrate.



RustCure® H100 protects steel structures with a dual action. It stabilizes the rusty surface and at the same time forms a protective barrier-coat on the substrate.

Characteristics and Properties:

RustCure® H100 has the following advantageous characteristics and properties:

- Non-Flammable
- Non-Toxic
- Easy Application
- Rapid Drying
- Minimum Surface Preparation
- Excellent Protective and Re-Coat Properties

CESCO
CAROLINA EQUIPMENT & SUPPLY CO., INC.

7251 Cross County Road / North Charleston, SC 29418
843-760-3000 / FAX 843-760-3500
1-888-77CESCO
(23726)

General Information RustCure® H100

Product:	A single component waterborne high performance primer for use over rusted steel.
Color:	When dry, black over rusted areas, clear over non-rusted areas.
Storage:	Preferably store between 40°F (5°C) and 86°F (30°C). Protect from frost.
Shelf-Life:	Minimum of 12 months if stored at recommended conditions. Higher temperatures may lead to accelerated settling.
Surface Preparation:	• Remove old paint, loose rust and dirt by wire brush. • Remove dust, oil, etc. with a water-based detergent wash. • Rinse with clean water to remove detergent, salts and other soluble contaminants.
Mixing:	Stir well before use. Pour sufficient material for immediate use into a separate plastic container. DO NOT return unused material to the bulk container as contamination with rust reduces the shelf life of this product.
Application Method:	The product can be applied by either brush, roller, air-assisted or airless spray.
Drying Time:	Touch-dry in approximately 15-45 minutes, depending on temperatures and humidity. To re-coat allow 2 hours. To overcoat with another paint - allow 8 hours for a solvent based coating.
Theoretical Coverage:	325 ft^2 per gallon at 2 mils dry. (8 m^2/L at 50µm dry film thickness).
Cleaning:	Wash immediately with water. Brushes and spray tips should be immersed in water when not in use. When application is complete, wash equipment with water before the coating dries. Dry paint can be removed with aromatic or oxygenated solvents.
Sensible Precautions:	Avoid deliberate contact with skin. Handle in accordance with good hygiene and safety practices. See MSDS for full safety details. Further information can be found in the technical data sheet for this product.

The information given above is based on data considered accurate. It is offered in good faith, but as methods and conditions of the use of our product are beyond our control, CESCO makes NO warranties either express or implied.

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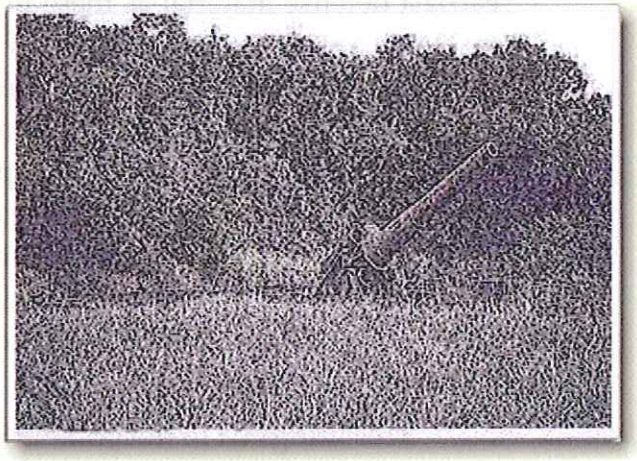
UNITED STATES COAST ARTILLERY OF MANILA AND SUBIC BAY, 1941

"RUST IN PEACE.. WHY?"

Shawn Welch



Sacred battlefields are often seen as "Shrines"....not to be disturbed, but rather, to slowly decompose where they lay, in like fashion as their fallen combatants. In the case of Corregidor and her sister islands, this is often the approach taken by historians, professional and amateur alike. The statement "rust in peace" is often most closely associated with the guns and carriages themselves. It takes on a reverent meaning. It ushers in a serene mindset, quietly sitting in the jungle, rusting peacefully as the body of a combatant would similarly decay. While on the surface this appears to be appropriate, more compelling thought can lead us down another road.

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It has been said that "funerals are not for the dead, but are rather a therapy for the living". So with people goes the things associated with people. Given this point of logic as a starting point, we should consider Corregidor and it's myriad of unique and otherwise long gone weaponry.

Corregidor represents more than a battlefield. It was twice the focus of a major

clash of arms during the greatest conflict of the 20th Century - the Second World War. It represents an epoch point on the history of "Harbor Defense" and speaks from our past to the application of industrial and national might to defensive, not offensive, warfare.

Most of the weapons within what makes up the Harbor Defenses of Manila and Subic Bay are now "one of a kind". At no other point on the globe is there such a collection of American seacoast defense material as these in existence. Most of this material was long ago scrapped, victims of Army modernization and the inexorable march of systems obsolescence. Corregidor alone, with over eight 12-inch rifles, four 12-inch mortars, pieces of another eight, and a myriad of smaller weapons ranging from 3-inch to 10-inch, represents the greatest concentration of American Seacoast defense armament existing anywhere on the globe. The fact that it is also the one major harbor defense installation of the American Army that saw significant 20th century combat makes it just that much more significant.

This brings us to the point at hand - preservation. The subject of seacoast defense has a growing number of interested researchers, many of which are studying not only the soldiers who manned the defenses, but the equipment used in that defense as well. Given the size of the defenses and myriad of uses and changes over the 40 plus year active life of this former US Army Installation, there is much still to be learned, researched and confirmed or denied. Often, that story can be completed by researching the equipment itself...taking measurements, recording and verifying markings and inscriptions, and in general validating and revalidating what is known or yet to be learned about a given piece of equipment and its relationship to an event or point in time.

Just as "funerals are therapy for the living", so to are the remains of the equipment used by our soldiers. They provide a tangible marker of what they did, what they used, and its place and

context in history. If left alone to "rust peacefully in the jungle"....these great mammoths of defensive weaponry loose their ability to tell the story every day through the decay of components, inscriptions, and ultimately the weapon itself.

If we allow them to "rust in peace", sooner or later, there will be nothing for our follow-on generations to view, marvel at, touch and understand. It will be as if a "connection to our past" will have been broken. This is the greatest tragedy of "rust in peace"....future generations will no longer be able to "touch" the tangible assets of our past.

From a technical perspective, rust is an insidious destroyer of ferrous metals. For the big guns of Corregidor, this realization carries ominous implications.

First, the rusting process proceeds almost with an exponential speed. The more advanced the rusting becomes, the greater the damage done to the item, and ultimately it will result in structural failure.

Just because the small parts are gone doesn't mean rust still does not threaten these large weapons and their larger parts. A good example of what can happen is demonstrated at Ft. Hughes with the wire wound 14-inch rifles. The outer casings of the tubes are splitting because the wire windings underneath are rusting. Rusting causes metals to expand. For wire wound tubes, the wire can rust quickly and ultimately split the outer casings. For layered items, such as the hopes of built up gun tubes, this expansion can ultimately split the tubes - though at a much slower rate than for wire wound tubes. The end result however is the same. Rusting will eventually bust up these great rifles into smaller pieces...doing over time what a scrapers torch can do in minutes.

Given that Corregidor's major caliber guns are mostly built up 12-inch rifles, it is important to note they are subject to rust which if allowed to get in between the hoops can eventually cause the jackets to split or break. Some of the earlier M1895 12-inch gun tubes have a two part "A" hope. Here rust can literally cause a section of the barrel to "break off", which clearly would be tragic for future generations.

More damaging to the researcher, rust obliterates markings such as place of manufacture, serial number, nomenclature, etc. A good example of just such a tragedy, the 8-inch gun tube down near the hotel/dock area can no longer be identified because the rust has

obliterated the markings.

Given the clear and irreversible damage that rust does cause, and assuming the premise of a mandate for preservation is accepted, the next question is how we execute this preservation mission.

Many people are offended by the Corregidor Foundation's "painted guns". Given the general "shattered" nature of the entire infrastructure of Corregidor, a major caliber gun, freshly painted Olive Drab, is clearly a stark inconsistency. There are other problems with this besides the appearance of OD paint. Unless the paint is a very high quality, gloss enamel paint, the chances of adequately arresting the rusting process and preventing further rust is very low. Assuming that rust has been mostly removed from the surface of the metal, a high quality gloss enamel tends to seal the surface well and repel water for a fairly long period of time. Flat OD paints, unlike gloss enamels, are generally porous and as such are most ineffective rust preventers. Given the almost certain fact that these weapons were painted without any surface rust preventive treatment (this is not known for certain by the author), the effective rust preventative life of the flat OD paint is reduced even further. Clearly, if applied sloppily and with no surface preparation, painting is ultimately a fools errand.

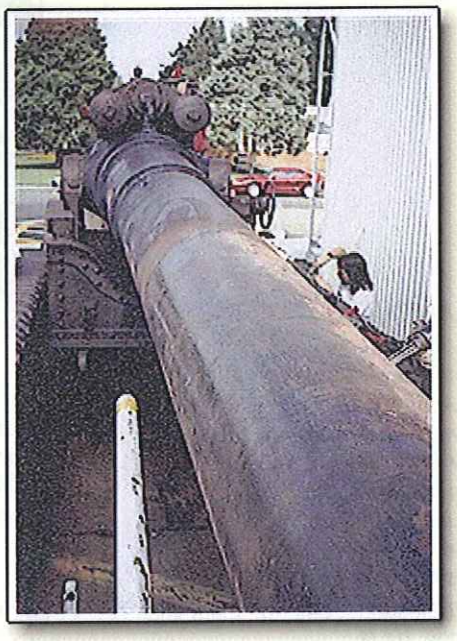
One thing that does appear true is that "color does matter". While it is true these weapons when in service were often painted OD, they were also at times painted in camouflaged patterns as well as gloss black. Clearly, gloss black is less of an "eye sore" than flat or even gloss OD in a generally "shattered" and clearly not "serviceable" environment. From the perspective of "black", we can consider an appropriate approach to preservation for these majestic weapons.

There are many companies that produce products that are technically "rust converters". These are organic compounds that interact with the rust, and with copolymers convert the rust to a non-penetratable seal over the metal itself. This is where the "black" pigment becomes advantageous. Not only do rust converters halt existing rust, they seal the metal and through the reaction between the compounds and the metal, produce a dark black, almost "air tight" surface that is almost a "gloss black". This then provides an outstanding primer base for a further coat of gloss black enamel paint, or it alone can serve as the "protecting coating".

The best part about the rust converters is that they do not

require a major surface preparation treatment for application. A simple hot water washing (portable water steam cleaner) and then removal of scale/flake rust (wire brushes work fine for this) is all that is required to prepare the surface for application.

One of the best rust converters on the market is available from CESCO (Carolina Equipment & Supply Company, Inc.), located in North Charleston, South Carolina, USA. They provide industrial equipment and machinery to industry specializing in abrasive blast and paint spray equipment, blasting media, safety equipment and supplies, air compressors, hydraulic hose and fittings, generators, and pressure washers.



In 2000, this author's son executed an Eagle Scout project consisting of restoring the USMC's 7-inch field gun at the USMC Museum, Quantico, VA. (*See photo at right, and below*) Though this required over 500 hours of volunteer labor, the application of Cesco's Rust Converter "RustCure H100" proved to be very effective as both a converter of rust and primer for high quality paints.

The easiest way for the Corregidor Foundation to approach preservation is to use hand wire brushes and a portable steam cleaner to prepare a selected weapon for treatment, and then early in the morning (when the surface of the weapon is at its coolest), apply the rust converter. It is important to remember that this treatment dries fast, and can not be applied to surfaces that are higher in temperature of about 95 degrees. Of course, there are directions on the container. These instructions are designed as an aid to assist the foundation in application of the compound to be used in consonance with the instructions on the "rust converter" product.

Preservation of the concrete portion of this fortress will be the subject of another discussion. The most dangerous aspect of this is the rusting of the reinforcing steel inside the concrete, and therefore arresting the rusting of that reinforcing steel is the critical step. Today's advances in preservation give us this ability.

Clearly, regardless of the overall "destructive condition" of Corregidor, an "act of preservation" for the weapons that remain is important to keeping tangible the memory of the many soldiers, whom for over 40 odd years maintained them, as well as those who served them in battle, alive. As minimum effort, we owe this to all the soldiers who served the great weapons of this mighty fortress.

The rust converter takes on a kind of shiny black surface when dry on the metal. The blackness is from the reaction to the rust. If the surface rust is removed back to the shiny surface layer, the black effect does not occur, but the metal also is not as well protected. The protection comes from the interaction of the compound with the rust on the surface of the metal.

The work was no small project and was accomplished by kids and parents working together on the beast.

THE AUTHOR:
Shawn Welch is interested in all facets of Coast Artillery, the siege of Corregidor and the Harbor Defenses of Manila and Subic Bay. He's a member of the CHS and the CDSG and collects Coast Artillery equipment and ordnance. He is currently a Lieutenant Colonel, Corps of Engineers United States Army, and resides in Stafford, VA. ▲

THE ONLY PRECIOUS METALS ON CORREGIDOR ARE THE

The Corregidor Historic Society is funded by a group of like-minded individuals.

Enlist
and ensure we'll will be here next time you are.