Eco-Tuff$_{tm}$

Zero VOC Safety Coatings

High Traffic Clear Coat
Rubberized Non-Skid
Industrial Floor Coating

MANUFACTURERS APPLICATION GUIDE

(Please Read Thoroughly!)

Eco Safety Products

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Delivering Sustainable & Safety Solutions to America's Green Building Industry

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GENERAL TIPS

Ensure that the surface (substrate) is sound, dry, and free of all wax, oil, grease and loose materials.
Make sure the surface is porous and/or abraded to allow proper penetration and adhesion of the primer coat.
Sand, grind, shotblast, or etch with Eco-Etch Pro Clean & Etch Concentrate to achieve desired porosity.
Always test a small area for compatibility and adhesion prior to full project installation.

It is essential that you always clean each surface that is to be coated. Remove all grease, oil, and other contaminants; leave no residue, clean thoroughly if there is any question of contaminants, use a cleaner such as Soy-It Industrial Degreaser with a scrub brush or floor stripping pad. Never assume a surface is clean unless you have cleaned it yourself!

Eco-Tuff High Traffic Clear Coat: Used as a specialty finish coat over decorative concrete or wood substrates to replace conventional polyurethane or epoxy products. Also used as a base coat and top coat for a clear aggregate non-skid application or for full broadcast aggregate designs when using color chips or other decorative aggregate materials.

Eco-Tuff Rubberized Non-Skid: Used in virtually any environment where enhanced and non-abrasive non-skid texture is required.

Eco-Tuff Industrial Floor Coating: Used as a superior coating system for industrial floors and high traffic decorative floors where optimum durability, abrasion, moisture and UV resistance is required. It is a great base coat for decorative color chips to produce a seamless terrazzo or granite style flooring system.

Always apply a minimum of 2 coats of your chosen Eco-Tuff Coating. The Rubberized Non-Skid product may be applied up to ¼" thickness without compromising product efficacy.

To achieve the desired texture balance of the non-skid coating or to further encapsulate the rubberized aggregate, you may apply the Eco-Tuff Industrial Coating or Clear Coat as your final coat(s). This top coat will fill voids and gradually smooth the surface as you build up. Keep in mind, as you smooth the surface; you begin to lose the maximum skid resistance.

IMPORTANT!

Testing confirms that adhesion is best when the Eco-Tuff Primer is used. Our recommendation is to always install the Eco-Tuff primer coat where maximum bonding and substrate protection is required. Applying the coating without the primer is against our recommendations and the user bears all responsibility for testing and final results. Be sure to apply The Product within the time specifications of the Eco-Tuff Primer.

Do not apply to existing coatings or apply other coatings to the Eco-Tuff system without testing and accepting consequences as we cannot determine suitability or compatibility to every product and condition. Eco-Tuff will only be as strong as the foreign material to which it is applied.

PERSONAL PROTECTION

Please review the Material Safety Data Sheet for information on Health Hazards, First Aid, Safe Handling, Emergency Information and other Product Information. It is recommended that you wear: splash-proof goggles; PVC or rubber gloves; rubber boots when working with large quantities; coveralls when working with large quantities, and use a respirator if inhalation risk exists (NIOSH/MSHA approved or organic vapor). **The Product can be rolled or sprayed on without any modification!**

PROPER PREPARATION IS NUMBER ONE! HANDY HINTS

Dilute the Product with clean water only if required and no more than 10%. A dilution of 10% will reduce the solids within the product by the same amount. By lowering the coating solids content of an aggregate solution, you will diminish the bonding agent which encapsulates the aggregate.

Mask off all areas not to be coated. Make sure to remove the masking tape carefully, immediately after the application of the final coat.

Stir thoroughly with a mixing blade before applying and stir periodically to maintain aggregate in suspension when working with Eco-Tuff Rubberized Non Skid Coating. The rubberized content will settle to the bottom over time, so be sure to mix completely from the bottom of the container. Avoid introducing air bubbles during your mix.

In order to avoid "cracking" do not allow The Product to pool and do not apply the coats too thick during the application. Adjust thickness level based upon environmental and temperature conditions.

When applying The Product, be sure to apply at right angles to the previous coat.

TYPES OF APPLICATIONS

We recommend 2 coats to be considered for standard traffic and 3 coats for heavier traffic use. The key is to "build up" The Product and not try to achieve thickness in one coat.

ROLLER APPLICATION

Only use the Foam Texture Rollers for Rubberized Non Skid coatings available from Eco Safety Products. This roller has provided the best results when applying manually. Others rollers may not pick up and spread the product evenly. Standard nap rollers may be used for primer and non-aggregate coating installations.

Pour Product into paint tray or hang roller grid into 5 gallon bucket. Moisten the roller and make sure to completely saturate roller with product, leaving no bare spots on roller.

Apply the first coat as a thin coat. Resaturate roller after each pass. Make 4 – 5 consecutive passes in the same direction, with each pass right next to the other. When applying, roll in one direction first, and then roll in the opposite direction in order to properly blend the product and create a uniform textured surface. Once an area is covered, run the roller very lightly over it to ensure even distribution of color and rubber crumb. Failure to apply adequate techniques and mil thickness may lead to the loosening of aggregate. Re-roll where necessary until acceptable distribution is achieved.

When dry to the touch, apply the subsequent coats. Do not apply too thick to avoid "mud cracking".
Use an applicable size lint free nap roller when applying Eco-Tuff High Traffic Clear Coat or Eco Tuff Industrial Floor Coating.

T-BAR & SQUEEGEE APPLICATION
You may use the Lightweight T-Bar Applicator or Floor Squeegee to apply the Eco-Tuff Clear Coat and Industrial Floor Coating for fast dispersion of product over a large area. While the product has self leveling characteristics, care should be taken to avoid excessive puddling or lap marks.

Pour material along your baseline to create a wet edge. Begin dispersing product in a uniform and consistent pattern working from left to right or right to left. Apply material up to a 15 wet mil thickness per coat. Allow the first coat to dry, then allow repeat subsequent coats after approximately 1 hour dry time. The coating material must be completely dry to the touch prior to additional coat application.

SPRAY APPLICATION (Best Method-Highly Recommended When Applicable)
NOTE: Reaching a balance between a quality spray finish and one where rubber is poorly distributed is wholly dependent upon technique, spray pressure, spray gun characteristics and the temperature of The Product. Experiment with your technique, spray pressure and spray gun nozzle characteristics until you are satisfied with the finish. It is preferable that The Product be at room temperature (the warmer the better) for easier spraying. If operating in cold climates, without warming the product, achieving satisfactory spray characteristics will take some adjusting to the spray pressure**. (Mask off areas as needed)**

Eco-Tuff Rubberized Non-Skid- Use only the spray gun recommended. *Superior* brand "Spraying-Mantis" hand held Hopper gun, or equivalent. Or for larger projects: *Graco* brand "Tex-Spray Compact" or equivalent. Attach spray gun to a compressor airline giving pressure of at least 20-40 psi. The above spray guns require very low pressure. Many installers do have success with a conventional airless sprayer with applicable larger tip sizes. You may proceed to test based upon your experience level.

Eco-Tuff High Traffic Clear Coat & Industrial Coating- Use the above hopper gun or a compatible low pressure airless sprayer with applicable tip. Fine finish spraying may also be accomplished with an HVLP gun for these products.

Spray water out of the gun to prime.

Before starting the job, spray a few short bursts away from the surface to test that everything is working properly. Holding gun approximately 12 - 24" away from surface, spray an even, light coat over the entire surface. **DO NOT APPLY TOO THICK.** Keep spray gun at a 90 degree angle to the surface. Hopper Spray application should make a slight "spitting" sound. This is a characteristic of the guns and is necessary for an even texture. The Product will self level. When surface becomes touch dry, spray subsequent coats. While spraying, be careful not to blow rubber crumb away from the area you are working on as this can accumulate in other areas of the job and prevent the polyurethane from bonding with the substrate. If the rubber crumb is bouncing back at you, lower the pressure or hold gun further from the surface. The further away from the surface you hold the gun, the greater the texture, the closer the finer. Remove any over spray immediately with cloth and water. The Product is very difficult to remove once cured.

Clean spray gun with water after each job is completed.

SUBMERSIBLE APPLICATIONS
Make sure you ordered the AQ submersible formulation of the Eco-Tuff coating for all applications that are constantly under water such as in pools, ponds, fountains, spas, etc. Follow applicable surface preparation instructions. Allow 10 to 14 days for full cure prior to filling surface area with water.

PRIMERS

Eco-Tuff 2-Part Primer/Sealer: is a water based, two component epoxy primer for use on concrete, wood, painted surfaces and fiberglass substrates. Eco-Tuff 2-Part Primer takes slightly longer to cure, but is by far our best primer for concrete, wood and painted surfaces. Allow 6 hours for proper cure before applying the topcoats. The primer must be tack free. Apply topcoats within 48 hours of primer application. If you have exceeded the 48 hour maximum limit, you should roughen surface by sanding, then re-clean prior to application. The substrate must be thoroughly cleaned and profiled for proper porosity and bonding. Please follow all recommended surface preparation instructions listed earlier in this manual.

Mix Part A and Part B in equal proportions and mix only the amount of material that can be successfully installed within 90 minutes. Mix with a stir stick or mixing blade and avoid introducing air and creating bubbles in the mixture. Once the parts are mixed, there is a 90 minute pot life.

Apply the primer with a ½"-3/8" lint free nap roller, HVLP sprayer or Airless Sprayer with a #11 fine finish tip. Apply up to a 5 wet mil thickness in a uniform, smooth application. Avoid over application. Take care not to over apply or build material at the wet edge. Dry roll if necessary to level lap marks or wet edge. If installing on concrete countertops or fine wood surfaces, you may sand the primer after the dry period (6 hours) to create a smoother fine finish.

Eco-Tuff Metal Primer: is a water based, corrosion inhibiting primer. Designed for interior and exterior metal applications. The Metal Primer can also be used on concrete and wood.

Stir content well prior to use. Apply the primer with a ½"-3/8" lint free nap roller, HVLP sprayer or Airless Sprayer with a #11 fine finish tip. Apply up to a 5 wet mil thickness in a uniform, smooth application. Avoid over application. Take care not to over apply or build material at the wet edge. Dry roll if necessary to level lap marks or wet edge.

COATING APPLICATION TEMPERATURE AND CURING TIME

The Product will be touch dry within 1 hour under normal conditions and can be subjected to light foot traffic within 24 hours. PLEASE NOTE: Full curing time only affects the amount of time required to wait before subjecting the surface to cleaning, heavy loads and chemical exposure. Surface can be subjected to normal loads well before this minimum time requirement. The coating ***should not*** be subjected to cleaning, heavy loads, or chemical exposure until fully cured after 7 days, less in hot conditions, more in cold, wet weather. Submersible coating applications should allow up 10 to 14 days. Controlled, warm and dry environments will allow shorter cure times. If accelerating cure time or proceeding beyond our recommendations, you should always perform a test to determine suitability. Careful consideration should be used when determining when the application is fully cured. Dry times in this manual are based on a temperature of 77 degrees Fahrenheit and 50% humidity. Higher temperatures will speed up dry time and colder temperatures will slow it. The product should not be used under 40 degrees Fahrenheit.

Use fans and heat to cure the product more quickly. Use caution to avoid over accelerating which may lead to mud cracking caused by premature drying on the surface.

Do not allow product to freeze.

IMPORTANT: DO NOT USE ANY SOLVENTS, SOLVENT BASED ALCOHOLS, THINNERS OR LACQUERS, TO THIN PRODUCT. DO NOT APPLY ANY PRODUCT CONTAINING SOLVENTS OR USE IN CONJUCTION WITH THE PRODUCT.

CONCRETE
GENERAL ADVICE FOR CONCRETE APPLICATIONS

Taking into account the following specifically listed concrete notes, unless you are absolutely sure of the (substrate) concrete history, it is important to establish the type of concrete application, the history of the concrete (if various contaminants such as oils, fuels, polishing waxes, chemicals, etc., have been in contact with the concrete), and how the application should be tackled. If there is any doubt at all about any aspect of the concrete history or type, always test (apply) adhesion **BEFORE** undertaking the overall application.

If the substrate is porous, properly prepared and the coating does not properly adhere, this is usually the result of concrete contamination by chemicals or silicone type materials. These types of contaminants can not be seen even though the prepared concrete looks clean and/or porous. Contaminated substrates of this type will reveal the lifting of The Product in sheet form, revealing adhesion to the primer, but the primer fails to adhere to the substrate.

The solution to resolving these types of problems is to establish precisely what the concrete has been exposed to and then to apply the correct cleaning agent to remove the contaminant. For example, long-term fuel contamination will require several degreaser applications to remove all imbedded fuel contaminants. Long term commercial kitchens will require several degreaser applications to remove years of embedded grease and oil. Long term beer contamination in bars will require appropriate cleaning/preparation and a significant drying time period to ensure that beer yeast contamination surfaces from within the concrete and the concrete properly dries. Without this preparation, no adhesion will be possible.

CONCRETE CLEANING

Degreasers: We recommend our bio-based industrial Soy-It Degreaser. They are designed to lift the oils, fats, grease, etc. It is very important when using a degreaser that the clean up is absolutely thorough and complete and that no dissolved fat residue is left on the concrete. This is achieved by repeating neutralizing rinses (water) of the concrete. Use a power washer or industrial floor machine with stripping pad. Rinse and extract all slurry and residue.

Important: It is important to do a light concrete etch on new concrete (Eco-Etch) and concrete that has been exposed to pool water to remove all lime and mineral deposits. Surface grind, sand or liquid concrete etch for proper surface porosity for optimum adhesion. If using acid etching liquid, consider our non hazardous alternative for your safety. Otherwise, use caution and thoroughly neutralize and rinse any acid based etching product. Degrease as instructed above.

CONCRETE FINISH

The type of concrete finish is critical in the way the application is undertaken. Heavily worked and compressed concrete is NOT porous and adhesion difficulties will be experienced without the correct treatment of the substrate. Likewise, metal trowelled concrete is also difficult to achieve adhesion with, while power trowelling may overwork and compact the concrete and adhesion problems may result. The Product or the primer used must be able to penetrate or attach itself to the substrate in order that satisfactory adhesion occurs. Ideally, concrete should be hand trowelled, porous with a brush/broom finish. New concrete will take up to 28 days to cure properly. Unless the new concrete is dry, adhesion problems will be experienced. Remember, heavily compacted and metal trowelled concrete is essentially waterproof.

CONCRETE

1. Must be fully cured
2. Test for excessive moisture vapor transmissions. Install a vapor barrier if required.

2. If concrete surface has a porous texture, no further profiling is necessary.
3. If the concrete surface is NOT porous then etch by sanding, liquid etch (Eco-Etch), diamond grind or shot blasting is necessary. Make sure when using light acid etch to remove all remaining acid with soap and water and scrub brush. (If all acid is not properly removed, you will not obtain adhesion).
4. Concrete should be completely degreased with power washer or commercial floor machine with stripping pad to remove all residue, dust, and then allowed to dry.
5. Patch all imperfections, cracks, etc. with concrete patch filler and flexible joint fillers. These are available at your local hardware store **DO NOT USE SILICONE PRODUCTS**. (The Product will not adhere to silicone).
6. Prime with Eco-Tuff 2-Part Primer/Sealer as per instructions on label. When you feel primer has properly cured, perform test patch to insure adhesion.
7. Apply The Product.

PAINTED SURFACES

1. Aggressively roughen surface by sanding with 36 or 40 grit sanding disc. The surface must be rough to ensure the best possible adhesion.
2. Clean surface of all oils, grease, dirt, silicone and other contaminants. Leave no residue.
3. Inspect for any imperfections or delamination of previously painted surface.
4. Test for adhesion. Prime with Eco-Tuff 2-Part Primer/Sealer.
5. Apply The Product.

ASPHALT

1. Clean surface by pressure-washing.
2. Insure surface is completely dry.
3. Apply asphalt primer. Asphalt primer is available through Sherwin Williams
(Part # 8000-01786).
4. Test for adhesion first, before completing job. Apply The Product.

STEEL AND ALUMINUM

All bare metal substrates should be appropriately primed after being treated for rust or removal of old paint.

1. All smooth metal should be cleaned, and aggressively roughed by sanding with 36 or 40 grit sanding disc OR by applicable metal etching solution.
2. Clean and dry surface.
3. Prime with Eco-Tuff Metal Primer or compatible etching metal primer.
4. Test for adhesion first, before completing job. Apply The Product.
Note: When installing over diamond plate, the higher treads will wear first, thus, apply the material in thicker coats up to our maximum mil thickness recommendation for longer wear.

RUBBER

1. Sand with 36 or 40 grit sand paper.
2. Clean and dry surface.
3. Prime with rubber primer. Rubber primer is available through Sherwin Williams
(Part # DTM Bonding Primer B66 A 50 136-0668).
4. Test for adhesion first, before completing job. Apply The Product.

PLYWOOD, LUMBER AND TREATED LUMBER

1. Sand with 36 to 60 grit sand paper to remove surface oils and other bond breakers.
2. Remove any peeling, cracking, or chipping paint, varnish, oils, or sealer.
3. Ensure surface is clean and completely dry.
4. Prime with Eco-Tuff 2-Part Primer/Sealer.
5. Test for adhesion first, before completing job. Apply The Product.

FIBERGLASS

1. To insure good adhesion, first sand the surface aggressively using a 36 or 40 grit paper to ensure the removal of all gloss from the substrate.
2. Insure that the surface is free of waxes and other protective additives.
3. Clean and completely dry surface.
4. Prime with Eco-Tuff 2-Part Primer/Sealer
5. Test for adhesion first, before completing job. Apply The Product.

STORAGE AND REPAIR

STORAGE

To store partially used cans, seal can well (airtight) and place in cool, dry place. The contents should be useable for at least 12 months from the date of manufacture.

The evaporation of the water within the product will cause the product to cure. If some water content has evaporated, reconstitution with clean water may restore product viability if the curing process within the can is not too advanced.

REPAIRING

In the event that The Product is damaged, it can easily be repaired, or over-coated, because it bonds to itself.

Remove all damaged product. Use a sharp knife such as a utility knife to make a well-defined area such as a square and eliminate uneven edges.

Sand area with 36 or 40 grit sandpaper so that the new application can get a good grip. Slightly bevel the edges of the existing product so that the new product can fill in the cutout area and go slightly onto the existing coating material.

Clean area with water.

Test for adhesion first, before completing job. Then apply The Product to affected area.

RE-COATING

To re-coat an application of Eco-Tuff, you must first clean the surface thoroughly to remove all oils, grease, and dirt. Prime with Eco-Tuff 2-Part Primer/Sealer, then re-apply product.

MAINTENANCE

Most general neutral floor cleaners have been tested and will work well. You may consult with Eco-Safety Products for a complete line of industrial cleaners.

DO NOT USE BLEACH, BLEACH PRODUCTS OR CAUSTICS.

For best results, use a stiff bristled deck brush to agitate cleaner on the surface.

Rinse surface thoroughly to remove all residue.

Surfaces can also be cleaned with use of automatic scrubbers. These are machines which, in one pass, put down the washing solution, scrub the floor with a light pad, and vacuum up the dirty water. It should be pointed out that the pad pressure used in the scrubber must be light and need only be sufficient for the pad to make light contact with the floor**. Heavy scrubbing will negatively affect the coated surface.**

ADDITIONAL QUESTIONS?
Questions on the application process or on the product, contact: Eco-Safety Products, Inc. at (602) 305-9397 or e-mail questions to: info@buildwithesp.com

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REMINDER:
If you are about to quote or undertake any major projects or are in any doubt about surface preparation, please contact us so that professional advice can be given. Be sure that you supply us with adequate information on the substrate and any other issues that may require consideration, i.e., site description, previous and/or current uses for the area, amount of wear. Most application failures have been due to inadequate or improper substrate preparation.