

## Application of Paint on GRP Surface

### OVERVIEW

A) Best results will be achieved if the painting process takes place after all structural and mechanical work is finished or put on hold, however this is rarely practical in most operations.

B) Take the time to clean the area well around the vessel to be painted. Before final topcoat application begins, sweep or vacuum all floors and horizontal areas. If beams or rafters are present above vessel, vacuum or blow them free of dust and let air settle for several hours before proceeding. Wet all floors thoroughly before painting.

C) Make sure all air equipment is clean and do not allow D/A sanders and other air equipment to blow water and or oil on surfaces being sanded. There is a risk of contaminants being ground into the primer-surface which could result in coating failure. When using air-sanders and other suspect equipment always use water/oil separators and clean airhoses near the equipment.

D) When blowing surfaces clean, always use the same hoses, filters and separators as to be used for painting and make sure all painting equipment is clean and in good shape. Never use airhoses that have been used with airtools for spray-equipment, since these are likely to be contaminated on the inside with oil and/or water, which may cause contamination of the paint or primers. If hoses or other gear is suspect, either replace with new, or rinse out liberally with Paint grade M.E.K. only. Industrial or generic M.E.K. may have oil and/or water contaminants present, and should never be used in or around Linear Poly Urethanes! Before painting, test your air system by blowing air, from the outlet to be used, onto a clean surface for an extended time, about 5 mins. Any contaminants in the air supply will usually be evident and the problem should be rectified before continuing the painting process. The most common problems encountered are water or oil in the air, usually caused by condensation in accumulator tanks and hoses, or leaky seals in the compressor, respectively. We strongly recommend solving this problem mechanically, not by adding anti-crater-solution to paint mixture, which will lessen the quality and lifespan of the paint system. Please see 6 and 7 below.

E) Preferred spray-equipment for topcoat application is a pressure-point setup with at least 10L capacity, and long enough hoses to ensure comfortable operation for the applicator. Fluid tips should be very small; 1 - 1.2 mm for topcoat and finish primers, to promote slower application, better atomisation and a better quality finish. For high-build primers, larger orifices should be used. High-build primers, however, are most efficiently applied by airless spray equipment.

Siphon-cups may also be used for all products here covered, using fluidtips 1.5 - 2.2 mm inches. Airpressure at gun should always be 4.5 - 5 Bar (55-65 psi) for both pressure pot and siphon cup setups. Even 10 m hoses create quite a pressure-drop, so please consult application-guide for adjustment information.

Always rinse some Paint grade M.E.K. or spray reducer through gun before applying primers or topcoat, to ensure all passages are clear and the equipment is clean. After each use clean out gun with same reducers and strip down if necessary to keep in top condition.

F) Set aside a clean table or area for mixing paints and primers. Always use new, clean, unwaxed paperpots or other clean containers for mixing materials. After mixing and thinning paints and primers per below directions, always strain all materials through fine paper paint filters before pouring into spray equipment. For high-build primers use nylon netting or a open mesh.

G) Plan your work, take your time to make sure all directions are being followed and do not rush! If any questions or problems occur before, during or after application, call DUROPLASTIC TECHNOLOGIES at any time for assistance.

## 1 SURFACE PREPARATION

1.1 STRUCTURAL HULL COMPLETION. As all fabrication is completed all surfaces should be cleaned of all obvious contamination, dirt, grease etc. Before the application of any exterior coatings, grinding of the entire laminate exterior surface should be undertaken, using rigid disks, to a 36-80 grit profile. Care should be taken to thoroughly scour the substrate to provide adequate "tooth" for the coating system.

## 2 APPLICATION OF WHITE HIGH-BUILD EPOXY PRIMER TO EXTERIOR HULL SURFACES.

2.1 Make sure all surfaces clean and ground as described above. Use clean uncontaminated air to blow clean.

2.2 Thoroughly mix correct parts DUROPLASTIC High Build Epoxy Primer and DUROPLASTIC Epoxy Catalyst, and allow to pre-react for 30 minutes or more. Thin with Epoxy Reducer to appropriate viscosity; For conventional spray with pressure-pot, thin 5-10%; set potpressure @ <1 Bar (10-12 psi).

Airless spraying should require very little thinning if any.

Always use paper paintstrainers or cheesecloth when pouring thinned primer into paint pot. DUROPLASTIC High Build Epoxy primer should be applied in Wet Film Thickness of at least 250-375 microns, with 500 microns being the maximum normally achievable. Surface should be allowed to dry for 1-2 hours and further application should be undertaken with similar coating thickness, resulting in a final Dry Film Thickness of 500-750 microns (for High Build Epoxy; 500 microns WFT dries to 375 microns DFT).

## 3 FAIRING OF HULL SURFACES

3.1 Allow primer to fully cure 24 hrs or longer. Sand with 60-80 grit to provide adequate "tooth" for the fairing-compound. After sanding solvent wipe using Toluol surface cleaner. Do not fill more primer than can be filled in a four hour work period.

3.2 Using long flexible battens mark all obvious low spots.

3.3 Mix Duroplastic EASYFAIR EG700 Epoxy Fairing Compound and Easyfair Catalyst, best done by powermixer, and let pre-react for 5 mins or more. It is recommended to stir up base can separately before mixing two together to ensure both components have even consistency. This is especially important if using less than full container, since solvents in the material tend to sink to bottom of can during storage. EG700 Fairing Compound is best applied by trowel, In low temperatures, very small amounts of Epoxy Thinners may aid the ease of spreading the material.

3.4 Apply EG700 Fairing Compound to all hollows and low spots.

3.5 After all low spots have been filled to desired thickness, entire hull surface should be coated with at least 2mm, or more fairing compound. Use the longest screeding boards possible in the space available. We recommend applying the Fairing Compound in at least two coats. This provides adequate cushion for subsequent grinding and longboarding and protects the integrity of the primed surfaces.

The first coat should be screeded up and down, the second side to side. It is not necessary to sand the Fairing Compound before applying further coats. All that is normally required is to remove any unwanted screedmarks, ridges etc.

3.6 After a cure period of at least 24 hours, depending on ambient temperatures, coarse abrasive sanding is used to remove obvious high spots.

Using 24-36 grit abrasives, start to longboard fairing compound, to bring up low spots. When the off-white colour of the High-Build Primer shows through beneath the sanded fairing compound, sanding should stop and more fairing applied. This prevents any interruption of the integrity of the DUROPLASTIC High Build Epoxy High-Build Primer.

Do not use D/A's or other powersanders at this stage.

If the high-build primer is "burned" through and laminate is exposed, or not enough primer film thickness

remains, a spot is created where the coating system is most likely to fail in the future. Therefore it is important to STOP sanding as soon as white primer is exposed.

3.7 Long boards should be moved horizontally, vertically and at varying angles during the boardsanding process to achieve the fairest possible surface.

3.8 A final screeding to fill porosity of fairing compound surface is recommended. This is best done by Mixing Easyfair Fairing compound as above and thinning with 5-10% Toluoll, then applied with small screeding boards using a lot of hand pressure. When screeded correctly in this manner only a light sanding should be necessary afterwards.

3.9 After completion of all filling, fairing and sanding use high pressure filtered air to remove all dust and sanding residue.

#### **4 PRIMING FAIRED HULL SURFACE**

4.1 Mix well parts DUROPLASTIC High Build Epoxy Primer and DUROPLASTIC Primer Catalyst and let stand at least 30 mins to prereact. Thin, strain through paperfilters and set spray equipment same as in 2.2 above.

4.2 Apply 250-375 microns Wet Film Thickness in 1-2 passes by spray or roller to cover porous surface of sanded fairing compound. A second application after 1-4 hours drying time may be necessary to cover porosity.

NOTE: This coating will seal the sanded fairing compound and expose any pores opened by boardsanding.

4.3 Any further porosity found should be filled same as in 3.8 above. If this porescreed is used it should be followed by repeat of 4.2.

Alternately glaze as necessary to fill nominal low spots and deep sanding grooves with an epoxy glazing putty such as Duroplastics Super Spot or similar.

4.4 Using long boards with 80-150 grit abrasive, depending on spray profile, sand hull surface until profile is reduced. Repair or reprime as necessary.

4.5 Ensure that the surface below the waterline, has as its last coat a coat of 250 - 300 microns of High Build Epoxy . No further coatings apart from the anti fouling will be necessary.

#### **5 PRIMING PRIOR TO TOPCOAT, ABOVE WATERLINE**

5.1 Mix parts White Urethane Primer / Primer Catalyst , no prereaction time necessary.

An Accelerator may be added if faster cure time is desired.

5.2 Thin primer approx. 5-20% with Reducer, strain through paperfilters and apply to entire surface in sufficient coating thickness to cover all abrasive profile from sanding. For more build, reduce less and apply more coats.

For conventional pressure pot, set pot pressure @ 0.5 Bar (4-6 psi).

Urethane Primer may also be rolled and brushed satisfactorily.

5.3 Allow primer to dry overnight. Finish sand primer surface to remove all texture and residual abrasive profile. Larger areas are best sanded with half-sheet or dual action airsanders, finish sand with 220 grit abrasive - 320 grit if sanded by hand.

Urethane Primer sands and "powders up" very easily and unless surface is quite rough can usually be sanded directly with the final grit.

5.4 A second application of Urethane Primer may be necessary if surface is broken through in many areas, in which case a full application usually is more efficient than extensive spotpriming. Thinning Primer 25-30% will bring out a very smooth primer surface requiring minimal sanding.

5.5 The Urethane Primer is an off-white semigloss colour and can if desired be coloured with any topcoat colour. This is commonly done especially with darker topcoat colours, and will "hide" slight scratches that may occur during use of the vessel.

Some applicators "dust" a light final coat of Urethane Primer, mixed with a contrasting topcoat colour and thinned 50-75%, as a guidecoat to aid in sanding.

5.6 All remaining imperfections should be filled with glaze putty (such as Duroplastics Super Spot), very minor scratches with an approved lacquer glaze putty (such as 3M or Spot putty - not recommended ), and all such areas should be spotprimed with Urethane Primer, and sanded as per above.

5.7 After final sanding, blow clean entire surface with dry, filtered air. Do not allow surface to be contaminated prior to gloss application. Proceed to topcoat application as soon as possible, to avoid contamination. If impractical to continue however, surface can be left at this stage for extended time.

## 6 HULL GLOSS SPRAY APPLICATION

6.1 Sand primer smooth as per above, and solvent wipe the surface using P/U Reducer.

6.2 Mix parts Topcoat/ Catalyst according to spec. If temperatures are not expected to reach above 20 Deg C during application, and faster filmcure is desired, add Accelerator to paint.

PLEASE NOTE: If unfamiliar with the use of Accelerator do not add, or start with very small amount. Please read discussion regarding use of accelerator in the application guide carefully, and if needed call for detailed instructions!

Cover catalyzed mix and let stand 30 minutes to prereact.

6.3 Reduce catalyzed mixture approx. 30-35% with Reducer at temperatures 20 - 30 Deg C, and Winter Reducer in lower ambient temperatures. Darker colours may require more, up to 50%, reduction to achieve proper flow.

Please contact Duroplastics for test procedure to achieve ideal thinning ratio.

Using a #2 Zahn-cup catalyzed paint should be thinned to approx. 17-19 seconds.

If a large amount of paint is catalyzed at one time, or application is moving slowly, it may be necessary to further reduce catalyzed mixture as the project moves along.

6.4 Using at least 4 Bar( 55 )psi air pressure at gun fine atomizing air cap and fluid orifice no greater than .045 inches, set pot pressure @ 4-6 psi if using a pressure pot.

6.5 Using Tackrags, wipe area 2-3 times just prior to painting. Be careful as not to put too much pressure on tackrags and do not use any solvents on tackrag!

6.6 Apply first or "tack" gloss coat with just enough material to produce wetness and a good flow, normally 50-75 microns wet film thickness. The first coat should not be "fogged" on, which will result in stipple. Rather a good mirror image should be evident on the first pass within just a few minutes. If the tack coat is applied too heavily, substantial drying time has to be allowed before the second coat can be applied and an "orange peel" effect is very likely to occur. Please contact Duroplastics for further discussion on topcoat application techniques.

6.7 We do not recommend using any anti-crater solutions in paint mixture unless called for. Fisheyes or craters are usually caused by contaminants in the air supply and will usually be saved by evident as the first tack-coat is applied. If this happens, the paint job can usually be saved by adding an Anti-Crater Solution to the already catalyzed and thinned paint mixture. This additive reduces the surface-tension of the paint-film, allows it to flow into and cover craters already formed, usually saving the paint-job and avoiding sanding and repainting of the surface.

6.8 Allow first coat to dry until firm, approx 45-60 mins at 20 Deg C. A simple test is when no fingerprint is evident after touching tapeline. Apply second coat, in final application process, to achieve full gloss and flow, 50-75 microns wet film thickness. Some applicators apply Topcoat in three passes, the desired coating thickness or full coverage is dependent on how the topcoat looks after completion.

6.9 Allow at least 1 hour before pulling maskingtape, and wait a minimum of several hours until removing masking materials to avoid damaging the fresh paintsurface.

6.10 Allow surface to dry at least 48 hours before applying tape for stripping, unless testing proves film to be cured so that tape imprint will not occur. For best results always use 3M Fineline tape for stripping.