MarineMEND

MarineMend Repair System Kit Procedure for MarineLINE® Coated Cargo Tanks.

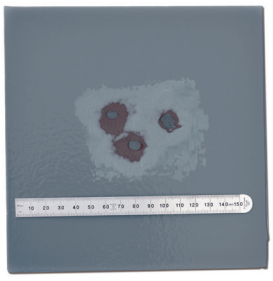
The purpose of this procedure is to clearly explain what must be done in order to repair a MarineLINE® coated tank for service. The repair procedure should be used when the coating has been misapplied, damaged, or contains holidays (pinholes).

1) Rust spot 2) Vacuum blasting 3) 4) Prepped repair areas shown 5) 6) Finished MarineMend repairs

Step 1 Pre-Surface Preparation

Observe ALL safety requirements during this procedure, including wearing all appropriate personal protective equipment as detailed in Material Safety Data Sheets. This includes wearing solvent resistant gloves (shown above). See 'Safety Handling' information at www.adv-polymer.com Pre-surface preparation includes a detergent wash and chemical cleaning of all surfaces to be repaired. All surfaces must then be dried.

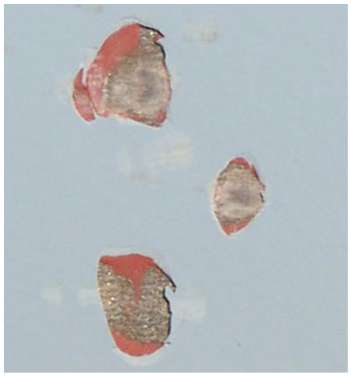
Steel plate coated with MarineLINE®, pending mechanical damage with a hammer.



Damaged plate.

Step 2 Surface Preparation

If the damaged areas are small and independent (separate) from each other, the small damaged areas may be hand sanded with a medium grit aluminum oxide sandpaper. Sand the topcoat (grey) of the MarineLINE® coating, and remove any rust spots.

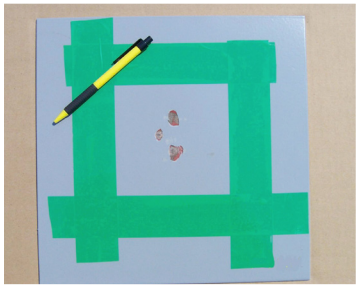


Close-up of damaged MarineLINE® coating.

For areas that are larger, use one of the following methods:

- a vacuum blaster, which gives the best adhesion profile
- a disk grinder with medium grit aluminum oxide disk

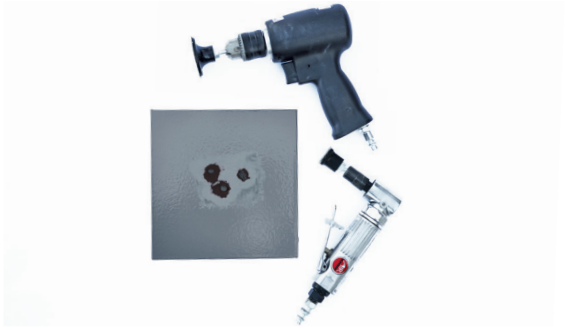
Remove topcoat (grey) of the MarineLINE® coating, and any rust spots down to a near white metal.
Note: All areas sanded down to a near white metal, must have an area of 25 mm around its periphery.



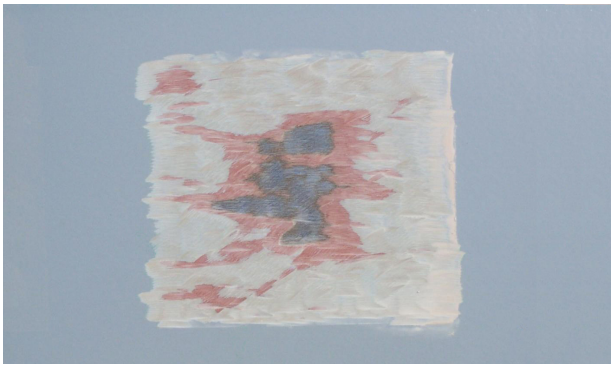
Masked area –25mm periphery.

MarineLINE® coating topcoat (grey) removed to a feathered edge.

ADVANCED POLYMER COATINGS



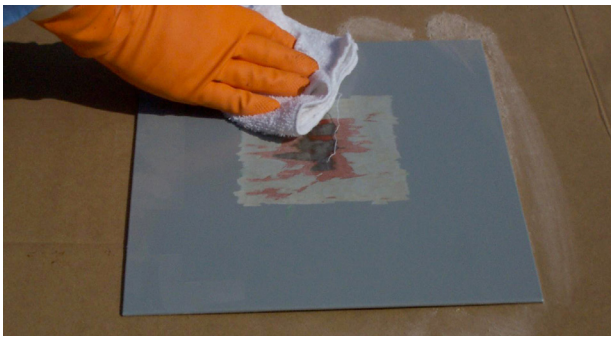
Pneumatic air drill (~ 20,000 to 25,000 RPM)



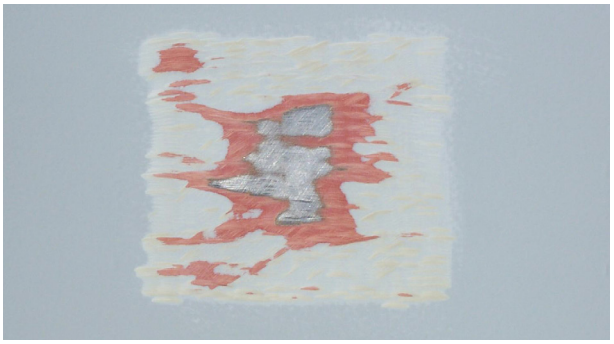
Sand masked area.

Feather edge the sanded area so that no loose or sharp edges of existing coating are observable.

The area should be vacuumed thoroughly to remove all dust particles and washed with solvent (Acetone is preferred, Toluene and MEK are suitable alternatives) to remove all contaminants.



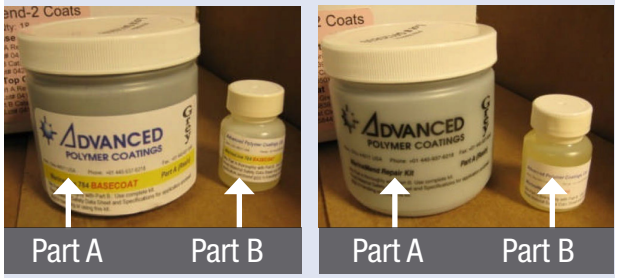
Clean the repair area with appropriate solvent. Note: Always use clean white cloth. Do not use shop rags.



Finished surface preparation.

Contents of MarineMend Repair Kit

MarineMend Repair Kit.



Base Coat *Top Coat*

Each MarineMend Repair System Kit consists of:

MarineMend Base Coat Components

NOTE: Be sure to mix MarineMend Base Coat Part A with MarineMend Base Coat Part B.

1 jar MarineMend Base Coat (Part A).

1 bottle MarineMend Base Coat hardener (Part B).

MarineMend Top Coat Components

NOTE: Be sure to mix MarineMend Top Coat Part A with MarineMend Top Coat Part B.

1 jar MarineMend Top Coat (Part A).

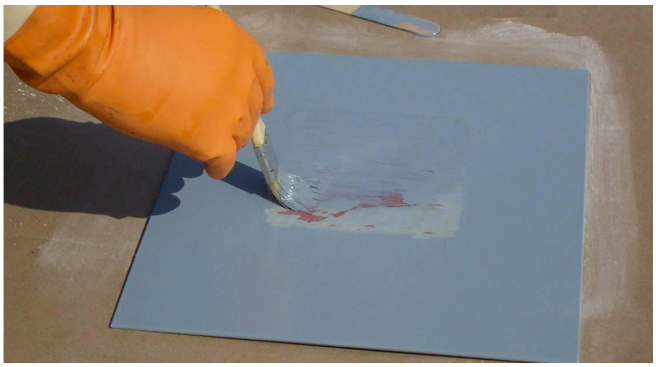
1 bottle MarineMend Top Coat hardener (Part B).

Step 3 MarineMend Base Coat Mixing

When all preparation work is completed, pour the entire contents of MarineMend Part B catalyst bottle into Part A container, and mix thoroughly for 2 to 3 minutes.
Note: The pot life of the MarineMend Base Coat kit is 30 minutes maximum @ 20°C. Make sure all surface preparation is completely finished before mixing the kit.

Step 4 Coating the Repair Spots

Use a small brush or paint roller to apply the mixed components of MarineMend Base Coat to the properly prepared surface, coating entire prep area. Apply a wet film thickness of 160-200 microns.



MarineMend Base Coat applied with brush.

Allow Base Coat to B-stage with good ventilation until coating has tacked up but released all solvent. (Coating leaves a finger-print but does NOT come up on finger – this may take up to 24 hours depending on temperature and air flow).

Step 5 Mixing MarineMend Top Coat

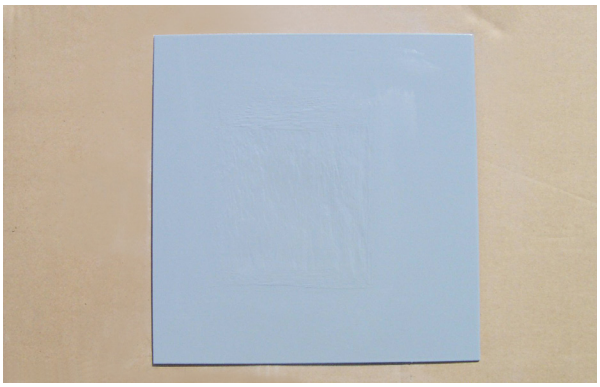
When the Base Coat has reached proper B-stage, pour the entire contents of MarineMend Top Coat Catalyst Part B into the Part A container, mix thoroughly for 2-3 minutes.

Step 6 MarineMend Top Coat Applied with Brush

Use a small brush or paint roller to apply the mixed components of MarineMend Top Coat to the properly prepared surface, coating entire repair area. Apply a wet film thickness of 160 to 180 microns.
Note: The pot life of the MarineMend Repair Kit is 30 minutes maximum @ 20°-25°C.

Make sure all surface preparation is completely finished before mixing the kit.

MarineMend Top Coat applied with a brush.



Finished MarineMend patch.

Step 7 Curing Requirements

Option 1 - for vessels with heating/steam coils:

- Post cure MarineMend System with heating/steam coils at a minimum substrate temperature 60°C for 24 hours.

Option 2 - for vessels without heating/steam coils installed:

- Post cure MarineMend System with ambient/ environmental conditions to a minimum of 30°C and hold for 3 days, followed by a hot cargo or hot water at following temperature and time (days).

  40°C ..... 5 days
  50°C ..... 3 days
  60°C ..... 1 day

Technical Specs for MarineMend Repair Kits

Shelf Life

When stored at temperatures between 20-25°C, the repair kit shelf life is 12 months.

Pot Life

When applied at temperatures between 20-27°C, the pot life for either coat would be around 30 minutes.

- an induction time is NOT required or recommended
- if the temperature is cooler, the pot life will be longer
- if the temperature is warmer, the pot life will be shorter.

Surface Preparation

During surface preparation, a profile needs to be created that allows the bonding of the coating to the surface.

- the best method to achieve a proper profile is by vacuum blasting
- this can also be achieved by sanding, either by machine or hand and the surface must be well “scored or scratched” (not smooth)
- the surface must also be free of rust and clean of debris and contaminants.

Drying

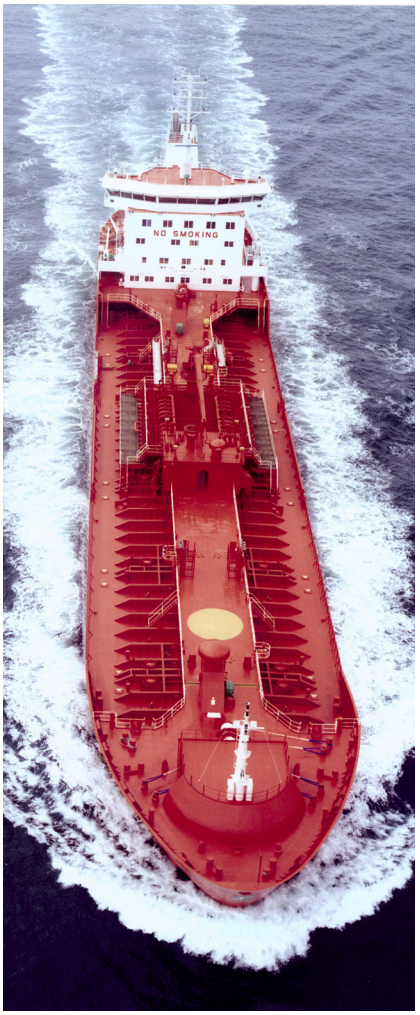
After the application of either coat, drying time is required prior to applying a second coat or heat curing.

- this will require a minimum of 3-4 hours depending on ambient temperature in the tank.

Curing

Heat curing is required for the optimum performance of the repair coating.

- as required for any heat curing, adjacent cargo and ballast tanks should be empty
- prior to heat curing, drying time is required for the top coat similar to the dry time between coats
- hot cargo can be utilized as a form of heat curing
- drying time prior to loading a non-aggressive cargo would be minimum of 3 days @30°C



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