TuffTex Materials
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Rust-Rehab

Rust Converter, Sealer, and Primer

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Rust-Rehab, when used as a primer or topcoat is proven to protect untreated, bare metal surfaces against moisture and other corrosive elements. It is suitable for use on metal surfaces on *"any size"* project involving Transportation, Marine, Industrial & Commercial, Farm and Home applications. *"No job is too small"* makes it perfect for automotive restoration, restoring garden tools, bicycles, metal sporting & play equipment, lawn furnishings, iron railings and any other metal surface. *"No job is too large"* makes it perfect for restoring structural steel, railcars, and storage tanks. Use **Rust-Rehab** as a stand-alone coating or as a primer in combination with any preferred paint/coating system for unbeatable rust protection.

Rust is an ongoing problem with steel. In the past, the only way to deal with rust was sand blasting or using acid type products, which are both hazardous to the environment. **TuffTex Materials** has developed a safer, easier, non-toxic, cost-effective way of dealing with rust. **Rust-Rehab** is safe and cleans up with soap and water. Managing rust with **Rust-Rehab** can eliminate dangerous acid solutions and abrasive blasting. Apply **Rust-Rehab** to preserve your metal objects and surfaces or use as a primer for your chosen coating. This process will keep structures and equipment looking like new and no measurable amount of steel is lost. As rust appears, treat with

Rust-Rehab and let dry (cure) for 24 hours. (If needed, a **Rust-Rehab** recoat can be applied when surface is tack free). **Rust-Rehab** is an easy one step application, ready to topcoat with most types of paints (oil base, epoxy or urethane) after a 24-hour curing time. Once **Rust-Rehab** has cured, it is resistant to re-rusting and to most solvents.

Other products and methods of treating rust cannot say this.

Sample steel downspout boot before and after single coat of Rust-Rehab, ready for paint

- **Rust-Rehab** dries to a tough dark, **non-removable, non-rusting magnetite**
- Proper application halts existing rust and prevents new oxidation
- Reacts with rust to create a new long-lasting protected surface
- Surface can be top coated for maximum protection in harsh conditions
- Safe, low solvents, and low odors
- Spray pump application, no aerosol
- Does not evaporate off the surface of metal
- Rarely requires reapplication
- Easy to apply
- Final results are similar to having sandblasted, but without the negatives

Rust-Rehab is "THE" proactive way to save your steel by being safe, cost effective and productive to YOUR operations. Stop Rust at its roots before it starts!

Standard primers only encapsulate or clad rust particles when applied to rusty steel. The rust is not being treated, only **covered up**. The remaining presence of rust on the steel will allow corrosion to continue under your topcoat or repair, causing an inferior bond or **corrosion under the coating**. **Rust-Rehab** penetrates through the rust to good steel, chemically converting the rust to a tough black magnetite and sealing it to the surface. **Rust-Rehab** serves as a primer coat, ready for top coating. **Rust-Rehab** has more flexibility than standard primers; this important property prevents cracking that leads to paint failure, exposing your steel to the elements that cause corrosion.

Rust-Rehab Compatibility

Rust-Rehab is an easy one step application, ready to topcoat with most types of paints after 24 hour curing time. Once **Rust-Rehab** is cured it is resistant to most solvents. **Rust-Rehab** is compatible with most metals such as copper, aluminum, stainless steel and will only leave a protective coating. **Rust-Rehab** can also be used on galvanized metal -- treat the rusty area and top coat with paint.

Limitations

Rust-Rehab 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, or storage tanks. However, it can work as a coating with some material storage. We do not recommend **Rust-Rehab** for these applications without first testing. Customers must test **Rust-Rehab** to their application and satisfaction when subjecting **Rust-Rehab** to constant immersion.

The Future of Abrasive Sandblasting & Priming

- No More Sandblasting
- No More Toxic Primers, Acid Penetrates or Conversion Washes
- No Additional Work Place Complexities (ex. Sand bags, air compressors, hoses, etc.)
- No Airborne Dust Hazards to People or Other Equipment
- No eye Injuries from Airborne Silicas
- No Mobilizations or Demobilization
- No sparks or Fire Hazards
- No Contaminated Fuel
- No Special Safety Equipment
- Easy to Apply and to Clean Up
- Environmentally Safer for The Surrounding Area



Sandblasting Uses Brute Force
Rust-Rehab Uses TuffTex Rust Conversion Technology

SANDBLASTING	RUST-REHAB
° Create & implement safe action plan before project commences	° There are few restrictions and safety concerns when Rust-Rehab is used
° Finding a contractor	° No specialty contractor is necessary – Most anyone can prepare and apply
° Mobilization and 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	° No mobilization of special equipment or personnel is necessary
° No or little productivity is accomplished due to this process. ° Process takes time, labor & materials that are costly to your profits. ° Once Blasting & Primer is completed, some outside activity can occur according to the Safe Plan.	° Productivity in surrounding areas continues as normal, due to minimal hazards
° CLEAN UP – Dusting, sweeping, vacuuming, bagging, disposing	° Cleanup is simple: Use water and detergent, or bio-friendly household cleaner
° Demobilization of equipment and labor	° None required
° Dispose of Used Material (EPA concerns)	° No waste, none generated, non-toxic

LABOR COMPARISON: Rust-Rehab to Sandblasting

The number of people and training required in preparing an area for **Rust-Rehab** application and cleanup is minimal compared to the number needed to sandblast, paint and clean that same area.

A. Rust-Rehab - Labor/Equipment Requirements

a. Persons to clean area prior to application
b. Application tools - paint brush, roller or airless sprayer, eye protection, rubber/latex gloves, breathing protection if used in closed areas
c. Persons to apply product
d. Persons to clean equipment after job is complete

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

B. Sand Blasting - Labor/Equipment Requirement

a. Set up area - 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
b. Equipment - Required PPE - Special hood with fresh air hook-up, changeable lens on hood, safety glasses for when hood is removed
c. Hand Protection - Gloves needed by nozzle man - help to avoid abrasion on hands. Sand under pressure will fly everywhere
d. Blast Area - Blasters and helpers (experienced if possible), hopper, paint/blaster foreman. No other work can be done in blasting area. 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.

There are many ways **Rust-Rehab** can be safer, cost effective and productive to your overall bottom line. Most all other plant or construction activities (production, drilling, safety checks, etc.) can be performed while **Rust-Rehab** is being applied in the work area. With sandblasting this is **not** the case. Blasted area has many restrictions and . . . **Rust-Rehab saves money, time, labor, transportation, no disposal of waste, EPA friendly and easy clean up.**

Rust-Rehab Applications

SURFACE PREPARATION:

1. Remove loose paint and rust scales and heavy buildup with a wire brush, leaving only a rusty base.
2. IMPORTANT: Remove all oil, grease, salt, or water-soluble chemicals with an environmentally friendly high strength cleaner.
3. Wash with soap and water.
4. Rinse well with fresh water and let dry.

APPLYING Rust-Rehab:

1. Shake or stir **Rust-Rehab** thoroughly.
2. Measure the estimated amount needed for the job into a clean container.
   NOTE: **Rust-Rehab** cannot be returned to the original container due to rust contamination.
3. Use of rubber or latex gloves and eye protection is recommended. Contact will cause temporary skin discoloration that will have to wear off over a short period of time; it is not permanent.
4. For maximum penetration, work **Rust-Rehab** into rusted surfaces with a synthetic bristle brush. On large areas, with a roller, pump or airless sprayer, apply **Rust-Rehab** to rusty surface.
5. Overlaying **Rust-Rehab** on a good area (non-rusting) will not have a negative effect -- only leaves a clear coating to protect good area.
6. For best results apply 2 thin coats (4 wet mils on each coat) within 40 to 60 minutes of each other and in a cross direction to previous coat.
7. Allow **Rust-Rehab** to dry at least 24 hrs. before top coating. **Rust-Rehab** dries to a black matte finish.

CLEANUP:

All equipment, brushes, rollers, and sprayers should be cleaned immediately after job is completed. Clean with warm, fresh water and dish soap. Once **Rust-Rehab** has dried you will be unable to remove it.

Coverage: 300 - 500 ft^2 per gallon per coat (3 - 5 wet mils thick) on smooth rusted metal

What Is The Difference Between Rust-Rehab & 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 several limitations. Phosphoric acid may not completely neutralize all 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.

Rust-Rehab	Phosphoric Acid
Non-Polluting, Non-Toxic, Non-Corrosive, contains no Mineral Acids	Toxic, Corrosive to Skin, Eyes, Plants, Animals, Pollutes Streams
Compatible with all types of Paints: Latex, Epoxy, Acrylic, Urethanes, Etc.	Must use oil primer before using a waterborne topcoat.
Will not diminish the structural integrity of the metal surface.	Will diminish the structural integrity of metal if left on for any length of time.
No Shipping restrictions	Phosphoric acid is corrosive-shipping restricted.
Chemically converts rust to magnetite, which is stable and non-rusting.	Turns rust into unstable iron phosphate compound.

ENVIRONMENTAL IMPACT AND SAFETY

A. **Rust-Rehab** is no more toxic than water based latex paint.
B. No toxic solvent to dispose of.
C. Dries to a neutral state -- flexible dark polymer ready to topcoat.
D. No by product to dispose of once job is complete.
E. **Rust-Rehab** dramatically cuts the waste of materials and resources and significantly lowers asset replacement cost. Preventative maintenance and corrosion control are economic necessities.

Rust-Rehab FAQ's

What is rust: Rust is the common name for a very common compound, **iron oxide**. **Rust occurs when iron, water and oxygen get together**. Rust is simply metallurgy in reverse -- meaning that it's nature's way of returning steel back to its original ore form.

How does Rust-Rehab work? The effects of **Rust-Rehab** are created by its two principal components: A blend of organic mild acids to arrest rusting and convert rust to other compounds and a chemically advanced copolymer that bonds with the converted rust, the metal substrate, and with applied topcoats.

What Protective equipment is required with Rust-Rehab? It's recommended that either safety glasses or goggles be worn along with chemical resistant gloves as it may cause eye or skin irritation. It is mild, but like with all chemicals (paint included), exercising caution is recommended.

Are vapors from Rust-Rehab harmful? The vapors emitted from Rust-Rehab are similar to latex paints and are not harmful, but it is recommended that it be applied only in well-ventilated areas.

How do I prepare the surface for application? Good surface preparation will enable the **Rust-Rehab** to work effectively and leads to a high quality end result. On very large area you can remove most loose and scaling material with a high pressure blast. You will want to remove large rust and scale particles with a stiff bristled brush, hammer or sandpaper. The object of this step is to get any loose or flaking rust off as it does not provide a stable surface. The point is not to remove all the rust (this defeats the purpose of **Rust-Rehab**) as **Rust-Rehab** chemically bonds to the rust and seals it in. **Rust-Rehab** cannot penetrate grease or oil, so clean and degrease the surface first, then let it dry. This step ensures that other surface contaminants will not interfere with the reaction of the **Rust-Rehab** on the rusted surface.

How is Rust-Rehab applied? For best results, apply Rust-Rehab with a brush or a roller. Use a brush for smaller applications and a roller for larger surfaces. It can also be sprayed with airless or pump sprayers.

How much metal area will one gallon of Rust-Rehab cover? One gallon can cover approximately 400 square feet of rusted metal. Porous, textured and irregular surfaces will require a heavier application rate.

Should Rust-Rehab be thinned? Rust-Rehab should not be thinned and should be applied as it comes out of the pail, after being properly shaken or stirred.

How long does it take Rust-Rehab to dry? Rust-Rehab will dry to the touch in approximately 40-60 minutes. Application of a second coating will ensure proper rust conversion. If applying an oil-based top coat, wait 24 hours after the last coat to ensure it has proper time to cure.

How many coats of Rust-Rehab should I apply? Most applications require only one coat. Applying a second coat assures complete coverage and conversion. If loose converted rust can be wiped off with a finger, then a second coat is required to fully seal the surface.

Can I apply Rust-Rehab over non-rusted or painted surfaces? Yes, **Rust-Rehab** will adhere to non-rusted or painted surfaces but it does not provide any additional rust prevention when used on these surfaces.

Can I apply primer coat over Rust-Rehab? Yes, primers may be applied over **Rust-Rehab** if a system calls for it, but it is not required.

Is it necessary to paint over Rust-Rehab? Although it's not required, aesthetically it is usually desired. If your surface is exposed to extreme elements, it is highly recommended. It will definitely extend the protective qualities of the surface from adverse weather including rain, salt mist and direct sunlight.

What type of paint or coating should I use to cover the Rust-Rehab? Rust-Rehab as a primer will bond with oil based paints, epoxies, urethanes, and most other top coating materials. Water based latex is not an appropriate top coat over Rust-Rehab.

Can I use leftover Rust-Rehab after I've poured it out of the bottle? No, once **Rust-Rehab** has been exposed and used, it should not be returned to the bottle with any unused liquid.

How should I clean my application equipment after applying Rust-Rehab? Simply use soap and water for clean-up!

Is Rust-Rehab approved by the FDA or USDA? No, **Rust-Rehab** shouldn't be placed in contact with foods or human water supply.

How does Rust-Rehab need to be stored? It's best to store **Rust-Rehab** out of direct sunlight. Do not allow to freeze. Store between 40º F and 100º F.

What is the shelf life for Rust-Rehab? Rust-Rehab has a shelf life of 24 months when stored in its original container

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PRODUCT INFORMATION SHEET

PRODUCT DESCRIPTION

Rust-Rehab is a rust converter, primer, and sealer. It penetrates the rust to sound metal, chemically converting the rust to a tough dark, non-removable, non-rusting magnetite and sealing it to the surface.

Rust-Rehab serves as a primer coat, ready for top coating or as a stand-alone protective coating. It is a flexible sealer and will not surface crack.

Rust-Rehab permanently converts surface rust on metal to inert black iron oxide and seals the metal surface. When used as a primer or topcoat, it is proven to protect untreated, bare metal surfaces against moisture and other corrosive elements. It is suitable for use on metal surfaces on *"any size"* project involving Transportation, Marine, Industrial & Commercial, Farm and Home applications.

ADVANTAGES

- Excellent barrier coat – durable and tough.
- Corrosion resistant
- Dries to a tough dark, non-removable, and non-rusting magnetite
- Converts existing rust and prevents new oxidation
- Reacts with rust to create a new long-lasting protected surface
- Surface can be top coated for maximum protection after the Rust-Rehab is completely dry with solvent based or water based paints.
- Suitable for use on blasted and cold rolled steel.
- Extremely low moisture / vapor permeability.
- Safe, and low odors.
- Brush, Roll, or Spray pump application
- Does not evaporate off the surface of metal
- Rarely requires reapplication
- Easy to apply

Benefits compared to phosphoric acid treatment:

1. Non-Polluting, Non-Toxic, Non-Corrosive, contains no Mineral Acids.
2. Compatible with all types of nonwater-based paints.
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.

PRODUCT CHARACTERISTICS

Appearance:	milky, white liquid
Solids	46-50% wt
Weight per Gallon:	8.6-8.7 lbs / gal
VOC:	>50 g/l
Coverage:	300 - 500 sq ft / gal
Dry Film Thickness:	1 mil DFT based on one coat at 700 sq ft / gal application rate.
Corrosion Resistance:	>500 hrs @ 2 mil DFT. ASTM B117 – This equals 1 gal per 350 sq. ft. applied in two coats

APPLICATION

SURFACE PREPARATION:

1. Remove loose paint and rust scales and heavy buildup with a wire brush, leaving only a rusty base.
2. IMPORTANT: Remove all oil, grease, salt, or water-soluble chemicals with a high strength detergent cleaner.
3. Rinse well with fresh water and let dry.

APPLYING Rust-Rehab:

1. Mix **Rust-Rehab** thoroughly with a paint mixing paddle..
2. Measure the estimated amount needed for the job into a clean container. NOTE: **Rust-Rehab** cannot be returned to the original container due to rust contamination.
3. Use of rubber or latex gloves and eye protection is recommended. Contact will cause temporary skin discoloration that will have to wear off over a short period of time; it is not permanent.
4. For maximum penetration, work **Rust-Rehab** into rusted surfaces with a synthetic bristle brush. On large areas, with a roller, pump or airless sprayer, apply **Rust-Rehab** to rusted surface.
5. Overlaying **Rust-Rehab** over the non-rusting areas will not have a negative effect -- only leaves a clear coating to protect clean area.
6. For best results apply 2 thin coats of 4 wet mils each coat at a rate of 400 sq ft/gallon/coat within 1 to 2 hours of each other and in a cross direction to previous coat.
7. Allow **Rust-Rehab** to dry at least 24 hrs. before top coating. **Rust-Rehab** dries to a dark matte finish.

CLEANUP

All equipment, brushes, rollers, and sprayers should be cleaned immediately after job is completed. Clean with warm, fresh water and dish detergent. Once **Rust-Rehab** has dried you are unable to remove it.

STORAGE

Store in accordance with instructions, with seals and labels intact and legible. 24 months shelf life is expected for products stored between 40°F (4.5°C) - 100°F (38°C).

Do not allow products to freeze.

WARRANTY

TuffTex Materials warrants our products to be free of manufacturing defects in accord with applicable quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by NovaTuff Coatings.

TuffTex Materials makes no warranty expressed or implied regarding the accuracy of this data or the results obtained from the use thereof. NovaTuff Coatings assumes no responsibilities for injury from the use of this product

NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY NOVATUFF COATINGS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

DISCLAIMER

Refer to the MSDS sheet before use. The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of TuffTex Materials. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Published technical data and instructions are subject to change without notice. Contact your local Nova-Tuff distributor or technical representative for additional technical data and instructions.

OSHA Status: This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is not considered to be a hazardous chemical under that standard.

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