



### RUST MANAGEMENT

A safe, cost effective and productive breakthrough in rust management called ENRUST. Thinking outside the box, join team Enrust and be proactive in the way you manage rust. Rust is like a cancer, left untreated it will eat away at your assets and productivity.

Rust was, is and will always be a problem with steel. In past years the only way people or industry dealt with rust was sand blasting or acid type products, which are hazardous to its surrounding. With new technology there is a safer, easier, non toxic, cost effective, productive way of dealing with rust. Enrust is as safe as latex paint ( water base) and cleans up in the same way (fresh water and soap). Managing rust with Enrust will prolong sand blasting. As rust appears treat with Enrust, let dry (cure) for 24 hours and topcoat. This process will keep structures and equipment looking like new and no measurable amount of steel is lost. Keep the steel you have paid for rather than allow it to deteriorate and have to buy new steel. Enrust is an easy one step application, ready to topcoat with most types of paints (water base, oil base, epoxy or urethane) after 24 hour curing time.

Once Enrust has cured, it is resistant to most solvents, however, it is not recommended for complete submersion in liquids or use in high temperatures. Enrust will begin to breakdown, crack and become brittle at temperatures of 500 degrees and higher. Enrust saves money, time, labor, transportation, no disposal of waste, EPA friendly and easy clean up. Conventional ways of treating rust can not say this. These are some of the ways Enrust can be safer, cost effective and productive to your overall bottom line. Most all other activities (drilling, production, wireline, safety checks, etc..) can be performed while Enrust is being applied in the work area. With sandblasting this is not the case. Blasted area has many restrictions and safety considerations before normal operations can be resumed.

- No More Toxic Primers, Acid Penetrates or Conversion Washes
- No More Sandblasting
- Proper Application Stops Old Rust And Prevents New Rust
- Reacts With Rust To Create A new Long Lasting And Protective Surface
- Enrust Dries To A Tough Black Surface That Must Be Topcoated For Maximum Protection In Harsh Conditions
- Enrust Can Protect Surfaces For Years As Long As Topcoat Holds Up To The Environment
- Sandblasting Uses Brute Force
- Enrust Uses Advance Technology
- Results Are Similar But Enrust is A Proactive Way To Save Your Steel By Being Safe, Cost Effective And Productive To Your Operations
- Safer for The Surrounding Area Being Treated
- No Mobilizations Or Demobilization
- No Eye Injuries From Flying Sand

- No Sparks Or Fire Hazards
- No Contaminated Fuel
- No Sand In Engine Intake
- No Additional Weight (ex. Sand bags, air compressors & backup, hoses strung out all over etc....)
- No Dust Hazards To People Or Equipment

The Objective Of Sandblasting Is To Do Away With Rust. The Objective Of Enrust Is To Do Away With Rust. The Differences Between The Cost, Safety and Productivity Of The Two Processes Are Great

### **SANDBLASTING**

- Create & Implement Safe Plan
- Finding A Contractor
- Mobilization Of Sand & Equipment
- Hire A Vessel
- Off Load Equipment, Sand & Personnel
- Set Up Blasting Operation
- Remember No Rust Is Processed Yet
- When Blasting Begins All Other Activity In Surrounding Area Stops
- Once Blasting & Primer Is Sprayed Some Outside Activity Can Occur According To Safe Plan. Note: No Wireline, No Safety Checks, No Workover or Drilling, No Acid Jobs etc....
- No Or Little Productivity Is Accomplished Due To This Process. Process Takes Time, Labor & Material That Are Costly To Your Profits.
- Demobilization of Equipment and Labor. Dispose of Used Material (EPA Concerns)

### **ENRUST**

- Create & Implement Safe Plan Before Activities Start – There Are Few Restrictions And Safety Concerns When Enrust Is Used
- No Special Equipment Is Needed To Prepare A Clean Rusty Surface Free of Dirt & Scale.
- No Contractor Necessary ( But One Can Be Used) – Most Any One Can Prepare, Apply & Clean Up In This Process.
- Clean-Up Is Simple, Use Water And Detergent as you would latex paint
- Productivity In Surrounding Area Should Continue – Review Safe Plan – As Normal, Due To Minimal Hazards
- No Mobilization Or Demobilization Of Special Equipment, Personnel Or Transportation
- No Waste, None Generated, Non Toxic

## **ENRUST APPLICATION**

### **SURFACE PREPARATION**

- Remove loose paint and rust with wire brush leaving a rusty base
- Wash with soap and water
- Rinse with fresh water and let dry

### **APPLICATION**

- Shake Enrust container well before opening.
- Pour estimated amount to be used ( note: Enrust cannot be returned to original container due to contamination.
- With a paint brush, roller or airless spray gun apply Enrust to rusty surface.
- Overlaying Enrust on good area will not have negative effect – only leaves a clear coating to protect good area.
- Rubber or latex gloves are recommended as Enrust will cause temporary skin discoloration that will have to wear off.

- F. For best results apply 2 thin coats ( 1 ml on each coat) within 20 to 30 minutes of each other.
- G. Allow Enrust to dry at least 24 hours before topcoating.
- H. Enrust may be topcoated a few days later (after 24 hr. curing time) simply rinse off salt spray or dust and let dry.

### **CLEAN-UP**

Use water and soap to clean equipment. All equipment, brushes, rollers, sprayers should be cleaned immediately after job is completed. Once Enrust has dried you are unable to remove.

### **ENVIRONMENTAL IMPACT**

- A. Enrust is no more toxic than latex paint.
- B. No toxic solvent to dispose of
- C. Dries to a neutral state – flexible black polymer ready to topcoat.
- D. No by product to dispose of once job is complete.
- E. Enrust dramatically cuts the waste of materials and resources and significantly lowers asset replacement cost. Preventative maintenance and corrosion control is an economic necessity.

### **LABOR**

The number of people and training required to prepare an area for an Enrust application and clean up is minimal compared to the number needed to sandblast, paint and clean that same area.

#### **A. Enrust – Labor/Equipment Requirements**

1. People to clean area prior to application
2. Application tools – paint brush, roller or airless sprayer, eye protection, rubber/latex gloves, breathing protection if used in closed areas.
3. People to apply product
4. People to clean equipment after job is complete

All of the above steps can be done by same people - no additional expertise needed

#### **B. SAND BLASTLING – Labor/Equipment Requirement**

1. Set up area- such as- sand bags, sand pot, air compressor, hoses, filter material if machinery present (ex. Engines, electric motors, air intakes, etc...) plastic and/or tarps,

crane operator.

2. Equipment - Required PPE - Special hood with fresh air hook-up, changeable lens on hood, safety glasses for when hood is removed.
3. Hand Protection - Gloves needed by nozzle man - help to avoid abrasion on hands. Sand under pressure flies everywhere.
4. Blast Area - Blasters and helpers (experienced if possible), hopper hand to attend sand pot while blasting, crane operator to fill hopper, paint/blaster foreman. No other work can be done in blasting area (wireline, safety check, etc...). Blasted area needs to be primed before moisture gets on blasted surface (water + raw steel = RUST) - Lost blast time equals lost productivity equals lost profits

## **SAFETY REASONS FOR USING ENRUST FOR RUST CONTROL OR MANAGEMENT**

1. Safer for the surrounding area being treated
2. No mobilization or demobilization
3. No eye injuries from flying sand
4. No eye injuries from flying sand
5. No sparks or fire hazards
6. No contaminated fuel
7. No sand in engine intake
8. No additional weight, ex. sand bags, air compressor and back-up
9. Hoses strung out all over etc.....
10. Just clean surface of loose rust, wash surface apply Enrust – 20 minutes later apply 2nd coat – allow 24 hrs for curing before top coating. One or two people can cover larger areas with little restrictions. If you can paint it, you can Enrust it – that's not always true with sand blasting.

## **ENRUST COMPATIBILITY**

Enrust is an easy one step application, ready to topcoat with most types of paints (water base, oil base, epoxy, urethane) after 24 hour curing time. Once Enrust is cured it is resistant to most all solvents. Enrust is compatible with most metals such as copper, aluminum, stainless steel - will only leave a protective coating. Enrust can be used on galvanized metal – treat the rusty area ( over lapping is not a concern – no reaction to galvanize) and top coat with paint or cold galvanize.

**Sand Blasting Uses Brute Force**

**Enrust Uses Advance Technology**

**Results Are Similar But Enrust Is A Proactive Way To Save Your Steel By Being Safe, Cost Effective And Productive To Your Operations**

## **Stop Rust Before It Eats Away At Your Productivity And Steel**

Standard primers can do no more than surround rust particles when applied to rusty steel. The rust is not being treated only covered up. The presence of rust left on the steel will allow corrosion to continue under your topcoat, causing an inferior bond . Enrust penetrates through the rust to good steel chemically converting the rust to a tough black surface, which serves as a primer coat, ready for topcoating. Once Enrust has cured it is

more flexible than standard primers, this flexibility prevents the cracking that can lead to paint failure exposing your steel to the elements that cause corrosion.

## A Safe, Cost Effective, Productive Way Of Managing Rust TEAM ENRUST



**ENRUST neutralizes the rust and forms a tough black polymer primer.**



**With proper top coat selection, ENRUST will outlast conventional systems by 4 times.**

**ENRUST** is a unique rust treatment, follow instructions carefully to obtain best results.

***Instructions for use.***

**SURFACE PREPARATION:**

1. Remove blistered, loose paint, loose rust scale and heavy rust buildup.

2. **IMPORTANT:** Remove all oil, grease, salt, or water soluble chemicals with high strength cleaner. Rinse thoroughly with fresh water.

**APPLYING ENRUST:**

3. Mix ENRUST thoroughly before using.

4. Pour the estimated amount needed for the job into a clean container. (note: ENRUST cannot be returned to the original container due to rust contamination).

5. Use of rubber gloves is recommended because ENRUST is difficult to remove from the skin.

6. For maximum penetration, work ENRUST into rusted surfaces with a synthetic bristle brush. On large areas use a roller or spray (airless spray is preferred).

7. For best results apply two thin coats of 1 ml.

8. Apply a 2nd coating within 20-30 minutes in a cross direction to previous coat. Allow to dry for 24 hrs., ENRUST dries to a black matte finish.

**CLEANUP:**

9. Clean all equipment immediately after use with warm, fresh water and dish soap. Once ENRUST has dried you are unable to remove it.

**Coverage: 260 SQ. FT. per gallon 2 ml thick**

**Protect from Freezing**

ENRUST dries to a durable matte black finish when applied to rusted surfaces and remains clear when applied to non-rusted metal or other coatings.

For decorative effect or maximum protection in high corrosive environments, a suitable top coat for the environment is recommended.

**The More Rust the Better**

Since rust neutralization and priming occur with one application, one step is eliminated from the treatment process. In addition, surfaces do not need to be completely rust free. In fact, the presence of some rust on the surface is actually beneficial when using ENRUST.

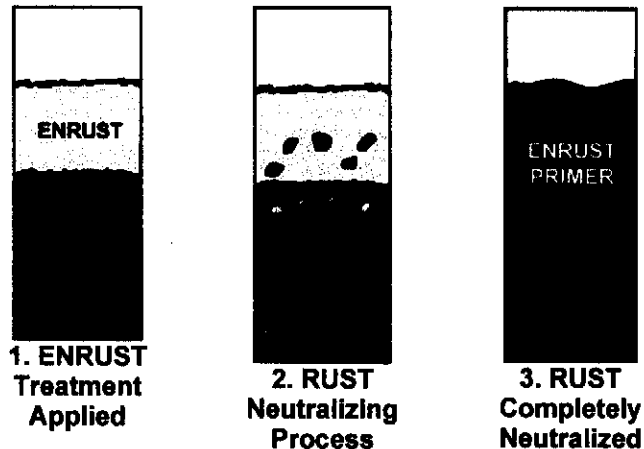
**Environmental Conditions**

The temperature of the air and the surface being treated should be between 50°F and 90°F. Do not apply in high wind conditions or direct sunlight.

Apply to clean dry or damp (not wet), clean surfaces.

***DON'T JUST TREAT RUST - END IT WITH ENRUST!!!***

## How ***ENRUST*** Works...



**Converts rust to a stable black iron oxide magnetite and primes metal for painting in just one easy application!**

### ***Optimum uses of ENRUST***

**ENRUST** is not recommended for use in applications where total immersion in water or any other fluid is required, i.e., the bottom of ships, ballast tanks, storage tanks; however, with a cross linked top coat such as urethane, or epoxy, **ENRUST** might work. The customer must test to their application and satisfaction. We do not recommend **ENRUST** for these applications without first testing **ENRUST's** performance.

Phosphates or oils on the surface must be removed before applying **ENRUST**.

Maximum protection is attained when **ENRUST** is properly applied and top coated with material best suited to the particular environment.

### ***Typical Applications***

|                                      |  |
|--------------------------------------|--|
| <b><i>Agricultural Equipment</i></b> | <b><i>Pipelines</i></b>                        |
| <b><i>Automotive Chassis</i></b>     | <b><i>Railings</i></b>                         |
| <b><i>Bridges</i></b>                | <b><i>Refinery Equipment</i></b>               |
| <b><i>Chemical Processing</i></b>    | <b><i>Shipping and Coastal Maintenance</i></b> |
| <b><i>Conveyors</i></b>              | <b><i>Storage Tanks</i></b>                    |
| <b><i>Outdoor Furniture</i></b>      | <b><i>Transmission Towers</i></b>              |

**WHAT IS THE DIFFERENCE BETWEEN ENRUST AND OSPHO (PHOSPHORIC ACID)?**

One of the most common treatments to chemically neutralize rust has been the use of phosphoric and similar acids. Although acid treatments offer an economical alternative to sandblasting, there are a number of limitations. Phosphoric acid may not completely neutralize all of the different rust formations. Acid neutralization may not be a solution because of environmental and safety considerations, as well as difficulties in field applications. After treatment, residual acid salts can cause blistering of the protective coating if not removed from the pores of steel; and, treated surface may need washing to remove acid salts.

#### **ENRUST**

1. Non-Polluting, Non-Toxic, Non-Corrosive, contains no Mineral Acids
2. Compatible with all types of paints – Latex, Epoxy, Acrylic, Urethanes, Etc.
3. Will not diminish the structural integrity of the metal surface.
4. No shipping restrictions.
5. Chemically converts rust to magnetite, which is stable and non-rusting.
6. A long lasting black primer coating is left on the steel surface.

#### **OSPHO**

1. Toxic, Corrosive to Skin, Eyes, Plants, Animals, Pollutes Streams.
2. Must use oil primer before using a waterborne topcoat.
3. Will diminish the structural integrity of metal if left on for any length of time.
4. Phosphoric acid is corrosive- shipping restricted.
5. Turns rust into unstable iron phosphate compound.
6. The gray ferrous phosphate has a short life span before rust reappears.

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