



Duratec Application Guide 2015

Marine Composites: Repairing, Fairing & Priming

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Products—

- Duratec Vinyl Ester Fairing Putty (1810-013 Un-tinted)
- Duratec Vinyl Ester Fairing Primer (1799-052 Blue)
- Duratec Vinyl Ester Primer (1702-006 Black, 1794-006 White, 1799-006 Gray)
- Duratec Thinner (39LAC-3)

These products comprise the Duratec Marine System. Formulated for below-waterline, topside, deck and superstructure surfaces, they are ideal for one-off and production yacht fairing and osmosis blister repairs.

Application Conditions—The surface should be clean, dry and free from oil, grease, wax or other contaminants. Ambient temperature should be in excess of 60°F, 16°C to ensure a rapid and complete cure. Time calculations are based on temperatures of 77°F, 25°C.

Project: HULL FAIRING

Product: Duratec Vinyl Ester Fairing Putty

1 Surface and Product Preparation

Important: If the surface to be coated is epoxy laminate—

- Always test the compatibility between the epoxy surface and Duratec products.
- Do not apply Duratec Vinyl Ester products over epoxy putties that contain microballoons. *SEE MODULE AT BACK FOR EXPOXY MICROBALLOONS*
- If the surface is epoxy resin or laminate, scrub with an abrasive pad and water to eliminate any possible amine blush that may be exposed due to sanding and might interfere with the adhesion of Duratec products to the epoxy substrate.

Sand surface to a 80- or 120-grit finish; wipe with a fast solvent and clean white cloth. Do not use a tack rag.

Thoroughly stir Duratec Vinyl Ester Fairing Putty in the can using a spatula or putty knife before catalyzing. Catalyze at 2 percent (20 cc/quart) with full strength mekP catalyst for a 9-11 minute gel time at 77°F, 25°C. Thicker putty mass will generate higher exothermic temperatures and will speed the cure while thinner putty mass will generate lower exothermic temperatures and a slower cure rate.

2 Application Procedures

Apply Duratec Vinyl Ester Putty with a spatula, putty knife or squeegee. Fill the void completely by working the putty in all directions. For exceptionally deep repairs, repeat the process to ensure a porosity-free surface.



Duratec Application Guide 2015

Marine Composites: Repairing, Fairing & Priming

After 30-40 minutes, depending on temperature and thickness, the putty may be sanded with 80-grit sandpaper in preparation for topcoating with Duratec Vinyl Ester Fairing Primer and/or Duratec Vinyl Ester Primer.

Project: LEVELING HULL SURFACE

Product: Duratec Vinyl Ester Fairing Primer (1799-052 Blue)

1 Surface and Product Preparation

Important: If the surface to be coated is epoxy laminate—

- Always test the compatibility between the epoxy surface and Duratec products.
- Do not apply Duratec Vinyl Ester products over epoxy putties that contain microballoons.
- If the surface is epoxy resin or laminate, scrub with an abrasive pad and water to eliminate any possible amine blush that may be exposed due to sanding and might interfere with the adhesion of Duratec products to the epoxy substrate.

When Duratec Vinyl Ester Fairing Primer is applied over Duratec Vinyl Ester Fairing Putty, spread and sand the putty as directed above. Otherwise, sand, sweep or sandblast (do not use silica blasting media) the surface to a 80 or 100- grit finish; wipe with a fast solvent and a clean white cloth. Do not use a tack rag.

Thoroughly mix Duratec Vinyl Ester Fairing Primer in the can before catalyzing. Note: Use a machine mixer because the low-density filler will separate and float to the top forming a crust. Do not discard the crust.

Pour out the quantity of material required. Due to the rapid gel time of the fairing primer, mix only what can be applied in 15-18 minutes. Higher temperatures yield a shorter pot life and gel time while lower temperatures yield a longer pot life and gel time.

Catalyze at 2 percent with full strength mekP catalyst (20 cc per quart). Thin 10-20 percent if necessary to a desired spray viscosity with mek (methyl ethyl ketone) solvent; if (and only if) application temperatures are below 77°F, 25°C, the fairing primer should be thinned with acetone.

Note: Do not thin with lacquer-thinner or slow/medium speed solvent. Residual solvent in the fairing primer may cause cracking during the curing process.



Duratec Application Guide 2015

Marine Composites: Repairing, Fairing & Priming

2 Application Procedures:

Duratec Vinyl Ester Fairing Primer can be sprayed, brushed or rolled.

Spray Application: Gravity, siphon or pressure-pot spray systems can be used. Line air pressure should be between 35-50 psi and pot pressure should be 12-15 psi. A 3.0-3.5mm diameter aircap, needle and nozzle arrangement is recommended. If excessive porosity exists, first squeegee the surface with catalyzed fairing primer before spraying. Apply a tack coat to the surface and allow it to flash for two minutes. Follow with wet passes, slowly building to a maximum 2 - 4mm, 80-160 mils, wet thickness, allowing for flash time between wet passes. If greater thickness is desired, wait 20-40 minutes after the initial wet coat has gelled and continue spraying.

Note: If additional wet coats are necessary and more than 8 hours have passed, the initial wet coat must be sanded with 80-grit sandpaper before recoating. **Brush or Roller Application:** Apply Duratec Fairing Primer with solvent-resistant brushes or rollers, catalyzed as described. After the initial wet coat has been applied, wait until gel has occurred and repeat the process, building to the desired thickness.

Depending upon thickness and temperature the fairing primer will be ready to sand within 1-5 hours. Sand with 80-grit sandpaper and re-apply the Fairing Primer to fill low spots or porosity. Sand again with 80-grit sandpaper and wipe the surface with a fast solvent and clean white cloth before topcoating with Duratec Vinyl Ester Primer.

Project: HULL SURFACE SEALING

Product: Duratec Vinyl Ester Primer (1702-006 Black, 1794-006 White, 1799-006 Gray)

1 Surface and Product Preparation

Important: If the surface to be coated is epoxy laminate—

- Always test the compatibility between the epoxy surface and Duratec products.
- Do not apply Duratec Vinyl Ester products over epoxy putties that contain microballoons.
- If the surface is epoxy resin or laminate, scrub with an abrasive pad and water to eliminate any possible amine blush that may be exposed due to sanding and might interfere with the adhesion of Duratec products to the epoxy substrate.

When Duratec Vinyl Ester Primer is applied over Duratec Vinyl Ester Fairing Putty or Duratec Vinyl Ester Fairing Primer, follow instructions outlined above. Otherwise, sand or sandblast the surface to a 80- or 120- grit finish and wipe with a fast solvent and clean white cloth. Do not use a tack rag.



Duratec Application Guide 2015

Marine Composites: Repairing, Fairing & Priming

Thoroughly stir Duratec Vinyl Ester Primer in the can. Catalyze at 2 percent with full strength mekP catalyst (20cc/quart) for an 18-20 minute pot life. If ambient temperatures are excessive, cool the primer to 77°F, 25°C to create a longer pot life. Thin, if necessary, 10-20 percent with Duratec Thinner or mek solvent after catalyzation.

② Application Procedures: Important:

- For proper blister/osmosis resistance, Duratec Vinyl Ester Primer must have a minimum of 0.5 mm, 20 mils, dry thickness remaining after sanding before topcoating. If the primer is used for cosmetic applications above the waterline, no minimum thickness is required.
- After sanding, allow the primer to cure overnight at 77°F, 25°C before topcoating. This allows for the release of solvents that may be trapped at the surface.

Spray Application: see module in back for information on spray gun

To spray, apply a tack coat to the surface and allow it to flash for 2 minutes. Follow with wet passes, building to 1mm, 40 mils (1 mm), wet thickness, allowing for flash time between wet passes. If greater thickness is desired, wait 20-40 minutes and continue spraying.

Note: If recoating is necessary and more than 8 hours have passed, the initial coat must be sanded with 80-grit sandpaper before applying the primer.

Roller Application: For rolling use a solvent-resistant roller. Catalyze as for the spray application and build to 1 mm, 40 mils thickness. Repeat the process if greater thickness is required, waiting at least 20 minutes between applications to allow the initial layer to gel. The primer will be ready to sand in 1-5 hours.

When properly sanded and cured, Duratec Vinyl Ester Primer will be ready to topcoat with bottom and topside paint systems.

Note: Do not apply ablative bottom paints directly onto Duratec Vinyl Ester Primer. First, apply an epoxy primer and follow with the ablative bottom paint. Hard non-ablative bottom paint can be applied directly onto Duratec Vinyl Ester Primer.

SAFETY PRECAUTIONS: Check the material safety data sheet for recommendations on protective equipment. The Duratec products are extremely flammable.

Liability/warranty statement: *Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warrant of merchantability or fitness, nor is protection from any law or patent to be inferred. All patent rights are to be reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental or consequential damages. Duratec is a registered trademark of Dura Technologies. Aqua Buff is a registered trademark of Hawkeye Industries.*



Duratec Application Guide 2015

Modules for Additional Information & Guidance

Use modules below as noted in your Duratec Application Guide.

Pot Life Extender (PLE) Module: use Duratec Pot Life Extender to extend the life of Duratec primer.

Duratec PLE provides a 150% extension to the usual primer pot life. (note, the PLE only works with primers, not the Duratec topcoats). Before adding the catalyst add 2% PLE for 7-series polyester primers, and 0.5% for 17 series Vinyl Ester Primers). The PLE evaporates as the Duratec is sprayed, and will not extend the cure of the sprayed-out surface.

Thinner Module: if thinner is necessary the best is Duratec Thinner LAC-3.

Most Duratec products can be sprayed without thinner. If thinner is necessary the best is Duratec Thinner LAC-3. The LAC-3 has dry, urethane grade solvents that rapidly cut the viscosity of the primer or topcoat. Add one ounce per quart, up to three ounces, to reduce the viscosity and improve the spray fan. Most primers can be thinned with Methyl Ethyl Ketone Solvent (not MEKP Catalyst). MEK may cause cloudiness or porosity in a topcoat.

Acetone or Lacquer thinners are not recommended.

Shake & Filter Module

Shake or thoroughly stir the Duratec Primer. A pain shaker or drill-mounted mixer is necessary - a stir stick is not enough. Pour through a filter to assure the pigments are completely dispersed.

Microballons Module

Some epoxy microballons interfere with the cure of the Duratec Primers. Apply a thin coat of an epoxy primer over the balloon-containing epoxy putty. Wash the epoxy primer, then apply the Duratec primers as recommended.

Spray Gun Module

An HVLP spray gun with 2.2-2.4 mm tip is best. We advocate low line pressure of 40 psi or less.

When spraying primers set up the spray gun to delivery a fine spray. The Duratec primers are easier to spray than gelcoat. Lower pressure and smaller spray tip are advised. Apply 3-4 mils per build coat and work in opposite directions with each pass. Allow 2-20 minutes between build passes. Do not let the primer fully cure between build coats. Build up to 10-12 mils (250-300 microns) of primer and allow to cure.

Pro Tip: chilling the Duratec before adding catalyst will extend the pot life.

Mold Repair Prep Module (with Duratec VE Repair Putty)

1. Mask off the area to be repaired. For maximum bonding rout or sand all cracks until the glass laminate shows. Aggressively sand the area around the repair to bevel the edge of the routed area. It is important to eliminate the sharp repair line. Follow by wiping the area clean with a rag soaked with acetone. Do not use tack rag.
2. Thoroughly stir the Duratec VE Mold Repair Putty in the can using a spatula or putty knife before catalyzing. Due to the rapid gel time of the putty, only catalyze the amount that will be used in 6-8 minutes. Catalyze at 3% with the BPO catalyst that is supplied with the putty and mix thoroughly.

Pro Tip: always massage or kneed the BPO creme hardener as separation can occur in the tube.

Pro Tip: adding the catalyst accurately is important. Inexpensive scales can be purchased for less than \$20 that assure accurate catalyst



Duratec Application Guide 2015

Modules for Additional Information & Guidance

Use modules below as noted in your Duratec Application Guide.

Catalyst Module: VE Topcoat

We recommend a low monomer (hydrogen peroxide) catalyst like Norox 925H for Duratec Vinyl Ester Topcoat. VE Topcoat will react with the high monomer catalyst to create foam and porosity.

Catalyst Module: Primers

Add 2% catalyst: 20 CC for one quart of Duratec. Mix well being sure to scrap the sides of the cup. Transfer to an HVLP cup gun or pressure pot. We recommend a convention catalyst like Norox 925. Only catalyze the amount of Duratec that can be sprayed in 10 minutes.

Aqua Buff Module

Buff with Aqua Buff 1000F or 1000W or a similar high-quality buffing compound. Polish with Aqua Buff 2000 or another fine polish. Do not overload the pad and use a water spray bottle to keep the surface damp. Use a wool pad for buffing and separate cotton pad for polishing. A foam pad can be used for final polishing using very little polish and a water spray bottle.

SAFETY PRECAUTIONS: Check the material safety data sheet for recommendations on protective equipment. The Duratec products are extremely flammable.

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