

Instruction Guide for sealing Mild Steels with ProtectaClear® Universal Clear Coat (Indoors only)

ProtectaClear® Universal Clear Coat is only used to seal mild steels when the items are located indoors and when the coated surface will be subject to a lot of high use or abuse which requires the extra hardness of ProtectaClear®. This coating is a much thinner coating than Everbrite™ therefore additional coats are needed initially for mild steels and will need more frequent maintenance recoats.

NOTE: Everbrite™ Protective Clear Coat should be used to seal mild steels on items that will not be subject to abrasion, use and abuse; as it is thick with more anti-oxidants to control rust. It works well with porous metals like naturally rusted metal, corten or other steels. Use Everbrite™ on all mild steels and rusted steel items that are located outdoors and indoors whenever possible. Everbrite™ takes less coats than ProtectaClear® to seal the mild steel metals.

What items do you need for your coating project?

Protection

- **Powder free Nitrile Gloves** to protect hands. Do not use rubber gloves as rubber reacts with the coating and will get sticky.
- **Eye Protection** to protect eyes when stirring, pouring and applying the coating. Wear as a minimum spectacles or sunglasses.
- **Tarpaulin or Cardboard sheet** to protect asphalt, concrete ground/floor in the event of coating spillage.

Cleaning Accessories

- **Synthetic Wool Pad/Grey Preparation Pad (if required)** to remove rust and smoothing the metal ready for coating.
- **Lint free rags (required)** for degreasing and solvent wiping. Use separate clean rags for each step. Do not cross contaminate rags.

Cleaning Chemicals and Neutraliser

- **Acetone (mandatory)** use only Acetone to degrease/clean surface and/or for the solvent wipe just prior to application of first coat.
- **Xylene Solvent** if needed to thoroughly clean air gun spray tips, or to remove a dried or cured coating from bare metals.
- **Methylated Spirits (required)** can be used to clean up wet coating from surfaces and to clean hands if they get sticky.
- **EZPrep Acid Neutraliser** only required for removal of acid traces from the surface to prevent ongoing rusting.

Coating Application – Tools, Containers, Other

- **Applicator Tools to suit project (as selected)**
 - hi-density foam roller, or microfibre roller; or round microfibre applicator pad with hand gusset
 - natural bristle paint brush or compatible synthetic paint brush

NOTE: Do **NOT** use old previously used rollers or paint brushes to apply other paints, varnishes etc.
- **Containers (required)**
Container to suit the applicator tool being used to apply the coating. A clean metal tin or glass container is suitable. Plastic vessels must be lined with aluminium tin-foil to prevent the plastic reacting with the wet coating dwelling in the container. e.g. plastic roller trays (for rollers) or plastic ice cream containers (for round microfibre applicator pads)
- **Aluminium tin-foil (required)**
To protect applicator tools (rollers/ paint brushes) from going hard in between coats, and to line any plastic container that may be used to hold coating, such as a plastic roller tray or ice cream container.
- **Heat Gun, Fan Heater or Blow Drier** if needed to warm the metal in cold weather.

COVERAGE - ProtectaClear® Universal Clear Coat

- **Coating Coverage for Mild Steels**
Allow 50 mL of coating per one (1) coat per one (1) square metre. Note: The first coat uses more coating than subsequent coats.
Interior Mild Steel surfaces A minimum of five (5) coats. Allow 250mL coating per square metre.
Exterior Mild Steel surfaces NOT APPLICABLE: Use Everbrite™ Protective Clear Coat for outdoor mild steel metal surfaces.

DANGER: COATING IS HARMFUL OR FATAL IF SWALLOWED. KEEP OUT OF REACH OF CHILDREN

FIRST AID In case of eye contact, flush thoroughly with plenty of water for 15 minutes and get medical attention. Reports have associated repeated and prolonged over-exposure to solvents with damage to health. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. **CAUTION** Combustible liquid. Material does not sustain combustion. Do not smoke or use near flame. Use with adequate ventilation. Avoid continuous breathing of vapour or spray and avoid prolonged contact with skin. Wear nitrile gloves and eye protection.

Please read and follow all directions and cautions on packaging & on the Material Safety Data Sheet

WARNING: Thorough preparation of the metal is very important

If shortcuts are taken on preparation then the intended result will not be achieved. This would mean that the coating would need to be removed and then recoated again. Refer to the end of this Guide to find out how to remove the coating.

1. SMOOTH OFF THE DRY SURFACE

Remove any loose, flaking or blooming rust and get the metal to how you want it to look. Use one of our Grey Preparation Pads or a synthetic wool pad (use them dry) to remove rust and to smooth the metal completely while the surface is dry. Do NOT use steel wool pads; only use **synthetic** steel wool. A soft brush can be used to remove excess residue.

Remove Mill scale. Mill scale is sometimes present on raw steel and can be mistaken as a blue-coloured primer. Mill scale is a type of iron oxide that is formed and hardens on the surface during manufacturing. The very high surface temperature combined with high roller pressures result in a smooth, bluish grey surface. It can affect mild and raw steels. It does not affect naturally rusted metal or Corten. Mill scale can be removed by sandblasting or other methods.

The reason why you cannot coat over the top of mill scale is that mill scale does not adhere well to steel. The coating adheres to the top layer, but within a short period of time the mill scale causes a full flaking process.



IMPORTANT: It is imperative that all mill scale, raised and loose flaking rust is sanded off so that it is very smooth to prevent moisture ingress and/or rusting under the coating. Mill scale, further rusting and moisture ingress will cause the coating to lose adherence causing discolouration and lifting.

2. SURFACE TO BE CLEAN & ACID FREE

IMPORTANT: If the metal surface is dirty or grimy clean the surface with Acetone, a solvent based degreaser. Try NOT to use water to clean the metal or use water based cleaners. Do NOT allow the metal to come into contact with rainfall in the week prior to coating application as it takes many days for mild steels to dry out thoroughly.

IMPORTANT: Avoid using any compound that contains acid as it will cause the steel to continue to rust under the coating.

If acid traces are on the surface the metal needs to be thoroughly neutralized and rinsed off with fresh water.

- Use Everbrite's EZ Prep™ Neutralizer in a solution of 1 part EZPrep™ to 4 parts water.
- As an alternative, use 1 cup baking soda mixed with 4 litres of water. (Or a similar ratio)
- Wash the metal with a cloth saturated with the neutralizing solution being careful to cover the entire surface **at least once**.
- **Rinse off well twice with fresh clean water immediately.** Do NOT let the neutralizer solution dry on the surface.

It is imperative for the metal to dry out thoroughly in a breeze in dry conditions for a few days before proceeding.

3. SURFACE TO BE BONE DRY

IMPORTANT: It is essential that the metal be completely bone dry before coating. Protect mild steel from damp and wet weather conditions before coating and until all coats have been applied and allowed to cure. Mild steel is porous and can easily hold moisture which will interfere with good adhesion. Even when the metal appears dry, it can still hold moisture.

Several days in warm, sunny, breezy weather will help dry out the metal if it has been rained on. It should also be noted that when metal is very cold it holds hidden trapped moisture. Just before the next Step 4 we recommend warming cold metal with a fan heater, heat gun or a hair dryer, or some extra time in direct sunshine to help dry out trapped moisture. Let the surface cool slightly before solvent wiping or solvent spraying. **In cold conditions the moisture trapped in the pores of the metal will cause milky discolouration under the coating and the coating will lose adherence.** If inadequate coats have been applied this will also allow water ingress. White or yellowish spots can appear under the coating due to the coating being too thin to fully encapsulate the metal surface.

4. SOLVENT WIPE

IMPORTANT: Immediately before applying the first coat **solvent wipe (or spray) with Acetone** to remove any residual traces of moisture sitting in the pores of the metal and to prepare the surface for the first coat. Acetone is the best solvent as it dries quickly and draws out traces of moisture as it evaporates.

Solvent wiping needs to be done immediately before applying the first coat only. Do NOT dilute or rinse the solvent.

Acetone Solvent is available at hardware stores.



Skipping any of the steps above will result in poor adhesion of the coating. See photo.

Failure to prepare the steel surface will result in the coating losing adherence due to trapped moisture, moisture ingress and rust.

Test Trial First

- For large projects it is recommended to test the coating application on a small section before coating the entire project.
- If a specific patina design is not to be disturbed, dab the coating on the surface first with an applicator cloth. Let the dabbed coating dry completely. Then apply the first rolled coat.

5. COATING PREPARATION

- **Natural Gloss:** There is no requirement to stir clear natural gloss coating.
- **Satin:** Turn the can over gently a few times and then stir well for a few minutes before application. Thorough stirring will lift the satin flattening agent off the bottom of the can. Failure to stir thoroughly before you start and frequently throughout application may result in an uneven streaky finish.
- **Do NOT shake the can vigorously:** Otherwise bubbles will form in the coating and these will appear on the coated surface. Allow bubbles to settle before coating application.
- **Do NOT thin the coating** with any type of solvent as the coating will fail.
- **Pour some of the coating into a clean, dry, metal or glass container.** If you are using a standard plastic vessel like an ice cream container, or plastic roller tray then you must line it with two layers of aluminium foil. Otherwise the coating will melt the plastic if it is left to dwell inside it.

Personal Protection

- Allow for **adequate ventilation** during coating application.
- For hand protection only use **nitrile powder-free gloves** or chemical resistant gloves as rubber gloves become sticky.
- **Wear eye protection** to prevent accidental splashing of coating in eyes.
- If spraying on coating (only for second and subsequent coats) with an HVLP or airless sprayer it is recommended that a NIOSH respirator be used.

Protection of Ground Area

- Asphalt needs to be protected; as the solvent in the coating will react with the asphalt if spilled.
- For concrete or cobblestones it is recommended that a tarp is used to protect the concrete/cobbles from coating spills. The coating will not harm the concrete/cobbles but it will cause them to look shiny and possibly darker.

Temperature & Humidity Matters

- Coating is best applied in temperatures from 13 - 30 degrees °C and without humidity.
- The temperature of the metal is as important as the air temperature.
- **Do not apply the coating if the metal surface is too hot** otherwise the coating will flash off too quickly and will not have enough time to self-level. The metal is too hot if you cannot place the back of your hand on it for 10 - 15 seconds.
- **If the metal is too cold, warm the metal with a heat gun, hair dryer, or work in the sun or shade appropriately.** If the coating sags this indicates that the metal is too cold as it is not flashing off fast enough.
- **Do NOT apply if the temperature is within 10 degrees Fahrenheit of the dew point.**
You can access dew point information for your area on-line at weather.com

6. COATING APPLICATION

The metal surface to be coated must be scrupulously clean, acid free, sterile and bone dry and have been solvent wiped or sprayed with Acetone just prior to applying the first coat.

General Application Tips

- Do NOT use circular motions to apply the coating. Use a smooth motion and finish each section at a time.
- Quickly observe for runs, drips, or sagging and smooth them out before the coating starts to dry within a couple of minutes.
- Observe the coating while applying: if the coating separates or does not look completely smooth; then **STOP; Remove the wet coating with methylated spirits or xylene** and re-clean the surface properly. Other chemicals present on the surface can cause separation and need to be removed completely. Dry the surface completely and solvent wipe again before applying the coating.

First Coat **IMPORTANT:** The first coat must be rolled on or brushed on. NEVER SPRAY ON THE FIRST COAT

Recommended tools for the first coat:

- Small to medium diameter **high density foam roller**; or
- Small to medium diameter **smooth microfibre roller**; or
- Any size **natural bristle brush**

Mild steels are very porous, so it is important to get a good first coat on the metal using a roller or brush with moderate pressure with plenty of coating on to ensure full penetration of the coating into the porous surface. THIS IS REALLY IMPORTANT.

Roller Application

- **Submerge applicator roller completely into the coating.** The roller should be saturated but not dripping. This is important because any dry areas on the roller will cause streaks.
- The roller should roll smoothly using moderate pressure and when the roller starts to show resistance re-dip the roller into the coating again. If you get drips, simply smooth them out before the coating starts to dry.

Brush Application

- Use a good quality natural bristle brush (or a compatible synthetic brush) Dip the paint brush completely in the coating. Lightly tap the side of the paint brush on the side of the container. The brush should be full of coating but not dripping. Ensure complete coverage and when the brush starts showing resistance re-dip the brush into the coating again. If you get drips, simply smooth them out before the coating starts to dry.
- **The first coat will soak up more coating than subsequent recoats.**
- **Wait 60 to 90 minutes for the first coat to dry before applying the next coat and subsequent coats.**
- Let the coating dry completely. It will self-level as it dries. Everbrite coatings are self-annealing; meaning the next coat will become part of the previous coat. Wait at least one hour between coats or until the previous coat is completely dry. Due to the porous nature of mild steel metals three (3) or more coats will be required to protect the metal.
- **Wrap a used roller or paint brush (even when full of coating) in aluminium foil** to prevent them going hard. Simply unwrap when ready to use the applicator tool again.

Second & Subsequent Coats

- **IMPORTANT:** When using a roller or paint brush (or a round microfibre applicator pad) for the second and subsequent coats **the application tool needs to glide smoothly across the surface and it is important to move the tool in ONE DIRECTION ONLY and leave it alone to dry.** Do NOT move the applicator tool backwards or forwards as this will drag on the previous coat as it quickly melts into the previously applied coat whether the previous coat is dry or fully cured.
- For second and subsequent coats an HVLP Airless paint sprayer with a fine-finish tip can be used to spray on the coating. When spraying larger areas a 50/50 overlap is recommended.
- **It is important to have the adequate thickness and number of coats to protect mild steels.** As a general guide three (3) coats as a minimum for indoor items and four (4) coats as a minimum for exterior items.

Cure Time

- Everbrite Protective UV Clear Coat is an air dry solvent (and is not catalyzed) therefore it is heat and air circulation that hastens its curing.
- Under normal circumstances and with good ventilation, the coating will be cured after 7 to 14 days depending upon the time of year and how many coats have been applied.
- The coating is delicate until fully cured, which can take up to two weeks. You can shorten cure time by gently heating the coated item AFTER it is dry to the touch. Smaller items can be placed in a low temperature oven (60°C - 80°C) for 1 hour and will be cured when cooled.
- **IMPORTANT:** The coating **MUST** be fully cured before prolonged contact with other surfaces; e.g. packaging, or allowing water to sit on the coated surface, immersing in water or filling fountains, etc. In most cases, dew or rain does not hurt the coating once it is dry for 3 to 4 hours. **But do not allow pooling water to remain on the surface of the coating for a minimum of two weeks after coating.**

Coating Shelf Life

- Keep any extra coating for touch ups. We recommend cleaning the threads of the can and cap with meth before reattaching it.
- *Natural gloss* coating has an indefinite shelf life when stored in an air tight can.
- *Satin finish* has a long shelf life but after many years the flatteners will stick to the bottom of the can unless stirred frequently.

Clean Up and Coating Removal

- Paint Brushes & Spray tips are cleaned with **Xylene Solvent or a Xylene Substitute** such as Miracle Clean or Resene Thinners No. 6.
- Rollers cannot be cleaned and are discarded after the project is finished or they can be wrapped well in aluminium tin-foil to keep soft for short term protection. Do NOT use plastic wrap as this will react with the coating.

Removal of a cured Coating

- **A cured coating can be removed from bare metals with Xylene solvent; or a Xylene substitute.** Wear personal protection. Wet a cloth with the Xylene solvent completely. Move the wet cloth over the coated metal with light pressure. Rubbing hard is not advised. When the coating begins to “melt”, wipe it up and off of the surface. Repeat until the coating is gone.
- For larger areas the coating can be removed mechanically with a wire brush or by sanding, sand blasting.

After Care for the Coated Surface

Cleaning the coated surface

- Do NOT use solvent or citrus based cleaners or abrasives to clean the coated metal.
- Do not use cleaners with *petroleum distillates*.
- Suggested cleaner is mild soap and water.

Coating Maintenance & Longevity

- Once coated the coating metal is easy to maintain. Check periodically if a recoat is needed. If rust appears remove the coating in that area and sand off the rust. Wipe with a white damp cloth to remove dirt and residue, dry well, and recoat.
- A maintenance recoat adds more antioxidants to protect the metal. The time between a maintenance recoat is dependent upon the number of coats and thickness of the coating already applied, the environment, and general use.
- Always ensure that you move the coating applicator tool in one direction. Use a sponge, brush, natural bristle brush, or roller to apply the coating. Refer to instructions in this Instruction Sheet.