Duratec provides a range of products for preparing a wood or MDF surface for pattern and mold-making. These products include fast-reacting coatings that allow for same-day sanding and topcoating. Duratec products produce the highest quality pattern surfaces, with reduced time and labor.

Products—
- Duratec Polyester Sealer (823)
- Duratec Polyester Surfacing Primer (702-003 Black, 707-002 Gray, 714-002 White)
- Duratec Polyester Hi-Gloss Coating (904-040 Clear, 602-021 Black, 614-021 White)
- Duratec Base Primer (707-051 Tan)
- Duratec Vinyl Ester Hi-Gloss Topcoat (1902-045 Black, 1904-045 Clear)
- Duratec Thinner (39LAC-3)

Note: Duratec Polyester Surfacing Primer or EZ Sanding Primer is recommended for pattern surfaces when the mold will be made at less than 180°F. Above 180° Duratec Vinyl Ester Primer is recommended.

1. Application Conditions—The surface should be clean, dry and free from oil, grease, wax or other contaminants. Ambient temperatures 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.

Note: The exception to this is the ambient temperature for Duratec Vinyl Ester Topcoat, which should be 68°F, 20°C.

2. Duratec Polyester Sealer Application

Duratec Polyester Sealer allows primers and topcoats to bond to the MDF or wood. The purpose of sealing is to prevent the resin and solvent in a primer from diving into the porous surface, leaving a layering of pigment on the surface. Using a sealer reduces the need for primers and provides a smoother, primed surface with a strong bond to the wood/mdf/putty below.

Duratec 823A is recommended for sealing MDF patterns and patterns made with combinations of plywood, wood, MDF and putty.

Duratec 5604-001 is recommended for sealing oily tropical hardwoods like mahogany.

Wipe the surface clean with a rag dampened with acetone.

Duratec sealers can be applied by wipe-on, brush or spraying. Apply just enough sealer to wet the surface. It is not necessary to build a shiny surface film. One application is all that is required.

Move on immediately to applying the primer. Apply the primer while the sealer still has some tack. If the sealer has cured tack-free, sand and apply a light second coat and immediately apply the primer.

Please see modules in back on catalyst and spray gun for additional guidance.
3 Base Primer Option & Application

Duratec Polyester Surfacing Primer is used over the sealer as the surfacing primer. Some patterns require Duratec Base Primer 707-051. Base primer is a sprayable putty and can be applied up to 125 mils (1/8” or 3mm) in thickness. Base Primer provides these benefits:

1. Insulates the surface from different pattern materials: putty, MDF, fiberglass laminate to prevent mold marking
2. Insulates the surface from glue line marking or MDF board edge marking (requires 40-50 mils of Base Primer – 1000 microns).
3. Exceptionally easy to sand and fair. Great for patterns that require a long-board sanding.

Product Preparation

If Using Base Primer: Application Procedures

Base primer has microballoons that float and pigments that sink. It must be mixed mechanically.

Catalyze with 2% of MEKP catalyst like Norox 925.

If thinner is required use acetone. Apply Base Primer through a 3.0 mm tip if possible. Use at least a 2.4 mm tip.

Spray a build Base Primer as quickly as possible. Base Primer cures quickly and can be sanded as soon as the dust does not plug the sandpaper. Wipe down the pattern with a rag dampened with acetone.

Base primer provides a rough surface with a great grip. It is not recommended as a surface for building a mold or for a topcoat.

4 Priming the Pattern:

Options:

**Duratec Surface Primer** provides a strong polyester primer than can be polished or topcoated.

**Duratec EZ Sanding Primer** is unmatched in smooth initial surface and fast sanding. Not recommended for patterns that will be transported over-the-road. 180°F HDT (82°C)

**Duratec VE Primer** is unmatched in strength. Strong, tough primer that can be polist to a good gloss but is more difficult to sand. 285° (140°C) HDT for great high-temperature capability.

Thoroughly stir Duratec Polyester Surfacing Primer in the can prior to catalyzing. Due to the rapid gel time of the primer, mix only the amount that can be applied within 15-20 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 if necessary with Duratec Thinner or MEK solvent after catalyzing.

Please see module in back on Pot Life Extender.
Application Procedures
Spray the pattern with multiple build coats. Allow at least 2 minutes between applications but less than 30 minutes to assure each coat fuses with the previous coat. Build 4-5 mils (100-125 microns) per wet pass. Build up 15-20 mils in total, to allow for sanding.

Allow to cure. Sand with a fine grit if possible (220 is a good starting place). If polishing the pattern sand up to 1000 grit sandpaper and then compound and polish. If topcoating sand with 220 grit and topcoat.

Please see modules in back on catalyst and spray gun for additional guidance.

5 Duratec Polyester Hi-Gloss Coating or Duratec Vinyl Ester Hi-Gloss Topcoat

To achieve the ultimate gloss, apply Duratec Polyester Hi-Gloss Coating or Vinyl Ester Hi-Gloss Topcoat.

Note: The Vinyl Ester Hi-Gloss Topcoat provides a hard, heat resistant surface, free of porosity with great off-the-gun characteristics and 285°F (140°C) heat distortion temperature (HDT). It is ideal for pattern surfacing, mold resurfacing, or mold construction. It is also a great choice for avoiding fish-eyes or surface defects. The Polyester Hi-Gloss Coating offers a HDT of 180°F (82°C), and faster sanding and polishing.

Surface and Production Preparation—Polyester Hi-Gloss Coating

Sand the primed surface to a 180-220 grit finish. Thoroughly stir Duratec Polyester Hi-Gloss Coating in the can prior to catalyzing. Due to the rapid gel time of the coating, mix only the amount that can be applied within 15-18 minutes. (Higher temperatures yield a short pot life and gel time while lower temperatures yield a longer pot life and gel time.) Catalyze at 2 percent with mekP catalyst (20 cc per quart). Thin with Duratec Thinner or MEK solvent, if desired.

Note: For best results, after sanding, wait at least overnight at 77°F, 25°C before compounding and polishing the surface.

Surface and Product Preparation—Vinyl Ester Hi-Gloss Topcoat

Note: The ambient temperature must be at least 68°F, 20°C when applying Duratec Vinyl Ester Topcoat.

Sand the primed surface to a 180-220 grit finish. Thoroughly stir Duratec Vinyl Ester Hi-Gloss Topcoat in the can prior to catalyzing. Due to the rapid gel time of the topcoat, mix only the amount that can be applied within 16-18 minutes @77°F, 25°C. 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 mekP catalyst (20 cc per quart). Use a low hydrogen peroxide catalyst like Norox 925H.
Application Procedures— Vinyl Ester Hi-Gloss Topcoat

Equipment Note: Use air aspirated or pressure pot spray equipment. The recommended line air pressure is 35-50 psi and pot pressure is 10-15 psi. Airless, air-assisted airless and air-aspirated gelcoat plural-component spray systems can also be used.

Spray three wet passes of Duratec Vinyl Ester Hi-Gloss Topcoat to a total film thickness of 10-12 mils, 250-300 microns. Allow the film to tack off and repeat the process. Total topcoat thickness should be 20 mils, 500 microns.

Compounding and Polishing the Surface

Remove scratches with Aqua-Buff Tuff-Stuff Rapid Cut Compound and polish with Aqua-Buff GlossMaster. Polish for a glossy, swirl mark-free finish.

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

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REVISED 3-4-15
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
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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