

# Custom Restoration Guide



THE ART OF ORIGINALITY.



# TABLE OF CONTENTS

## GETTING STARTED

How to Use This Guide	5
Restoration Process	7
Safety	8
Choosing Personal Protective Equipment (PPE) <b>(PD-0001)</b>	10
Paint Basics	11

---

## PREPARING THE SUBSTRATE — METAL PARTS

Substrate Preparation	16
Initial Cleaning <b>(PD-0105)</b>	19
New E-Coat Parts <b>(PD-1120)</b>	26
Used Parts <b>(PD-1130)</b>	27
Removing Paint	28
Sandblasted Bare Metal <b>(PD-1151)</b>	30
Chemically Stripped Bare Metal <b>(PD-1152)</b>	31
Mechanical Strip—Hand or Sander <b>(PD-1153)</b>	32
Bare Metal Preparation <b>(PD-1154)</b>	33
Metal Treatment	34
Introduction to Epoxy Primer	38
Body Filler Process <b>(PD-1180)</b>	46

## PREPARING THE SUBSTRATE — PLASTIC PARTS

Plastic Bare Parts <b>(PD-1210)</b>	<b>50</b>
Primed Plastic Parts <b>(PD-1220)</b>	<b>51</b>
Plastic Used Parts <b>(PD-1230)</b>	<b>52</b>
Plastic Body Filler <b>(PD-1280)</b>	<b>53</b>

---

## PROTECTING THE UNPROTECTED — MASKING TIPS

General Masking	<b>60</b>
-----------------	-----------

---

## ATOMIZING THE PAINT — SPRAY GUN EQUIPMENT

Introduction	<b>62</b>
Spray Gun Setup <b>(PD-0400)</b>	<b>67</b>
Spray Gun Troubleshooting <b>(PD-0410)</b>	<b>72</b>
Spray Gun Cleanup <b>(PD-0420)</b>	<b>74</b>

---

## OVERVIEW OF THE UNDERCOATS — PRIMERS AND SURFACERS

Introduction	<b>76</b>
Primer Filler Process <b>(PD-1510)</b>	<b>78</b>
Sprayable Primer Surfacer Process <b>(PD-1520)</b>	<b>79</b>
Optional Use of Sealer <b>(PD-1530)</b>	<b>86</b>
Direct-To-Metal (DTM) Seam Sealer <b>(PD-1563M)</b>	<b>87</b>
Pinchweld Priming Process <b>(PD-0570)</b>	<b>88</b>
Sanding Primer Surfacer <b>(PD-1590)</b>	<b>89</b>

# TABLE OF CONTENTS

## RECOGNITION OF THE PIGMENT — COLOR IDENTIFICATION

Choosing the Right Color	90
Making a Sprayout Card <b>(PD-1631)</b>	92
Tri-Coat Color Letdown Panel <b>(PD-1660)</b>	93

---

## APPLICATION OF THE PAINT — SEALER, SINGLE STAGE, BASECOAT, CLEARCOAT

Sealer Application Process <b>(PD-1701)</b>	96
Basecoat Color Application—Waterborne <b>(PD-1710)</b>	102
Applying Multiple Basecoat Colors—Waterborne <b>(PD-1712)</b>	103
Basecoat Color Application—Solvent <b>(PD-1715)</b>	106
Single-Stage Color Application <b>(PD-1720)</b>	112
Midcoat Clear Application <b>(PD-1725)</b>	119
Clearcoat Application <b>(PD-1730)</b>	126
Matte Clearcoat Application <b>(PD-1735)</b>	136

---

## COMPLETION OF THE PROJECT — FINISHED PAINT PROCEDURES

Finished Paint Overview	144
Removing Defects <b>(PD-0800M)</b>	146
Buffing and Polishing <b>(PD-1805)</b>	147
Final Cleaning and Detail <b>(PD-0810M)</b>	148
Final Cleaning Matte Clearcoat <b>(PD-0820M)</b>	149

---

# HOW TO USE THIS GUIDE

HERE ARE A FEW KEY ITEMS TO LOOK FOR THROUGHOUT THIS MANUAL.



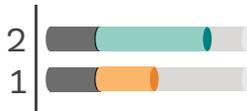
**Paint Pointers** will let you know when there is some technical information that will help you in the current process.

## REMINDER

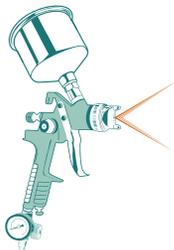
**Orange Text** is higher priority information that you should refer to at that point in the process.

## NOTE

**Blue Text** is still important, but does not require immediate attention like orange text.



These bars indicate the **Mix Ratio** for the displayed product.



This spray gun represents what key information is needed for proper **Gun Setup**.



This clock represents the **Dry Times** for the displayed product.

PD-0000

**PD** represents Process Document.

# HOW TO USE THIS GUIDE

Standard Operating Procedures (SOPs) for Custom Builders and Restorations was developed by PPG Refinish with you in mind. No matter what vehicle or vehicle substrate you are working on, this guide outlines PPG's recommended process for successfully surface prepping and painting your project.

Along with these SOPs, you should also refer to the helpful information contained in PPG's product data sheets (PDS) that are available for each of the products you will be using. You can download current PDS documents at [www.ppgrefinish.com](http://www.ppgrefinish.com). Please note, product availability varies by geographical location. Questions regarding product availability, compliance or proper usage should be directed to your local PPG distributor.

PPG's Lifetime Limited Paint Performance Guarantee specifically excludes custom finishes for various reasons, including but not limited to, excessive film builds, flash and dry times beyond recommended times, etc. All expressed or implied warranties, including without limitation, any warranty of fitness for a particular purpose or use, are disclaimed by PPG. For additional information, or to see exact coverages, please refer to PPG's Lifetime Limited Paint Performance Guarantee. <http://us.ppgrefinish.com/guarantee>

We hope you find this guide an easy-to-follow, valuable asset for achieving your vision—a restoration with a beautiful paint finish that will last for many years.

## **The PPG Refinish Team**

### **Special Thanks to:**

Jon Byers—Byers Custom

Neal Gerber—The Roadster Shop

Charley Hutton—Charley Hutton's Color Studio

# RESTORATION PROCESS

RECORD THE HOURS YOU SPEND ON YOUR PROJECT HERE.

- \_\_\_\_\_ **STEP 1**  
Old Paint Removal
- \_\_\_\_\_ **STEP 2**  
Clean & Corrosion Protection
- \_\_\_\_\_ **STEP 3**  
Prime for Corrosion Protection
- \_\_\_\_\_ **STEP 4**  
Body Work Over Epoxy
- \_\_\_\_\_ **STEP 5**  
Corrosion Protection (over exposed metal)
- \_\_\_\_\_ **STEP 6**  
Primer Filler
- \_\_\_\_\_ **STEP 7**  
Block Sand
- \_\_\_\_\_ **STEP 8**  
Primer Surfacer (final prime)
- \_\_\_\_\_ **STEP 9**  
Final Sand
- \_\_\_\_\_ **STEP 10**  
Sealer (optional)
- \_\_\_\_\_ **STEP 11**  
Color Coat (basecoat or single stage)
- \_\_\_\_\_ **STEP 12**  
Clearcoat
- \_\_\_\_\_ **STEP 13**  
Sand, Polish, Detail
- \_\_\_\_\_ **TOTAL HOURS INVESTED**

# SAFETY

## GENERAL PRECAUTIONS

### KNOW THE PRODUCT THAT YOU ARE USING

Before handling PPG refinish products, read and understand the information on the label and product Safety Data Sheet (SDS). The product label and SDS contain all of the information necessary for the safe handling, storage and use of PPG products, including health and physical hazards specific to each product.

### HOUSEKEEPING

High standards of housekeeping are essential to creating and maintaining a safe and healthy working environment.

Avoid contaminating work surfaces with overspray, sanding dust or spills.

**Clean spills immediately using the appropriate Personal Protective Equipment (PPE).**

Make sure there are no ignition sources nearby. If there are, remove sources and ventilate area.

1. Contain and collect large spillage with non-combustible or absorbent material, i.e., sand, earth, kitty litter. Do NOT allow these materials to enter drains.
2. After absorption, put clean-up material in hazardous trash container for disposal.
3. Pay attention to personal hygiene, e.g., washing hands before and after eating or drinking and using the lavatory.

### MIXING AND HANDLING

Used or partially used containers should be securely closed, properly labeled and returned to the storage area as soon as possible after use.

### APPLICATION

Technicians should be protected against the inhalation of dusts, vapors and spray mists at all stages in the process. Providing good general ventilation is essential to keeping airborne contaminants below dangerous levels. Local exhaust ventilation should be provided at all points where emissions to the workroom may occur.

Spraying must be confined to spray booths or enclosures fitted with mechanical exhaust ventilation.

The mechanical exhaust ventilation systems should be kept running for a short period after spraying to ensure the complete removal of vapors and spray mists.

# SAFETY

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Observe all PPE signs in the facility. Appropriate PPE in work areas include safety glasses with side shields and fully enclosed leather shoes. Additional PPE is required in specific areas and for specific tasks.

### EYE/FACE PROTECTION

Safety glasses with side shields or goggles should be worn to protect eyes from splashing. A full-face respirator or air-supplied hood should be worn to protect the eyes and face from spray mist and solvent vapors.

### SKIN PROTECTION

To protect the hands, nitrile, neoprene or butyl rubber gloves at least eight mil thick are recommended. Latex gloves do not provide enough protection. Anti-static paint suits are highly preferred and should be worn.

### IF SKIN CONTACT OCCURS

Wash with soap and water immediately to remove the product before it has a chance to act on the skin. If available, use waterless hand cleaner, then rewash with soap and water. Solvents and thinners should **NEVER** be used to clean hands!

### RESPIRATOR OPTIONS

#### **Supplied Fresh Air Respirators Recommended by PPG for Spray Applications**

A positive pressure supplied-air respirator or an air-supplied hood, approved under NIOSH/MSHA TC-19C, should be used when spraying coatings containing isocyanates or heavy metal coatings. Wear the respirator for the entire spraying period until all vapors and mists are gone. The respirator may also be needed when performing hot work (welding, cutting or brazing) on surfaces with these coatings.

#### **Powered Air Purifying Respirators (PAPR)**

PAPRs are motorized systems that filter ambient air and typically include a blower, battery, headpiece and breathing tube. PAPR systems have proven to be an adequate source of protection in low-concentration areas as determined by industrial sampling and proper evaluation of air quality,

#### **Non-Supplied Air Respirators (Cartridges only, no air line)**

PPG does NOT recommend using air-purifying respirator (APR) when spraying coatings containing isocyanates or heavy metal.

PD-0001

# CHOOSING PERSONAL PROTECTIVE EQUIPMENT (PPE)

## EYES

- Wear safety glasses when handling wet paint.
- Wear goggles when cleaning equipment.
- Flush eyes with water if splashed.
- Two-component spray mist can irritate eyes. Use a visor-type mask or a full-face mask to reduce risk of irritation.

## SKIN

- Wear solvent resistant overalls with a hat or a hood.
- Wear nitrile gloves for protection against solvents.
- Use barrier cream before starting work.
- Use hand cleaner, not thinner, to clean hands.

## RESPIRATORY

- Wear a particle or filtered mask when sanding.
- In areas like spray booths, a proper, correctly fitted respirator is required.
- It is best to wear a full-face air-supply respirator for all spraying operations to prevent inhaling any spray mists in the operating environment.
- An air-fed half-mask used in combination with safety goggles is also an acceptable form of protection.
- Booth ventilation must be as designed, maintained and operated correctly.

	EYES	SKIN	RESPIRATORY
SANDING			
CLEANING			
MIXING/SETUP			
SPRAYING			

# **PAINT BASICS**

## **PAINT COMPONENTS:**

**PIGMENTS** are finely ground powders from naturally occurring or synthetically produced minerals. They provide:

Color and special effects	Sandability
Opacity (coverage/hiding power)	Adhesion
Durability and corrosion resistance	Filling properties

**RESIN** is the backbone of paint and is needed for:

Film forming	Gloss
Pigment binding	Viscosity
Durability	Adhesion

**ADDITIVES** are materials added in small amounts to give and/or improve specific characteristics:

UV absorbers (durability)	Driers and catalysts
Flow additives (leveling)	Plasticisers (flexibility)
Anti-settle agents	Anti-foaming agents

**SOLVENTS** (Thinners)

- Reduce viscosity
- Change speed of dry/flash-off

# PAINT BASICS

## THERMOPLASTIC VS. THERMOSET FILMS:

Thermoplastic and thermoset products do not always work well together. If the selected products are not compatible, wrinkling or lifting may occur.

### RESIN RULE TEST

Here's how to quickly determine if the paint film or substrates are thermoplastic or thermoset in nature:

1. Soak a clean cloth in a medium-grade lacquer thinner.
2. A **thermoplastic** film will soften or dissolve. Lay the soaked cloth on the paint film/substrate for approximately 5 minutes, then rub gently. Lacquer thinner is a very strong solvent. Check the test area for any signs of such deterioration.
3. A **thermoset** film will show no effects and should be considered sound.

### CONCLUSION

If the film/substrate is thermoplastic, **strip to bare substrate** before proceeding with any repairs or refinishing.

If the films/substrate is thermoset, the repair procedure can proceed as normal.

**NOTE:** If a newer car (1990 & up) with good paint and mild customization is the goal **AND** the film build is less than 10 mil, it is acceptable to sand and paint over an existing thermoset paint film.

# PAIN BASICS

## STANDARD CONDITIONS:

Standard conditions are temperature, humidity and air flow data, and are used to determine a paint product's dry time, cure time, pot life, and all general performance characteristics. Use of standard conditions consistently on the product sheets allows for comparison of one product's characteristics to another. Below are the standard conditions used by PPG (unless noted on the product sheet):

<b>TEMPERATURE</b>	68-70°F / 20-22°C
<b>RELATIVE HUMIDITY</b>	50%
<b>AIR FLOW</b>	Adequate to quickly and continuously remove all overspray during application and enhance the curing process. A recommended airflow rate is between 60 and 100 FPM.

## THE 15° RULE:

While resin structures are constantly improving, this rule can be applied to many **thermoset** (two-component) products. It explains how temperature can affect a product's dry time and pot life. The rule is made up of two parts:

1. For every 15° F **increase** in temperature above standard conditions, a product's dry time and pot life may be reduced by half.
2. For every 15° F **decrease** in temperature below standard conditions, a product's dry time and pot life may be doubled.

## EXAMPLES:

	(STANDARD CONDITIONS)				
	60°F	70°F	85°F	100°F	115°F
<b>DRY TIME</b>	60 MINS	30 MINS	15 MINS	7.7 MINS	3.75 MINS
<b>POT LIFE</b>	120 MINS	60 MINS	30 MINS	15 MINS	7.5 MINS

**NOTE:** All product cross linking and curing in thermoset or two-component products slows significantly or stops below 60° F (16° C). Thermoset paint will not cure properly if subjected to cool temperatures during the curing stages. Such conditions can result in a finish that may eventually dry but will exhibit reduced durability, gloss and repairability. This loss of performance is a result of the film never reaching a fully cured state.

# PAINT BASICS

## WINDOW RULE:

This is a simple, three-part rule that can lead to paint failures if you miss the appropriate “window.” These windows apply to thermoset (two-component) coatings and open in the order explained below.



- 1. OPPORTUNITY**—chemically soft enough to accept a subsequent coat of the same product or a compatible product.
- 2. DANGER**—not chemically soft enough to accept a subsequent coat nor hard enough to resist possible wrinkling that could be caused by applying a subsequent coating.
- 3. STABILITY**—chemically hard enough to resist possible wrinkling that could be caused by the application of a subsequent coating

The time necessary for each product to move from one window to the next varies from product to product. Follow the re-coat times on all product information bulletins. Make sure to note the pot life of the product to anticipate when cross-linking will occur at your temperature.

**Remember the 15° Rule may apply to these times.**

### SEALER EXAMPLE:

A specific PPG sealer has been applied and flashed for 5-15 minutes. The timeline below is based on the sealer’s product data sheet and shop temperature of 70°F.

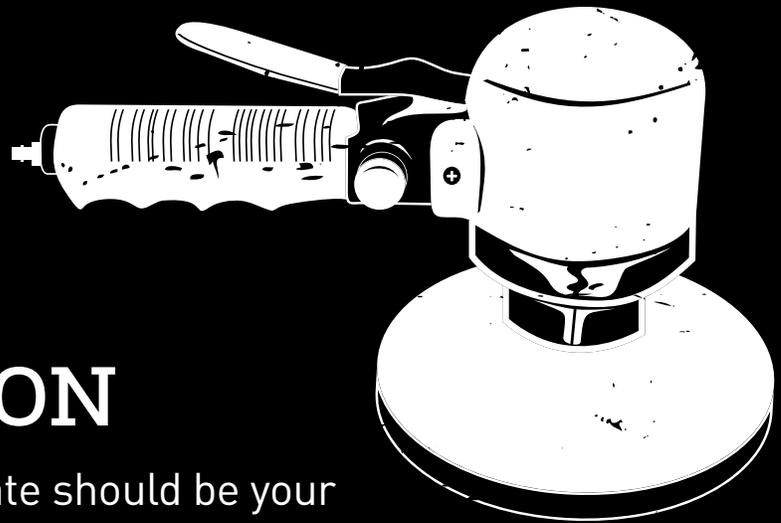
APPLY SEALER	FLASH TIME	APPLY TOPCOAT	POTENTIAL SENSITIVITY	CAN APPLY TOPCOAT	SAND RESEAL BEFORE TOPCOATING
0-5 mins	5-15 mins	15-30 mins	30-60 mins	60 min to 72 hours	after 72 hours



Some potential causes of sealer sensitivity are thin film build of the sealer, extended dry time of the sealer, higher temperature than standard conditions shortening either of the “apply topcoat” windows (see 15° Rule), and thin sealer film over etch primer or plastic adhesion promoter.



# PREPARING THE SUBSTRATE *METAL PARTS*



## INTRODUCTION

Getting down to bare substrate should be your first goal as you begin the process of creating a new custom or restoration finish. Even if your project appears to have "nice paint," it shouldn't mean you can scuff over what's there, shoot some new paint on it and expect some top end work. Who knows what may be lurking underneath the existing finish or if there's enough topcoat to work with? That's why it's always the best option to remove the finish entirely and start with a clean slate.

## HIGH FILM BUILDS

Paint that is too thick can lead to failures such as peeling, splitting or cracking. A factory finish normally has a film thickness of about 4 to 5.5 mils. PPG does not recommend applying additional paint to surfaces exceeding 12 mils unless it is stripped or sanded down to an acceptable thickness of 4-5.5 mils.

Custom and restoration paint jobs typically create higher film thicknesses than are generated in traditional collision refinish repairs.

## PRE-CLEANING

Many elements can contaminate the surface of a vehicle's paint film, such as waxes, polishes, road film, tar and general dirt. Pre-cleaning to remove any existing contaminants is the first step in surface preparation.

## CONTAMINANTS

### Solvent Soluble

Wax  
Grease  
Oils  
Road tar  
Polishes  
Other

### Water Soluble

Road dirt  
Bird droppings  
Tree sap  
Cement dust  
Acid/Alkali contamination  
Other

Please check your local VOC laws on use of solvent-based cleaners.

# SUBSTRATE PREPARATION

SELECTING A PROCESS DOCUMENT BASED ON IDENTIFICATION AND PAINT REMOVAL TECHNIQUE

SUBSTRATE	SANDBLAST	SODA BLAST	MEDIA BLAST	CHEMICAL STRIP	MECHANICAL STRIP (DA)	PRE-PRIMED PARTS (E-COATS)	USED (LKQ) PARTS
ALUMINUM*		PD-1152	PD-1154	PD-1152 PD-1154	PD-1154	PD-1120	PD-1130
CARBON FIBER		PD-1153	PD-1153		PD-1153		PD-1130
CAST IRON	PD-1151	PD-1153	PD-1153	PD-1153	PD-1153	PD-1120	PD-1130
FIBERGLASS		PD-1153	PD-1153		PD-1153	PD-1120	PD-1130
GELCOAT		PD-1153	PD-1153		PD-1153	PD-1120	PD-1130
MAGNESIUM	DO NOT PAINT						
POT METAL	PD-1151		PD-1153	PD-1153	PD-1153		PD-1130
POWDERCOAT	If painting powder-coated parts, treat as Used Part and follow PD-1130. If stripping powder coating from substrate, use process for the metal type. If preparing substrate for powder coat, follow vendor recommendations.					PD-1120	
SMC		PD-1153	PD-1153		PD-1153	PD-1120	PD-1130
STEEL	PD-1151	PD-1152	PD-1154	PD-1152 PD-1154	PD-1154	PD-1120	PD-1130
STEEL— COLD ROLLED	PD-1151	PD-1152	PD-1154	PD-1152 PD-1154	PD-1154	PD-1120	PD-1130
STEEL— GALVANIZED	PD-1151	PD-1152	PD-1154	PD-1152 PD-1154	PD-1154	PD-1120	PD-1130
STEEL— STAINLESS	PD-1151		PD-1153	PD-1153	PD-1153	PD-1120	

\*Remove coating from Anodized Aluminum, then treat as regular Aluminum in above chart.

 PROCESS UNAVAILABLE FOR SUBSTRATE

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-0105

# INITIAL CLEANING

---

## 1 Wash & Rinse

Thoroughly wash entire vehicle with warm, soapy water. Pressure wash if possible.

When rinsing, concentrate on body panel joints (hood to fender, etc.), seams and wheel openings. Dry completely.

---

## 2 Blow with Compressed Air

Blow off vehicle with compressed air to remove loose particles prior to entering paint department. Again, concentrate efforts on body panel joints, seams and wheel arches.

---

## 3 Degrease

Apply the appropriate PPG cleaner using “**apply and wipe off**” procedure.

Apply using a wet, clean, lint-free cloth, paper towel or a pump to insure that any contamination floats to the surface.

Wipe area dry with a clean dry cloth, turning and flipping it so contamination is removed from the surface.

**Do not allow the cleaner to dry on the panel, or wipe marks may be evident in the painting stage. This may lead to paint failure.**

---

## 4 Plastics

When cleaning bare plastic components use a water-based cleaner first to remove any water-soluble contamination.

Follow by using a cleaner designed specifically for plastics and remove any solvent-soluble contamination and release agents.

# SX Cleaners

For National Rule Regions

**SX320, SX330 and SX440** are conventional wax and grease removers.

**SX394** is a low VOC wax and grease remover.



SX Cleaners are specifically designed for removing any wax, grease, silicones, road tar, engine oil, overspray, adhesives and other contaminants that could mess up your finish. SX Cleaners are packaged ready-to-use.

For more information on these products, refer to **OC-42**.

## SX320

### **Fast Evaporating Cleaner**

May be used to remove surface contaminants after taping, such as fingerprints.

May be used over all OEM finishes, bare metal surfaces, cured and/or dried refinish systems.

## SX394

### **1.4 Low VOC Cleaner**

Best used after sanding for dirt particulate cleanup.

May be used over all OEM finishes, bare metal surfaces, cured and/or dried refinish systems.

## SX330

### **ACRYLI-CLEAN® Wax and Grease Remover**

Medium speed cleaner, best for overall use.

Initial application floats contaminants to the surface. A second wipe with a clean, dry cloth removes the contaminants.

## SX440

### **DITZ-O® Wax and Grease Remover**

Heavy-duty solvent cleaner.

Best used to remove tar, oil and other heavy greases.

**Do not use on soluble materials such as laquer primer and topcoats.**

# SX103

## MULTI-PREP™ Cleaner

**Multi-Prep SX103** is a multi-purpose product developed for use as an anti-static agent, or for wiping plastic parts clean before painting.



You'll also find this cleaner works well for removing old paint from a plastic part. Simply soak the part in a closed container and SX103 will attack the existing coatings while keeping the plastic untouched.

For more information on this product, refer to **OC-29**.

## ANTI-STATIC

Using a spray gun, apply a mist coat over the surface before and after tacking. This will reduce static electricity and minimize the attraction of dust and dirt.

## CLEANER

### Plastic Cleaner

Quickly removes silicones and waxes from plastic parts.

Saturate clean cloth and wipe in one direction, then wipe immediately with dry clean cloth.

**Will not harm or soften the plastic like other solvent cleaners can.**

## STRIPPER

### Coating Stripper

Effectively removes thin layers of paint from small, used plastic parts.

Soaking in a closed container works most effectively.

**Further sanding will be most likely required to achieve best results.**

# ONECHOICE®

## Cleaners For Compliant Regions

**SWX350** is a waterborne surface cleaner.

**SX1009** is a bug and tar remover.

**SXA330** is a conventional wax and grease remover available in a convenient aerosol package.



The *OneChoice* universal ancillary brand of specialty products are designed to be used with any PPG automotive coatings system.

For more information on these products, refer to **OC-9** (SWX350), **OC-16** (SX1009) and **OC-13** (SXA330).



**SWX350**

### **H<sub>2</sub>O-SO-CLEAN® Waterborne Pre-Cleaner**

A superior, low VOC (0.21) surface cleaner used for removing most contaminations, including wax and grease, mold release agents and sanding dust.



**SX1009**

### **2.9 VOC Bug and Tar Remover**

Ideal for removing bugs, road tar, wax, grease, silicone, engine oil and other contaminants. It can also be used on bare metal, plastics, primers or cured automotive finishes.



**SXA330**

### **Aerosol Wax and Grease Remover**

Medium speed cleaner, best for overall use.

Initial application floats contaminants to the surface. A second wipe with a clean, dry cloth removes the contaminants.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

# PD-1120

# NEW E-COAT PARTS

Most Original Equipment Manufacturer (OEM) parts come from the factory coated with an e-coat primer. E-coat stands for “Electro-deposition Coating.” The part is dipped into a primer bath and the e-coat adheres to the part with the help of an electrical process. E-coat is a very durable and corrosion-resistant coating so it should not be removed from the part. Some aftermarket manufacturers use a black shipping primer that is sometimes mistaken for e-coat.

The test in Step 3 below will help you determine whether your part is e-coat or a shipping primer.

**1** Inspect part for imperfections and damage. Determine if any repairs need to be made. (Follow all process documents for repairs made to the part.)

---

**2** Clean entire part thoroughly with the appropriate PPG cleaner using a clean towel. Dry completely.

---

**3** Test for e-coat by rubbing it, using a towel soaked with a strong thinner or urethane grade solvent. If the coating wipes off or softens significantly, remove it by sanding, and skip to Step 5. If coating integrity is maintained, it is a true e-coat.

---

**4** When the primer is identified as an e-coat, follow these steps:

- a.** To remove minor defects, lightly sand primer with 500-600 grit on a DA sander with an interface pad. **Remove as little e-coat as possible.**
- b.** On edges, body lines and hard-to-sand, recessed areas, use a hand scuff pad.

**NOTE:** On e-coated parts not exposed to direct sunlight (like the backside of a fender or the underside of a deck lid), **it is not necessary to sand e-coat before applying epoxy primer. Thoroughly clean the part with the appropriate PPG cleaner, and then apply epoxy primer.**

---

**5** Repeat cleaning the entire part thoroughly with the appropriate PPG cleaner and a clean towel. Dry completely. Tack off the dried part.

---

**6** Apply one coat of epoxy primer to bare metal cut-through areas. Allow flash time, then apply one coat of epoxy primer to the entire e-coat part.

---

**7** Proceed to body work. Refer to the Body Filler Process, **PD-1180**.

# PD-1130

# USED PARTS

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

**For prepping used parts, the industry's best practice is to completely remove existing finishes to ensure a clean, rust-free substrate.**

- 1** Wash part with hot water and soap. Rinse and dry completely. Clean entire part with the appropriate PPG cleaner, using clean towels to remove contaminants. Dry thoroughly.

---

- 2** Inspect part for imperfections and damage. Determine what repairs should be made, if any. Follow all process documents for making repairs to the part.

---

- 3** For directions on the best process to remove existing finishes, refer to Removing Paint on the next two pages (28-29).

---

- 4** Once existing finish has been removed, repeat cleaning the entire part thoroughly with the appropriate PPG cleaner, using clean towels. Dry completely. Tack off the dry part.

---

- 5** Apply 1-2 coats of epoxy primer to the entire part.

---

- 6** Proceed to body work. Refer to the Body Filler Process, **PD-1180**.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

# REMOVING PAINT

## MECHANICAL STRIP

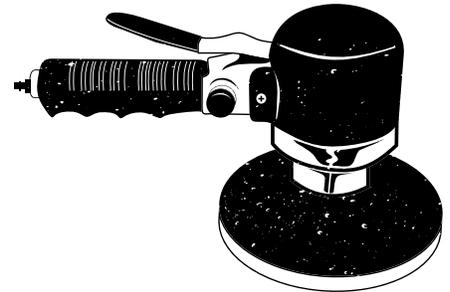
Clean with the appropriate PPG cleaner. Remove paint with 80 grit. Avoid 36-40 grit disc because it leaves too deep of a scratch in the metal.

### PROS

- Removes old body work and surface rust
- Safest way for do-it-yourself

### CONS

- Time consuming
- Labor



## MEDIA BLAST

The dry method is preferred and is becoming more popular. Should be sanded with machine 120-180 grit to remove paint (slight nibs) that can be left behind. To remove remaining rust, those areas will need to be spot sand-blasted or wire-brushed.

### PROS

- Safe way to remove paint
- Will not pit or abrade metal

### CONS

- Does not remove rust

Here are two links for more information:

<http://www.popularmechanics.com/cars/how-to/maintenance/how-to-blast-your-car-parts-clean-15997905>

[http://en.wikipedia.org/wiki/Abrasive\\_blasting](http://en.wikipedia.org/wiki/Abrasive_blasting)

## CHEMICAL PAINT REMOVERS

**Aircraft strippers** (Must be neutralized with water)

**Environmentally Compliant** (PPG DURAPREP)

### PROS

- Best for original paint

### CONS

- Messy job, leaves metal smooth
- Does not remove rust
- Slow for cars with multiple paint jobs
- Does not remove body filler

## SAND BLASTING

Do not use chemicals on newly sandblasted metal substrates—prime immediately.

### PROS

- Great for pitted rusty areas, after paint is stripped by other means. This method is perfect for spot blasting.
- Best for frames and other heavy gauge metal

### CONS

- Severe potential for warping; This method has the most potential for damage to the vehicle.

## SODA BLASTING

While Soda blasting may be popular in some areas, PPG does **NOT** recommend this process.



**CAUTION:** When left unprotected, bare metal begins to oxidize (flashrust) after 30 minutes at 50% relative humidity.

OXIDATION **30 MINUTES** 50% HUMIDITY

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1151

# SANDBLASTED BARE METAL

**There is no metal treatment in this process. Metal treatments cannot be used on a surface with a deep profile, like sandblasting or grinding with coarse grits.**

**1** After paint removal, clean sandblasted part with dry air. Use clean gloves to avoid touching blasted metal with bare hands. Do not sand. Do not wipe with any cleaners. Sandblasted part is already abraded and clean.

---

**2** Immediately apply two coats epoxy primer.  
**CAUTION:** When left unprotected, bare metal begins to oxidize (flashrust) after 30 minutes at 50% relative humidity.

---

**3** Complete welding, rust repairs and sheet metal patching.

---

**4** Clean with the appropriate PPG cleaner.

---

**5** Reapply epoxy primer for corrosion protection.

---

**6** Proceed to body work. Refer to the Body Filler Process, **PD-1180**.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1152

# CHEMICALLY STRIPPED BARE METAL

There is no sanding in this process. One explanation may be that the work is on a newer vehicle.

**1** After paint removal, if rust or old body filler still exists use **PD-1154**.

---

**2** Perform metal treatment\* process (reference **PDS OC-36** for detailed instructions).

Steel: Use SX579 / SX520

Aluminum: Use SX533 /SX503

**CAUTION:** Do **NOT** apply etch primers or body filler directly over these metal treatment products.

\*Cannot be used in some areas due to VOC or heavy metal restrictions. Proceed directly to epoxy primer.

---

**3** Apply epoxy primer.

---

**4** Complete welding, rust repairs and sheet metal patching.

---

**5** Clean with the appropriate PPG cleaner.

---

**6** Reapply epoxy primer for corrosion protection.

---

**7** Proceed to body work. Refer to the Body Filler Process, **PD-1180**.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1153

# MECHANICAL STRIP HAND OR SANDER

There is sanding AND metal treatment in this process.

- 1** Sand the entire part using a DA sander with P80-P180 grit.  
Clean with approved the appropriate PPG cleaner. Tack off surface.

---

- 2** Apply two coats epoxy primer within 30 minutes of sanding.  
**REMINDER:** When left unprotected, bare steel begins to oxidize (flash rust) after 30 minutes at 50% relative humidity. Sanded aluminum begins to oxidize almost immediately. Protect with epoxy primer.

---

- 3** Complete welding, rust repairs, sheet metal patching, fiberglass or gelcoat repairs.

---

- 4** Clean with the appropriate PPG cleaner.

---

- 5** Reapply epoxy primer for corrosion protection.

---

- 6** Proceed to body work. Refer to the Body Filler Process, **PD-1180**.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1154

# BARE METAL PREPARATION

**There is sanding AND metal treatment in this process.**

**This process is used for rust-pitted metal and old body filler, and bare metal that has been exposed for more than 30 minutes. One reason may be to create a “tooth” or scratch so that subsequent paint applications adhere well.**

- 1** Sand the entire part using a DA sander with P120-P180 grit and an interface pad. Remove rust pits and old body filler.  
Clean with approved the appropriate PPG cleaner. Tack off surface.

---

- 2** Perform metal treatment\* process (reference **PDS OC-36** for detailed instructions).  
    **Steel:** Use SX579 / SX520  
    **Aluminum:** Use SX533 / SX503  
**CAUTION:** Do **NOT** apply etch primers or body filler directly over these metal treatment products.  
  
\*Cannot be used in some areas due to VOC or heavy metal restrictions. Proceed directly to epoxy primer.

---

- 3** Apply epoxy primer.  
**REMINDER:** When left unprotected, bare steel begins to oxidize (flash rust) after 30 minutes at 50% relative humidity. Sanded aluminum begins to oxidize almost immediately. Protect with epoxy primer.

---

- 4** Complete welding, rust repairs and sheet metal patching.

---

- 5** Clean with the appropriate PPG cleaner.

---

- 6** Reapply epoxy primer for corrosion protection.

---

- 7** Proceed to body work. Refer to the Body Filler Process, **PD-1180**.

# METAL TREATMENT

Although chemically treating metal and aluminum is the best way to provide corrosion protection for your project, some areas restrict their use due to VOC or heavy metal restrictions. Always check local regulations before beginning your project. Oftentimes, this process is complicated because these products must be rinsed with water. This can be difficult to manage on some vehicles.

The process is easy on parts—such as fenders, hoods, doors, etc.—when the part can be kept wet with **SX chemicals**, then rinsed and dried. The process is harder on larger parts because **SX chemicals** cannot be allowed to dry before rinsing. Sometimes many hands are required to perform this operation. If help is not available, it may be easier to sand parts or smaller areas, one at a time. The same day that the metal treatment process is completed, remember to apply a coat of epoxy primer to prevent the metal from rusting, oxidizing or becoming contaminated. Do not sand metal treatments; simply apply epoxy primer.

## HERE IS HOW IT WORKS

The acid in **Metal Cleaner (SX579)** first attacks the metal at the crystalline grain boundaries.

This causes the phosphate crystals to begin to grow along these grain boundary lines.

After the grain boundaries are attacked, the acid begins to etch the grain surfaces and phosphate crystals appear at these sites. The resulting mass of growing phosphate crystals spreads over the surface and quickly grows into one another. The final surface appears smooth to the unaided eye; however, the iron phosphate surface has left a rough surface to which the epoxy primer can adhere.

Hydrogen gas and some dissolved iron are produced during the phosphating process. Left alone, these materials are undesirable. The hydrogen gas interferes with crystal deposition and the dissolved iron reduces corrosion protection by the phosphate. Fortunately, both hydrogen and the dissolved iron are rendered harmless by oxidizing agents that have been added to the phosphating solution. The hydrogen is converted to water and the dissolved iron is converted to an insoluble form that comes out of the solution as sludge. This must be rinsed off with water before it is allowed to dry on the surface. Since the “bare steel” now has a phosphate coating, the water does not react when the technician rinses off the sludge.

**Consult SDS for hazardous ingredient content. Drippings and run-off from the product may be hazardous. SX520 and SX503 run-off will always be considered hazardous. Check with local municipality (POTW) before allowing run-off or rinse waters to go into the sewer.**



To avoid adhesion concerns, **DO NOT** apply **etch primer** or **body filler** directly to metal treatment.

# METAL TREATMENT (CONTINUED)

## STEEL PARTS:

For maximum corrosion protection, use both SX579 and SX520.

### **SX579 METAL CLEANER**

Cleans metal and stops rust.

Will remove slight surface rust.

Leaves a rust-colored phosphate coating BUT it is **NOT** rust!

### **SX520 METAL CONDITIONER**

Conversion coating

Leaves a blue/green-colored zinc phosphate coating with added corrosion resistance.

**REMINDER:** Bare steel starts to rust in 30 minutes at 50% humidity.

## ALUMINUM PARTS:

For maximum oxidization protection, use both SX533 and SX503.

### **SX533 ALUMINUM CLEANER**

Deep cleans aluminum.

Removes oxidation, preparing surface for subsequent coating.

### **SX503 ALUMINUM CONDITIONER**

Conversion coating

Leaves a gold-colored coating with added corrosion resistance.

**REMINDER:** Aluminum starts to oxidize 8 hours after sanding.



# INTRODUCTION TO EPOXY PRIMER

In the restoration process, epoxy primer is used to set the foundation for corrosion protection, preparing the entire project for the processes that follow. If parts are too large to prime in the given timeframe, consider working on individual parts or smaller areas.

## EPOXY PRIMER

Should be sprayed over metal or aluminum that has been treated with metal treatments\* after dried and within **8 hours**.

**Sand blasted or sanded metal should be epoxy primed within 30 minutes at 50% humidity to prevent rust from starting.**

Epoxy primer will not stop or neutralize any rust that has already started or is already present.

## SPECIAL NOTES

Epoxy primer needs to be applied within **30 minutes of paint removal, especially in humid conditions**. If this is not possible, consider working on individual parts or smaller areas of the project to meet this timeframe. Using the metal treatment system will extend the working timeframe.

Untreated steel and aluminum should be coated with a minimum of 3.0 mils wet (1.5 mils dry) of epoxy primer for corrosion resistance.

Steel and aluminum treated with PPG's metal treatment system, should be coated with a minimum of 1.0 mils wet (0.75 mils dry) of epoxy primer for corrosion resistance.

**\*Metal treatments cannot be used in some areas due to VOC or heavy metal restrictions. Refer to local regulations.**

## EPOXY PRIMER AND BODY FILLER

One coat of epoxy primer must **dry 1 hour** before body filler application.

Two coats of epoxy primer must dry **overnight** before body filler application.

Epoxy can be scuffed or lightly sanded before applying body filler.

For more specific instructions, refer to **PD-1180** in this manual.

### **REMINDER—APPLY EPOXY PRIMER PROMPTLY**

Bare steel starts to rust in as little as **30 minutes at 50% humidity**.

Aluminum starts to oxidize in **8 hours after sanding**.

To avoid contamination, do not touch metal with bare hands before applying epoxy primer.

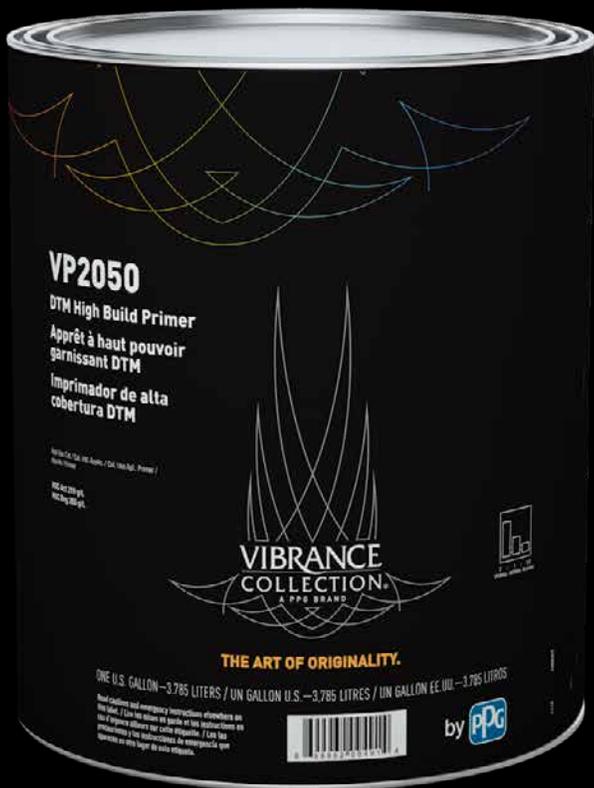


**In the restoration process**, epoxy primer is used to set the foundation for corrosion protection, preparing the entire project for the processes that follow. If parts are too large to prime in the given timeframe, consider working on individual parts or smaller areas.

# VP2050

## DTM High Build Primer

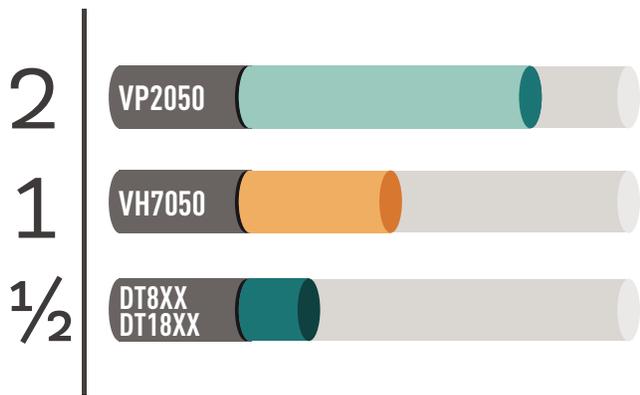
**VP2050** offers strong corrosion resistance and is compliant for all markets.



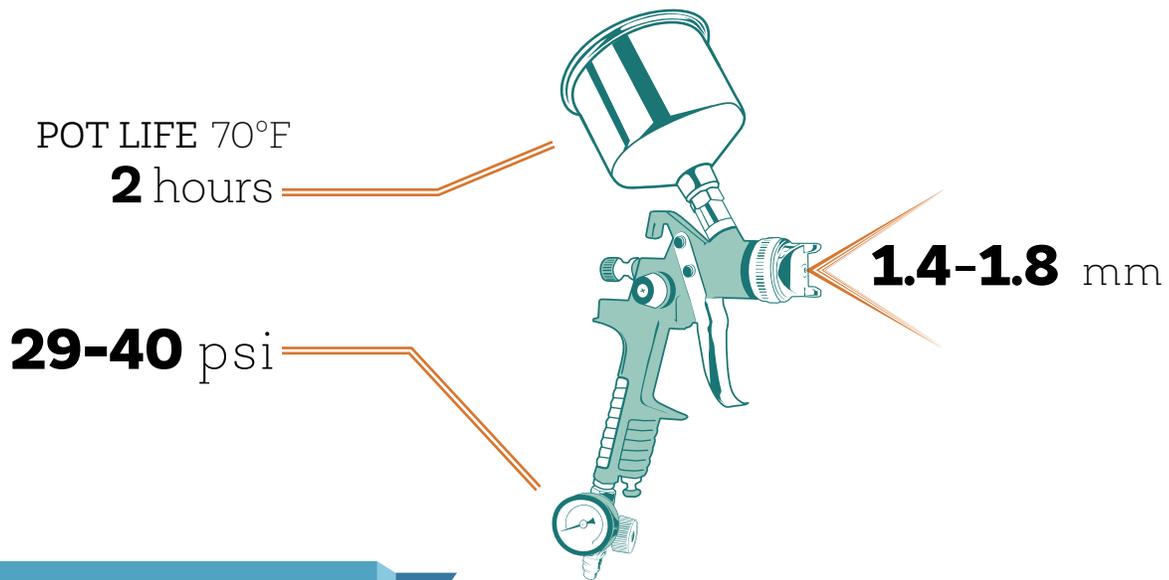
**VP2050** is a gray two-component, direct-to-metal high build primer. It's fast drying, easy to sand and it can be applied over properly prepared steel, aluminum, fiberglass and existing coatings in good condition.

For more information on using this product in National Rule refinish markets, refer to **VB-18NR**. Refer to **VB-18** for use in low VOC compliant refinish markets.

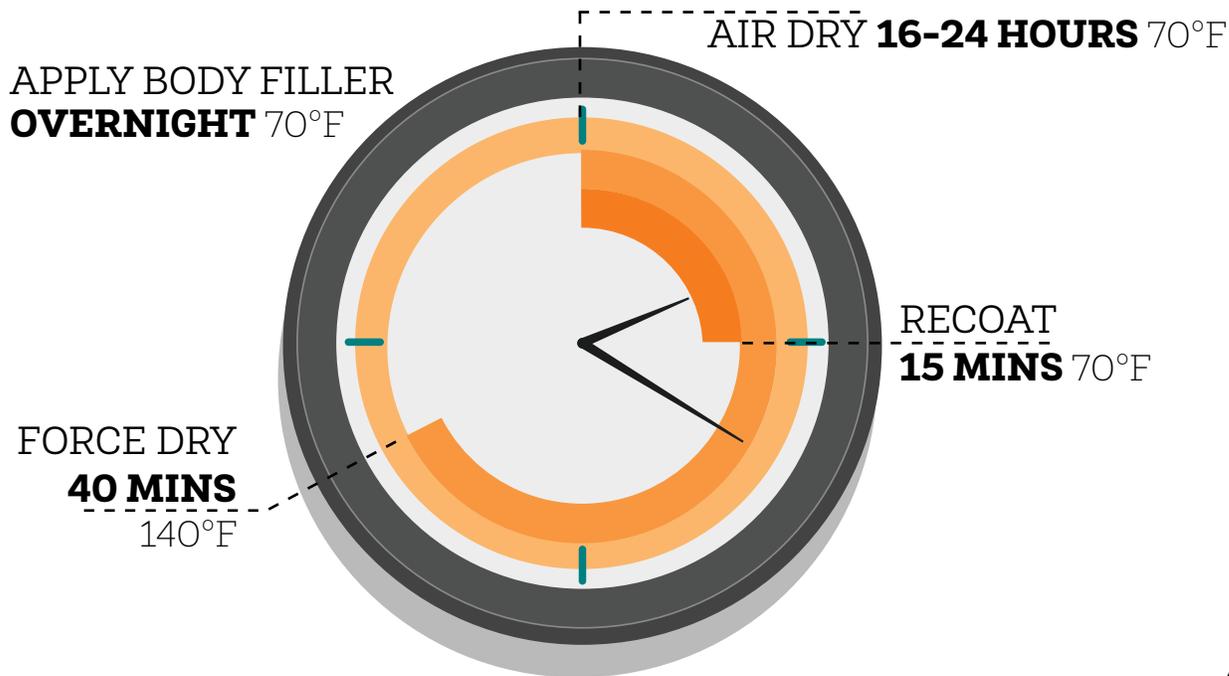
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



# DPLV

## 2.1 Epoxy Primer

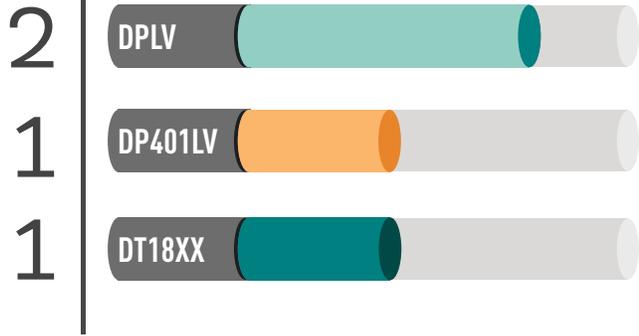
DPLV 2.1 Epoxy Primer is available in the following three colors that can be blended together to achieve the full range of gray shades, G1 - G7: White (DP48LV), Gray (DP50LV) and Black (DP90LV).



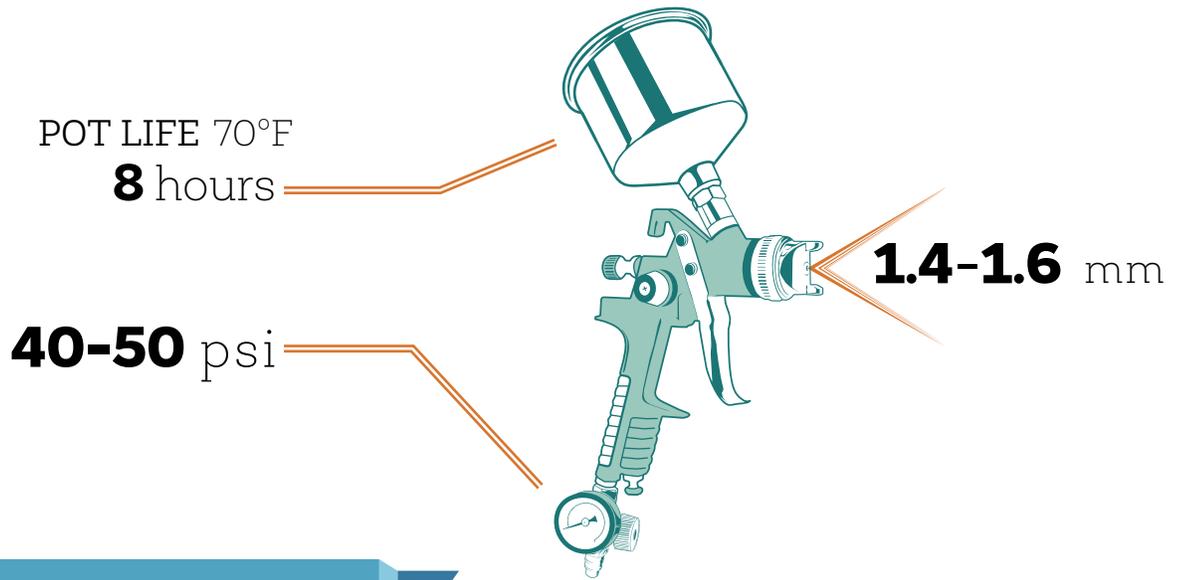
**DPLV 2.1 VOC Epoxy Primer** provides excellent adhesion and corrosion resistance for many types of properly prepared steel, aluminum, and fiberglass substrates. This low VOC primer may also be used as a sealer and topcoated with many of PPG's 2K urethane undercoats or direct gloss color, as well as PPG solvent and waterborne basecoats.

For more information on this product, refer to **P-245**.

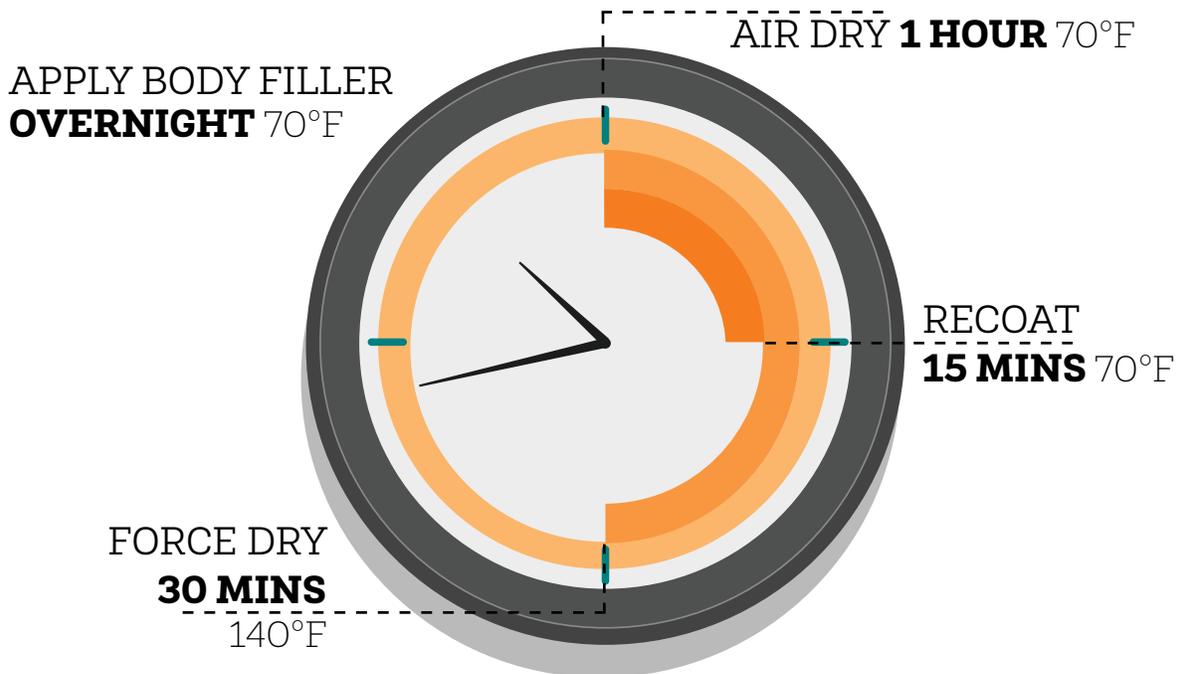
## MIXING RATIO



## GUN SETUP

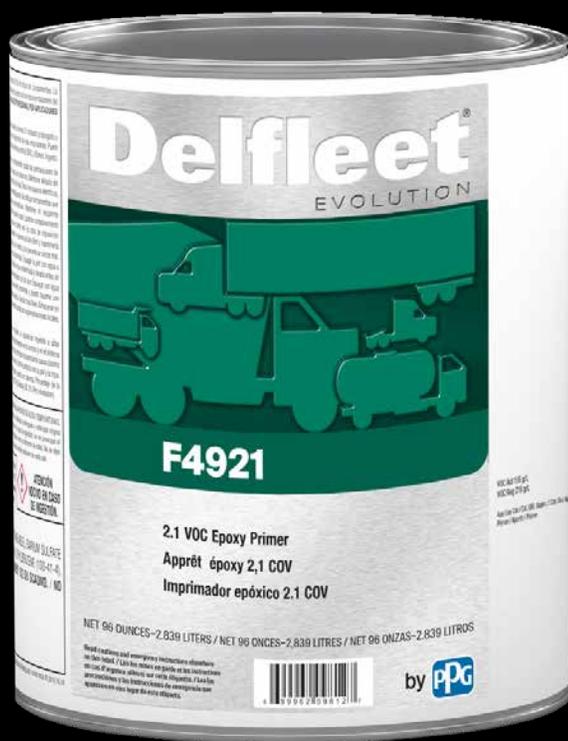


## DRYING TIMES



# DELFLEET® EVOLUTION F4921 2.1 VOC Epoxy Primer

*Delfleet* Evolution is a versatile, low-VOC epoxy available in three colors: gray (F4921), black (F4921BK) and white (F4921WH).



This epoxy primer can be topcoated directly in as little as 30 minutes as a primer sealer. F4921 primer also provides excellent adhesion and corrosion resistance over a wide range of properly prepared substrates, making it a great choice for your restoration project.

For more information on this product, refer to **DFT-071**.

## MIXING RATIO

3

F4921/  
BK/WH

1

F4922

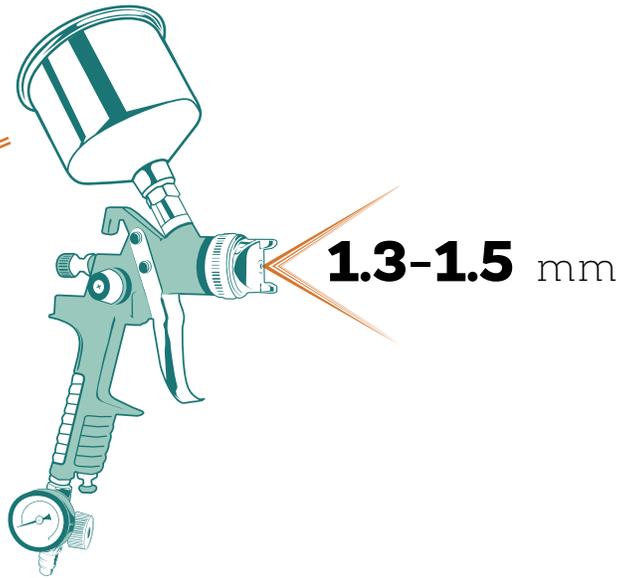
1

F3385/F3390/  
F3395

## GUN SETUP

POT LIFE 70°F  
**8 hours**

HVLP **10** psi  
Compliant **45-55** psi



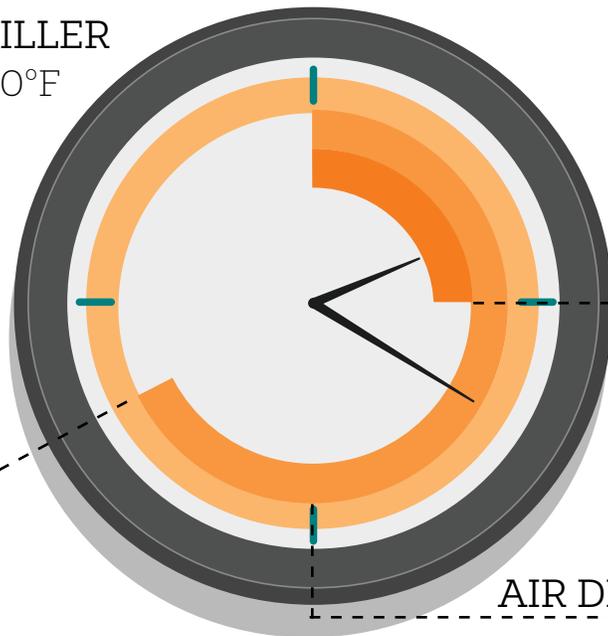
## DRYING TIMES

APPLY BODY FILLER  
**OVERNIGHT** 70°F

FORCE DRY  
**40 MINS**  
140°F

RECOAT  
**10-15 MINS** 70°F

AIR DRY **90 MINS** 70°F



**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

# PD-1180

# BODY FILLER

# PROCESS

Epoxy primer must dry for one hour and all metal work must be completed before starting the body filler process. Applying body filler over epoxy primer provides maximum corrosion protection for the metal. Apply filler within seven days of applying epoxy primer to maximize adhesion.

**OPTIONAL:** Scuff Epoxy with P120-P180 grit sand paper or red scuff pad. Do **NOT** break through epoxy when scuffing.

- 
- 1** Clean the repair area with the appropriate PPG cleaner.

---

  - 2** Mix and apply body filler over epoxy. Use the suggested amount of hardener. **Excessive amounts may result in product failure.**  
Apply thin, tight coats of filler, building up to fill as you spread, rather than a loose, thick coat. Spread as large of an area as possible instead of many small areas (patches) on a large panel.

---

  - 3** Block sand body filler with P40 grit paper on a hand block to rough shape the filler. Avoid coarser grits. The "V" of a 40 grit scratch is not as deep as 36 grit scratches.  
If possible, sand body filler the same day it is applied. The longer it dries, the more difficult it is to sand.  
For maximum corrosion protection, exposed bare metal should be covered with another coat of epoxy primer prior to Primer Filler stage.

---

  - 4** To more easily identify low areas, apply Guide Coat to body filler before final sanding.

---

  - 5** Finish sand body filler with 80 grit sandpaper until guide coat is gone. If low spots still exist, reapply body filler. Do not proceed to Primer Filler stage until filled area is even. Adding body filler **AFTER** primer filler should be avoided to prevent possible adhesion, staining and shrinkage concerns.

---

  - 6** Ready for Primer Filler **PD-1510** when body filler is completed and the car is straight.



# PREPARING THE SUBSTRATE PLASTIC PARTS



## INTRODUCTION

Since the mid-1970s, car manufacturers have increasingly used plastic and rubber parts, such as plastic bumpers, instead of heavier, more expensive steel parts. So if you're interested in restoring a vehicle manufactured from the mid-'70s onward, it's important to be familiar with restoring and refinishing plastic. This is especially important since some of the parts from this era are no longer being reproduced or made available.

# PLASTIC BODY PANELS

**Sanding is the most effective way to strip plastic body panels.**

Plastic is not very strong, so applying too much pressure when sanding can damage the part.

Using any paper coarser than P80 grit can damage the plastic and most likely cause it to crack.

Care must be taken when sanding so as not to damage the structure of the part. Structural damage should be repaired using welding or plastic repair techniques. Structural damage should never be "hidden" using filler or primer surfacer.

**REMINDER:** Overly aggressive sanding of the part can reshape the plastic and may ruin body lines and overall appearance.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1210

# PLASTIC BARE PARTS

- 1** Using the **SU4901 Clean and Scuff Pad:**
  - a.** Tear open **SU4901**. Clean and abrade the substrate thoroughly. Verify thorough abrasion. Use one package per full-size plastic bumper part.
  - b.** Rinse very thoroughly with water.

**NOTE:** Water should sheet (run-off) from the surface. If water beads up, repeat the cleaning process before proceeding.
  - c.** Blow or wipe completely dry with a clean cloth.

- 
- 2** Using the **SU4902 Plastic Adhesion Wipe:**
    - a.** Tear open **SU4902**, wring out excess liquid and apply a light, even coat over the entire area. Use one (1) package per full-size plastic bumper part.
    - b. Wipe in one direction** to minimize product overlap.
    - c.** Allow for a 3-5 minute flash time. Verify that the part is dry and dull in appearance.

- 
- 3** Apply a single light coat of either **SU4903 Advance Plastic Bond** or **SUA4903 (Aerosol) Advance Plastic Bond** to the prepared surface. Allow for a 5-minute flash time, then verify that the part is dry and dull in appearance.

**NOTE:** Substituting SU470LV or SUA470LV is acceptable in this process.

- 
- 4** Apply 1 coat of flexible sealer to the entire plastic part.

- 
- 5** Proceed to Paint Application.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1220

# PLASTIC PRIMED PARTS

Depending on the supplier of the part, it may be beneficial to check the integrity of the primer coating. The test in Step 2 below will help you determine whether your part can be sanded then topcoated, or if it will require paint removal prior to continuing the restoration process.

- 1** Wash part with hot water and soap. Rinse and dry completely. Clean entire part with the appropriate PPG cleaner using clean towels to remove contaminants.  
Dry thoroughly.

---

- 2** Test existing finish by rubbing it with a strong thinner or urethane-grade solvent on a clean towel. If coating wipes off or softens significantly, remove it by sanding and skip to Step 4. If coating integrity is maintained, it is an acceptable foundation for the restoration process.

---

- 3** When the existing finish is **known to be acceptable**, follow these steps:
  - a. To remove minor defects** – Block sand with P220-P320 grit. The goal is **NOT** to strip the surface to bare plastic. The goal is to level the surface and remove the defect.
  - b.** On edges, body lines and hard to sand, recessed areas, use a gray scuff pad or a pad coarse enough to remove all gloss.

---

- 4** Re-clean entire part thoroughly with the appropriate PPG cleaner, using clean towels.  
Dry completely.  
Tack off the dry part.

---

- 5** Apply plastic adhesion promoter to bare plastic and cut-through areas.

---

- 6** Apply one coat of flexible sealer to the entire primed plastic part.

---

- 7** Proceed to Paint Application.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1230

# PLASTIC USED PARTS

Depending on the age and supplier of the used part, it may be beneficial to check the integrity of the existing paint. The test in Step 2 below will help you determine whether your part can be sanded and then topcoated, or if it will require paint removal prior to continuing the restoration process.

Determine existing paint film build on used part. If greater than 5 mils, decide whether to keep the part. If yes, refer to Removing Paint (see page 28 of this manual) for directions on the best process. Inspect part for imperfections and damage. Determine what repairs should be made, if any. Follow all process documents for making repairs to the part.

- 1 Wash part with hot water and soap. Rinse and dry completely. Clean entire part with the appropriate PPG cleaner using clean towels to remove contaminants.

Dry thoroughly.

- 2 Test existing finish by rubbing it with a strong thinner or urethane-grade solvent on a clean towel. If coating wipes off or softens significantly, remove it by sanding and skip to Step 4. If coating integrity is maintained, it is an acceptable foundation for the restoration process.

- 3 When the existing finish is **identified as acceptable**, prep this way:
  - a. Block sand with P220-P320 grit to remove minor defects. The goal is **NOT** to strip the surface to bare plastic. The goal is to level the surface and remove any defects.
  - b. On edges, body lines and hard to sand, recessed areas, use a gray scuff pad or a pad coarse enough to remove all gloss.

- 4 Re-clean entire part thoroughly with the appropriate PPG cleaner, using clean towels.  
Dry completely.  
Tack off the dry part.

- 5 Apply **plastic adhesion promoter** to bare plastic or cut-through areas.

- 6 Apply one coat of flexible sealer to the entire used plastic part.

- 7 Proceed to Paint Application.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1280

# PLASTIC BODY FILLER

PPG does not manufacture any plastic body filler or plastic repair epoxy so the procedure may vary across each supplier. Determine if the part you are working with is either flexible or rigid. Choose the appropriate filler for either rigid or flexible.

**1** Scuff the bare plastic part if not already sanded.  
Clean off and tack the area where repair or filler will be applied.  
For best results, using a plastic repair or filler **epoxy** is recommended.

---

**2** Based on the filler you choose, check the manufacturer's recommendation for proper adhesion promoter and wait time.

- a.** Apply **plastic adhesion promoter** to repair area and let flash dry.
- b.** Apply thin tight coats to repair area, building up to fill as you spread, rather than a loose thick coat. Spread as large of an area as possible.

---

**3** Block filler with no coarser than P80 grit on a hand block to rough shape the filler.  
Move up to a finer grit and finish with a finer grit.

**REMINDER:** Plastic tends to "hair" when sanded with coarse grits and may not come out with a finer grit sand paper. Use the finest paper possible while still shaping the part. Additional priming may be necessary.

To more easily identify low areas, apply Guide Coat to body filler before final sanding. Finish sand filler with P150 grit sandpaper until guide coat is gone. If low spots still exist, reapply filler. Do not proceed to **Primer Surfacer** stage until part is straight. Adding filler **AFTER** primer filler should be avoided to prevent possible adhesion, staining and shrinkage concerns.

---

**4** Re-clean entire part thoroughly with the appropriate PPG cleaner, using clean towels.  
**Dry completely.**  
Tack off the dry part.

---

**5** Apply **plastic adhesion promoter** to bare plastic cut-through areas.

---

**6** Apply appropriate primer surfacer, based on the part's flexibility, then proceed to Sanding Primer Surfacer **PD-1590**.

---

**7** Proceed to Paint Application.

# SU470LV

## 1K Compliant Adhesion Promoter

SU470LV and the aerosol version, SUA470LV, are 1K adhesion promoters for use within all North American markets and are recommended for use under PPG and NEXA AUTOCOLOR® brand undercoats and topcoats.



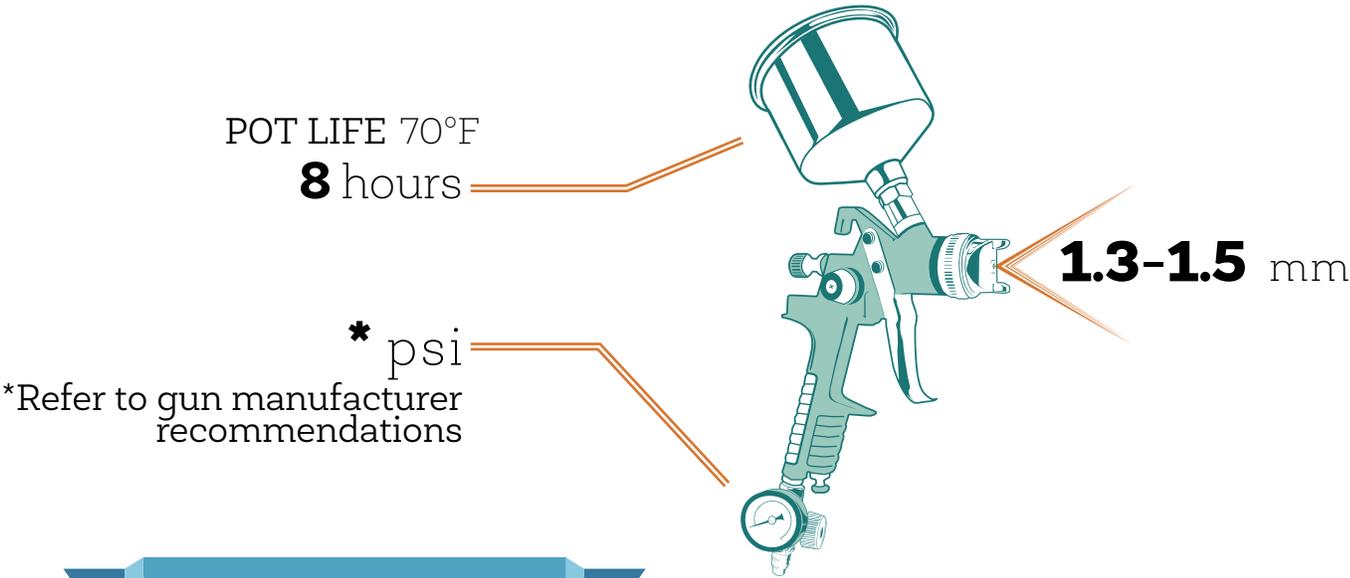
After proper cleaning and recommended use, **SU470LV** will deliver exceptional adhesion to bare, unprimed automotive bumpers, fascias and other automotive plastics.

For more information on these products, refer to **OC-35**.

## MIXING RATIO

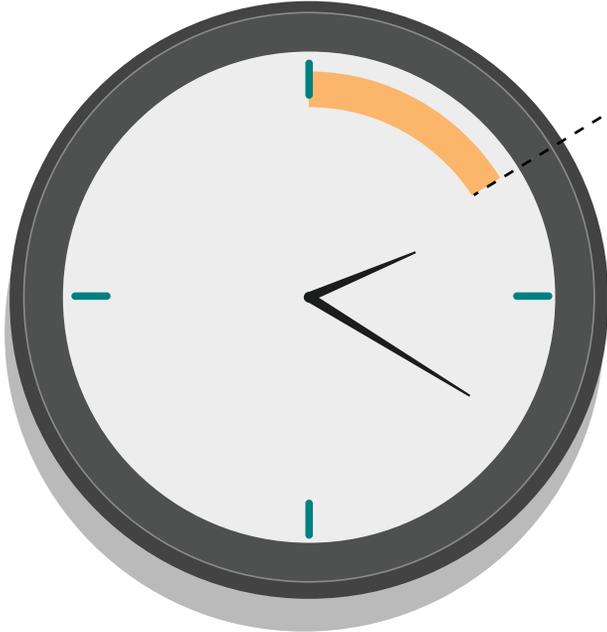
**SU470LV** is packaged ready-to-spray.  
No additional components needed.

## GUN SETUP



## DRYING TIMES

**APPLY SEALER  
PRIOR TO TOPCOAT  
APPLICATION**



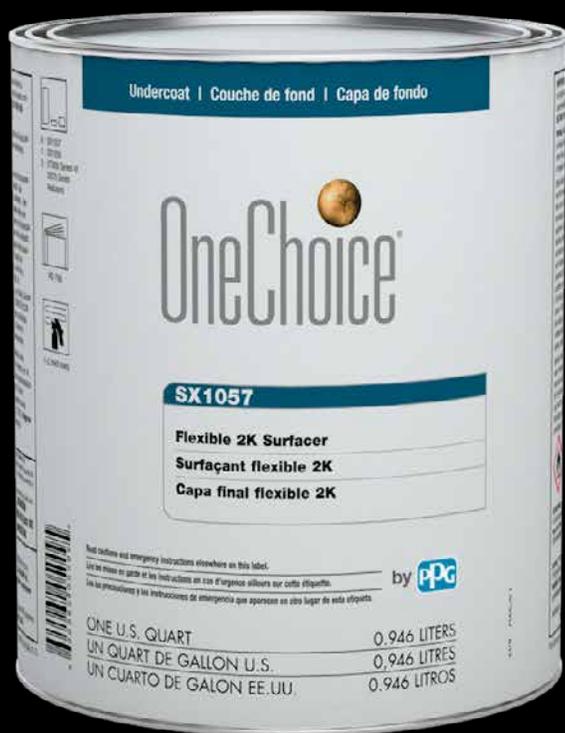
AIR DRY  
**10 MINS** 70°F

If dried longer than one hour, lightly sand, re-clean and re-apply SU470LV or SUA470LV.

# SX1057

## Flexible 2K Surfacer

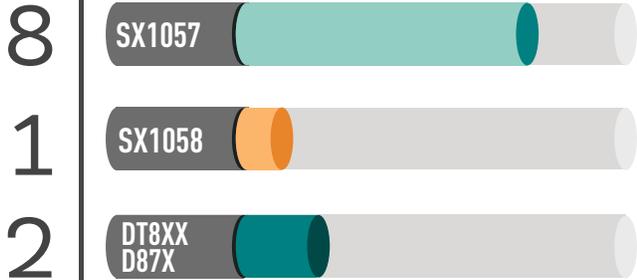
**SX1057 Flexible 2K Surfacer** was developed to offer an easy-to-sand, high build 2K urethane surfacer that delivers excellent performance on urethanes, plastics, gel coated fiberglass and other substrates.



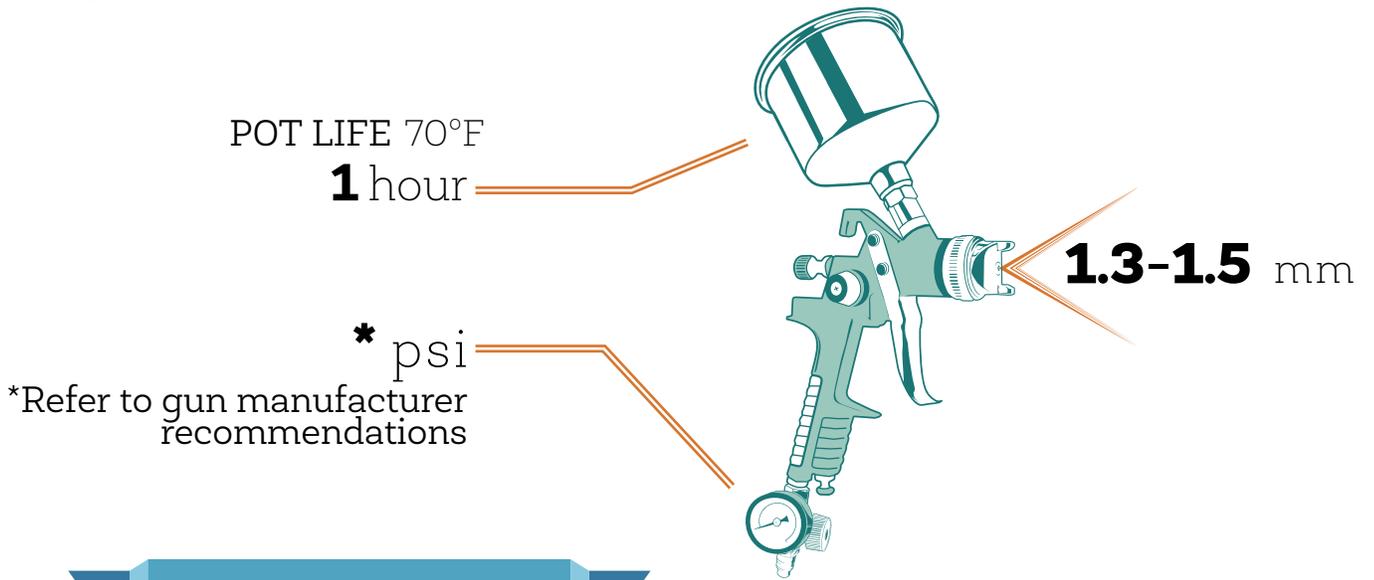
**SX1057** with its catalyst, **SX1058**, offers an enhanced level of flexibility and adhesion to properly prepared substrates.

For more information on this product, refer to **OC-32**.

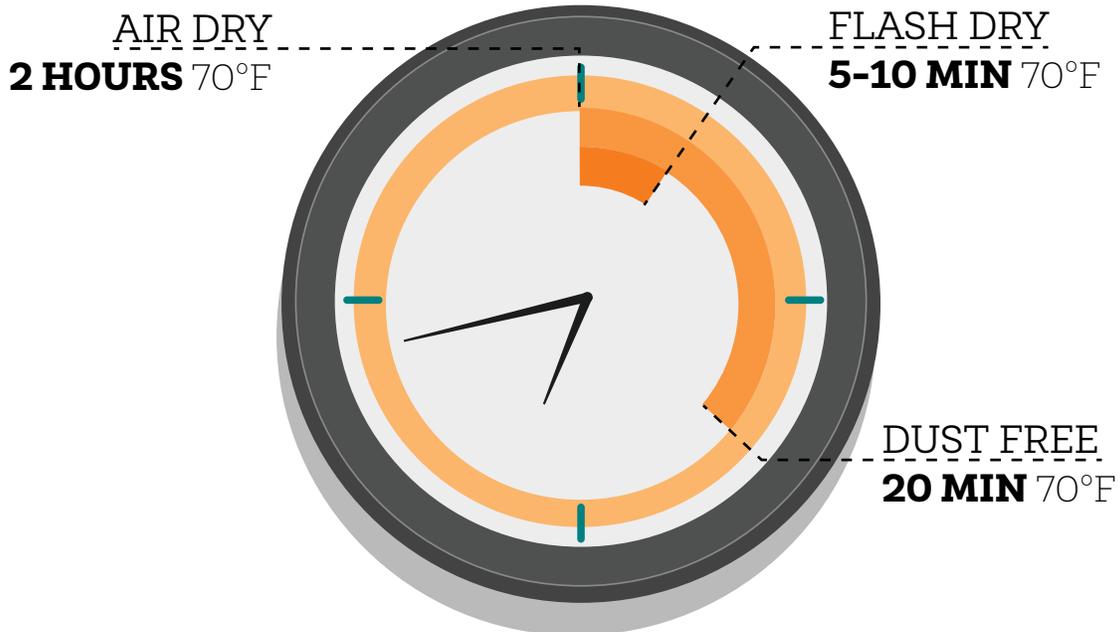
## MIXING RATIO



## GUN SETUP



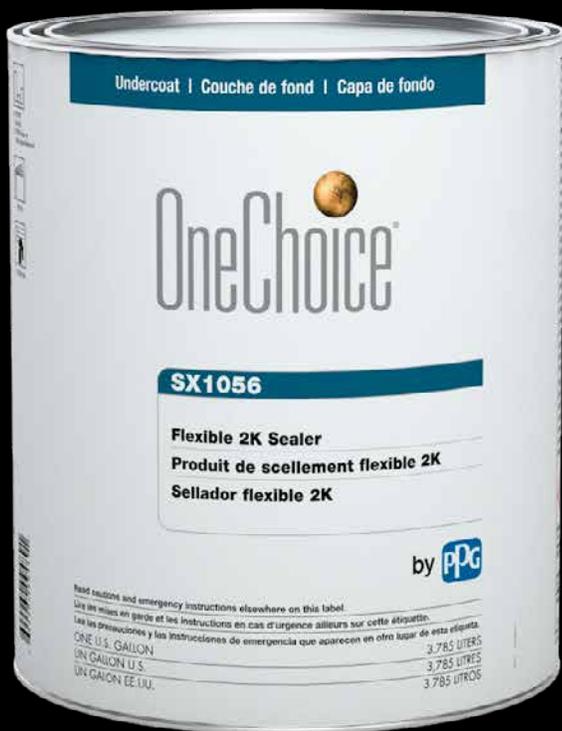
## DRYING TIMES



# SX1056

## Flexible 2K Sealer

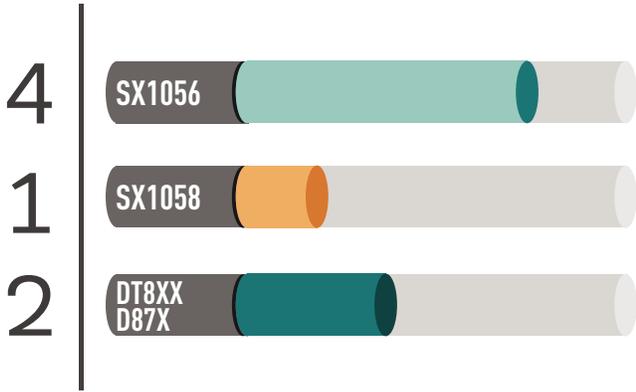
**SX1056 Flexible 2K Sealer** was developed to offer an easy mix, flexible 2K urethane sealer used to improve adhesion before top coating flexible parts.



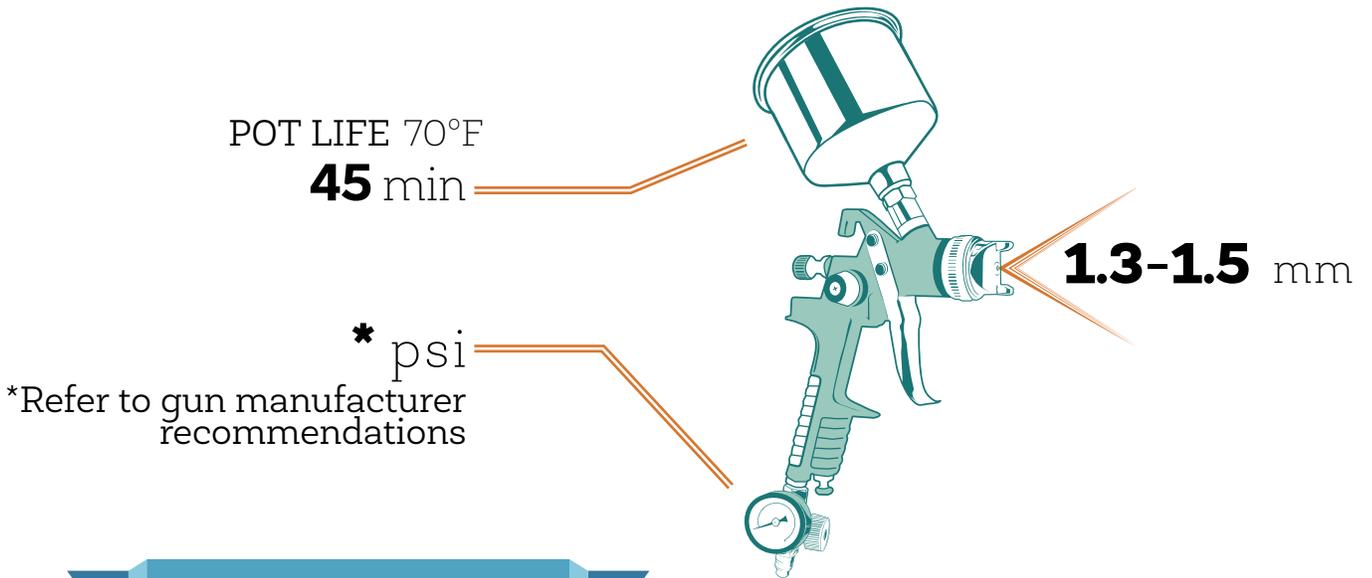
**SX1056** with its catalyst, **SX1058** offers an enhanced level of flexibility and adhesion to properly prepared substrates.

For more information on this product, refer to **OC-22**.

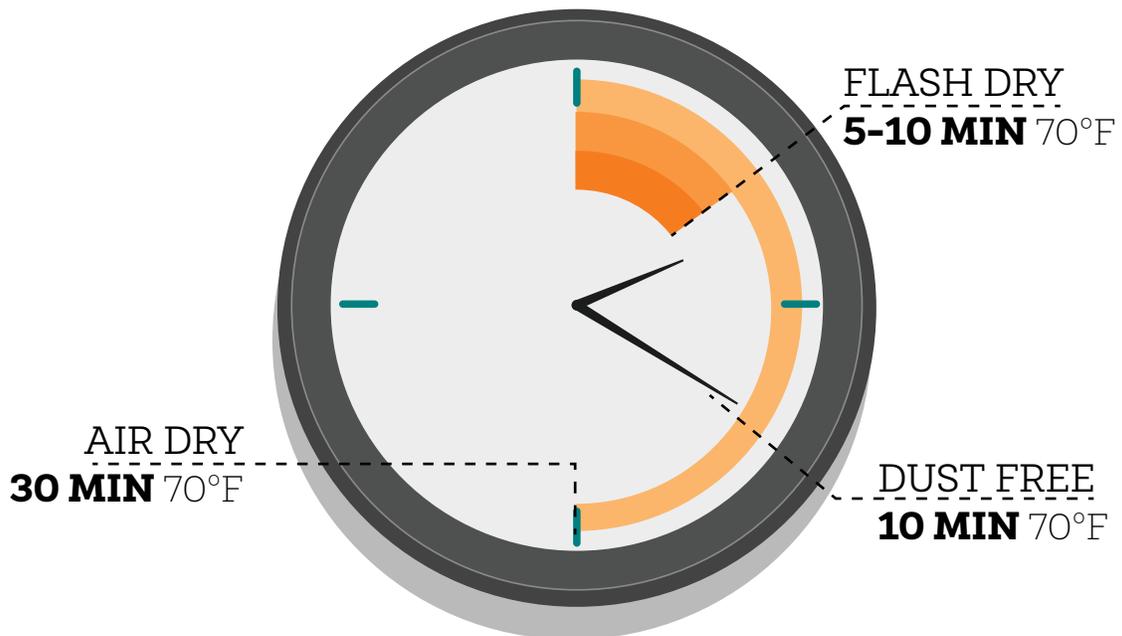
## MIXING RATIO



## GUN SETUP

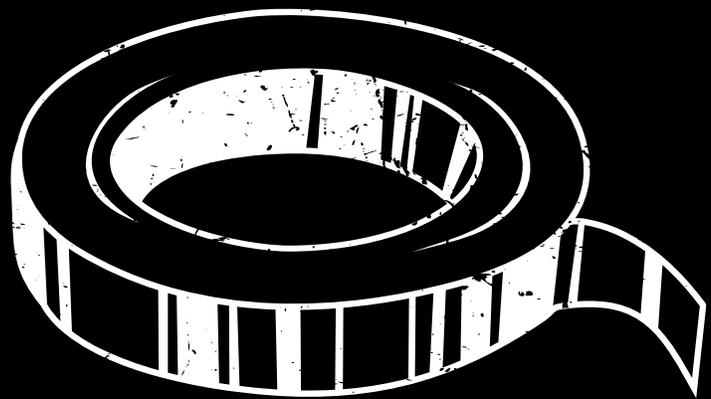


## DRYING TIMES



# PROTECTING THE UNPROTECTED

MASKING TIPS—CUSTOMS  
AND RESTORATION



## INTRODUCTION

Masking protects parts of the project from overspray when priming or painting. It's also used when creating two-tone or special-effect finishes. Masking is often overlooked when doing touch-ups or any minor spraying. Be sure to always pay particular attention to this all-important step. It's a lot easier to take the time for taping compared to having to remove overspray from the trim or new set of wheels.

## GENERAL MASKING

Mask previously painted areas before painting exterior frame, underbody, interior, etc. using standard masking tapes, **plastic sheeting**, and **masking paper**.

Door jambs should be masked at door skin seams or jamb body seams to avoid leaving visible hard lines.

For best results, apply final coat of clear to exterior and jambs at the same time by opening doors or removing previously painted parts.

## TWO-TONES

CUSTOM PAINTING, STRIPES, GRAPHICS, FLAMES, ETC.

Apply an **inter-coat clear** over dry basecoat. Then mask for the two-tone effect. This step will add **depth** to the finish and raises the stripe, graphic or flame from the initial base color.

Use **fine line** or **plastic tape** for clean, sharp edges.

**Press tape down firmly** while trying **NOT** to stretch the tape.

Use  $\frac{3}{4}$ " paper tape for layouts, then run  $\frac{1}{4}$ " fine line or plastic tape next to the  $\frac{3}{4}$ " tape to get straight lines.

**REMOVING TAPE**— immediately after last coat is sprayed or wait until paint is fully dry.

Always pull tape back against itself to cut paint clean without leaving jagged edges.

If tape is removed while the paint is still drying and gummy it can cause the paint to peel back and leave jagged edges.

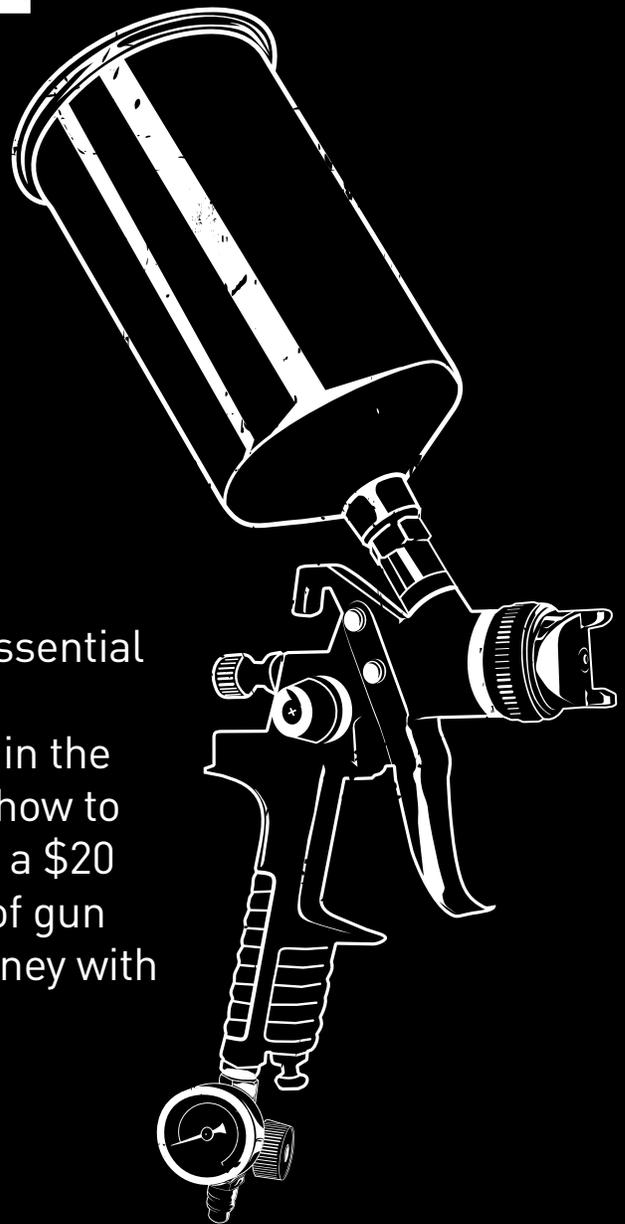
For optimal results, allow paint to dry for at least two hours or overnight, depending on conditions.

# ATOMIZING THE PAINT

## SPRAY GUN EQUIPMENT

### INTRODUCTION

Having the right spray equipment is essential for creating a top-quality paint finish. However, you could have the best gun in the whole universe, but if you don't know how to set it up and use it, it might as well be a \$20 gun. It's essential to learn the basics of gun setup so you don't waste time and money with redos.



# SPRAY GUN EQUIPMENT

Spray equipment manufacturers provide a multitude of fluid needle, fluid nozzle and air cap combinations.

Commonly called **gun setups**, these options are generally designed for applying specific types of refinish products, such as undercoats, basecoats and clears. It can be difficult to determine the exact gun set-up to apply a new product. Understanding a **simple ratio** is the best way to determine the **performance** of a particular gun set-up.

## FLUID-TO-AIR RATIO

This ratio balances the amount of paint coming out of the **fluid nozzle** with the amount of atomizing air being supplied by the air cap. This ratio is the key performance factor for any type of spray equipment.

In the technical development of products, there is a recommended amount of **fluid flow**—known as fluid ounces per minute—based on the percentage of solids volume of a product once it is reduced and ready to spray. This information can be found on the product's information bulletin PDS.

Manufacturers will also indicate how many fluid ounces per minute can be obtained with a particular gun setup. By using these two sources of information, you can choose a gun setup for any **spray gun** and it will be appropriate for the product you are spraying.

**The balance between paint fluid flow and atomization is too important to be left to chance or random guessing.**

Proper gun setup is important because it can affect the final appearance of the material being applied.

**With too much fluid and not enough atomizing air, the paint can:**

- run, sag and curtain
- Leave too much film build
- Create excess solvent/water in film
- Dry and cure more slowly

**With too much atomizing air and not enough fluid, the paint can:**

- Orange peel, no flow
- Leave too little film build
- "flashdry" trap solvents
- Haze, dieback and solvent pop

## **ATOMIZATION**

Paint atomization means breaking up a paint liquid into droplets or spray mist.

**HVLP** spray guns use a **high volume** of air at **low pressure** to carry the paint droplets to the painting surface. While conventional spray equipment is measured at the gun handle, HVLP spray guns are measured at the cap. To meet compliant area regulations, air cap pressure cannot exceed 10 psi.

**Reduced Pressure (RP)** or **Compliant** spray guns combine the characteristics of both conventional and HVLP. The paint is atomized at a high pressure but has the **transfer efficiency** of an HVLP-type spray gun.

**Atomization** is a critical element that helps determine how any finished automotive paint job will look. Poor atomization will cause a host of problems, such as **texture** or **orange peel** in sealers and clearcoats.

Variables that affect droplet size and atomization include:

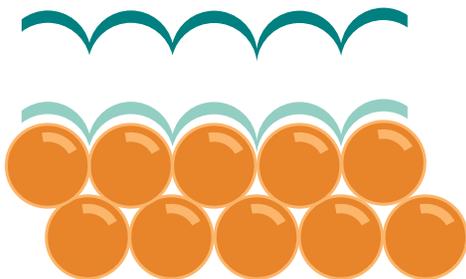
Size of the openings in the fluid tip and air cap.

Air pressure at the air cap.

Fluid (paint) delivery system.

## SURFACE OF PAINT

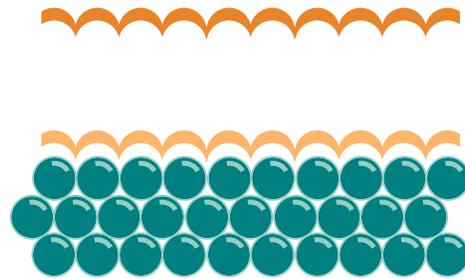
HIGHER BUILD



**1.8 mm**

FLUID TIP

LOWER BUILD



**1.3 mm**

FLUID TIP

Because **HVLP** spray guns have pressurized, gravity-feed and suction-feed fluid delivery systems, the amount of air pressure or lack of it will have a dramatic effect on droplet size and atomization.

# DETERMINING THE CORRECT PRESSURE WITH YOUR GUN AND YOUR PAINT

- Hold the gun about **6-8 inches** from a piece of masking paper.
- Set the pressure at **30 psi**, pull the trigger back fully and release.
- Repeat at **5 psi** increments until two identical patterns are produced.

**30 psi**



**35 psi**



**40 psi**



**45 psi**



**In this example, the optimum pressure will be 40 psi.**

For HVLP guns, air cap pressure must not exceed 10 psi to meet air quality regulations.



No single spray gun or setup will work for the entire project.

**Don't adjust the paint** so that the equipment works properly.

The equipment should work as you need it to. If the result is not satisfactory, change equipment and/or equipment settings to improve results.

When in doubt about spray equipment, ask the spray equipment manufacturer or your **PPG Distributor** for assistance.

# PD-0400

# SPRAY GUN SETUP

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

---

**1** Determine fluid size and air cap.  
Follow spray gun or paint manufacturer's recommendations for the product being used.

---

**2** Set air pressure on the high side for primers and high-solids products, lower for basecoats and low-solids products.

Adjust for proper atomization and repair size.

Compliant spray gun—**35-45 psi** at the gun

HVLP spray gun—set psi at the gun, not to exceed **10 psi** at the air cap.

---

**3** Test the spray pattern horizontally.

Rotate air cap to spray a **horizontal** pattern.

Screw air control knob in to make a small round pattern to start. Test spray an open pattern to about **six (6) inches** wide.

Use appropriate gun distance for size of repair

**3-6"** for **small spots** and **6-9"** for **medium to larger** repairs.

Aim at a target and pull trigger fully for a 3 count, then release.

Check for an even pattern with even runs across the pattern.

---

**4** Test the spray pattern vertically.

Rotate air *cap* to spray a **vertical** pattern.

Use appropriate gun distance for size of repair

**3-6"** for **small spots** and **6-9"** for **medium to larger** repairs.

Aim at a target and pull trigger fully for a 2 count then release.

Check for an even pattern and good atomization.

---

**5** Make final adjustment to spray pattern size.

**3"** for small spot repairs

**3-6"** for medium-to-large spot repairs and small panels

**6-9"** for medium panel / multi-panel repairs

**9-12"** for large areas / multi-panels

---

**6** Make final adjustment to fluid delivery to match pattern size.

Turn the knob in to decrease the fluid for smaller patterns.

Turn the knob out to increase the fluid for larger patterns.

# SPRAY GUN TECHNIQUE

## SPRAY GUN ANGLE

The recommended spray gun angle is 90° in relation to the surface being sprayed. At this angle, the product is transferred evenly to the surface.

Maintaining a perfect 90° angle to all surfaces is impossible, using it as a guideline increases the chances of the paint being deposited evenly.

This proper gun angle also reduces the possibility of striping or metallic mottling and better ensures proper film build and drying characteristics.

## SPRAY GUN SPEED, PATH AND OVERLAP

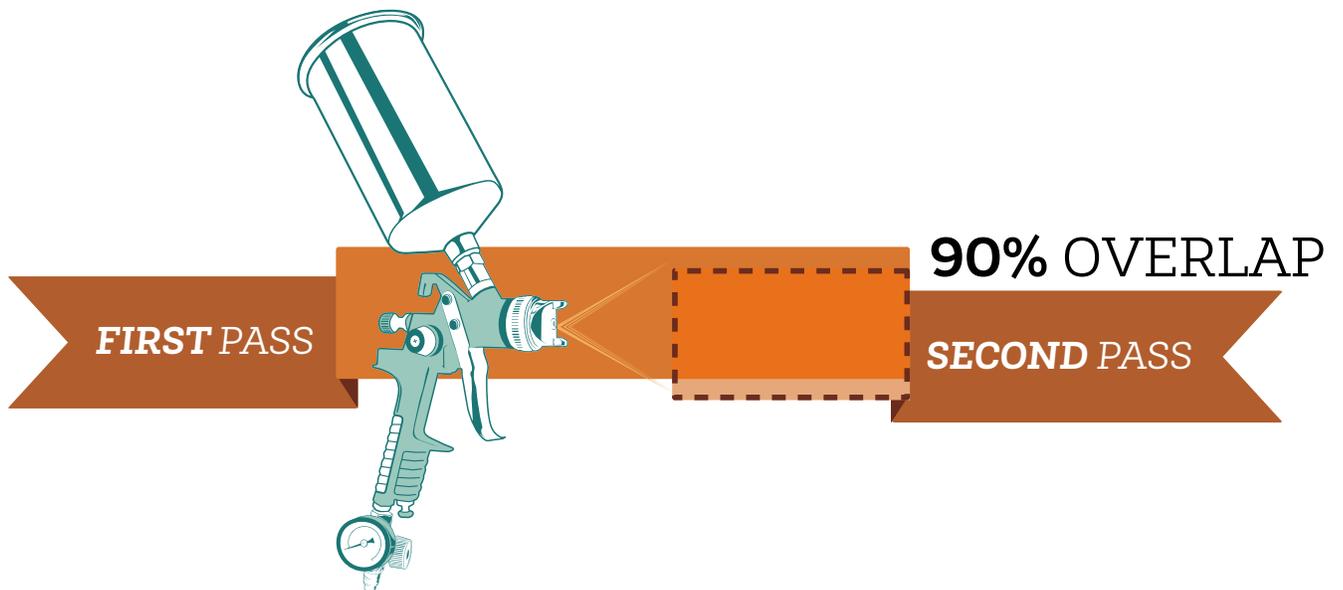
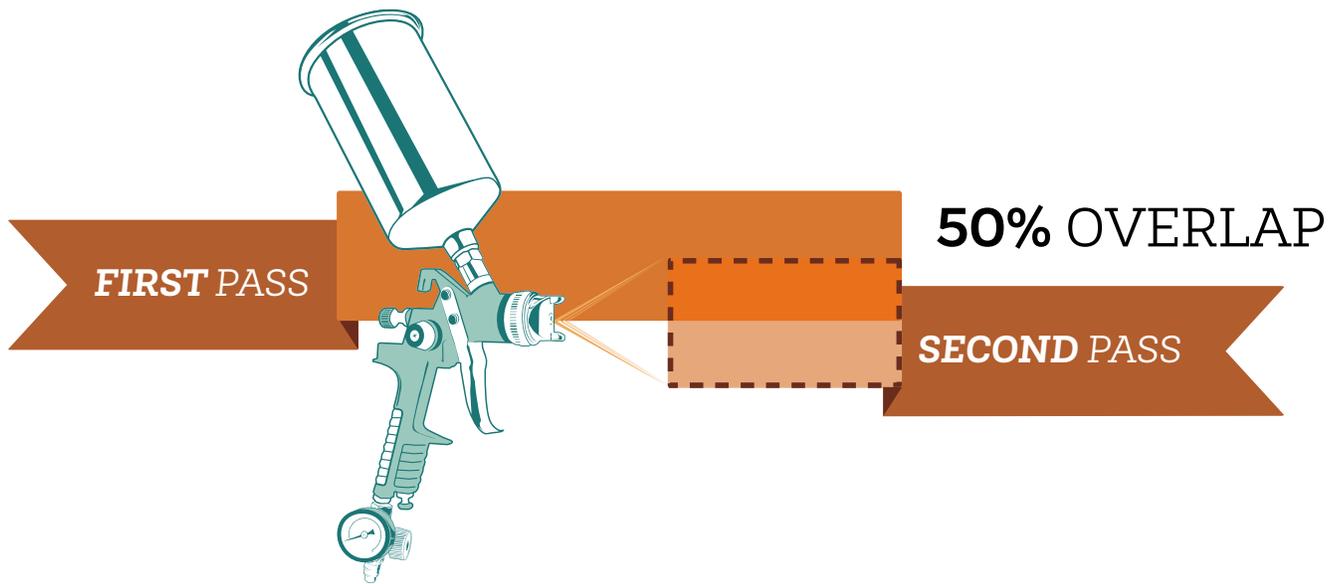
Maintaining an even spray gun travel speed helps ensure uniform film build. The best way to judge gun speed is to watch the way the paint is striking the panel. Ask yourself the following questions while spraying:

- Is the paint laying down correctly?
- Is it wet enough?
- Is it even enough?

The spray gun path or overlap should provide the proper “wetness” without creating excessive film build. Use a consistent overlap of **50-75%** as recommended in the PDS to achieve even film build characteristics in solventborne products.

When spraying tri-stage or candy paint, the overlap must be increased to **90%** to achieve an even finish in the color.

The diagrams below show two examples of commonly used overlaps.



# SPRAY GUN DISTANCE

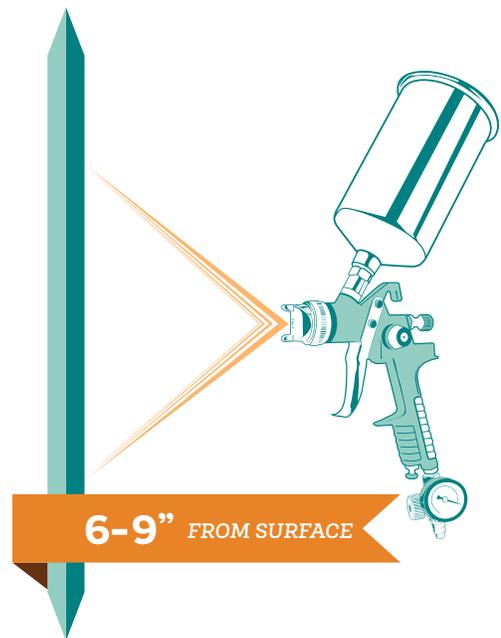
The distance from the surface will vary based on the repair size and the spray equipment used. The most common distance for PPG solventborne products is 6-9 inches.

## PROPER DISTANCE 6-9"

Holding the gun at the recommended distance allows the right amount of material to reach the panel, aiding in flow and leveling.

This technique enables the following:

- Allows the correct in-flight solvent loss
- Dries and cures correctly
- Provides even film build
- Allows for proper adhesion

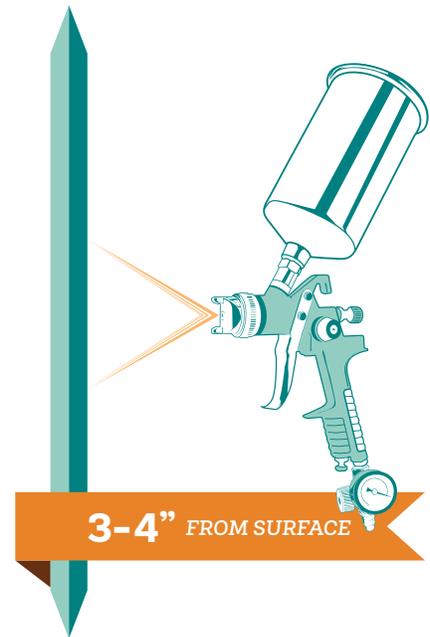


## CLOSER DISTANCE 3-4”

Holding the gun closer than recommended restricts the separation of atomized particles, resulting in excessive wetting of the product.

Holding the gun **too close**:

- Drives solvent-rich material onto the surface, leading to insufficient film build
- Traps solvents that can lead to die-back and solvent popping
- Slows dry and cure times

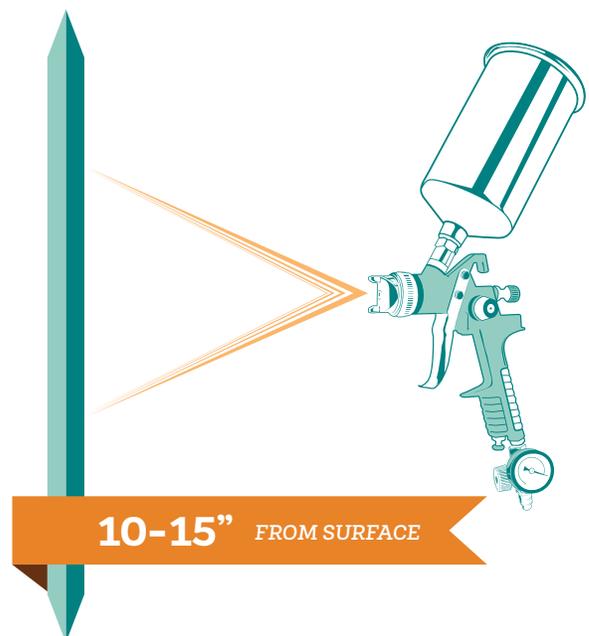


## GREATER DISTANCE 10-15”

Holding the gun farther back from the surface than recommended allows the atomized product to widely separate and will lack the required wetting on impact.

Holding the gun **too far**:

- Causes material loss due to in-flight solvent loss
- Dries product too fast (will have a dry, rough film)
- Results in insufficient film build
- Causes improper wetting of material
- May require more coats to cover



**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-0410

# SPRAY GUN TROUBLESHOOTING

## HVLP AND COMPLIANT EQUIPMENT

### **FLUID TIP SIZE AND AIR CAP**

Follow spray gun or paint manufacturer's recommendations for the product being used.

---

### **BANANA, HEAVY TOP OR BOTTOM PATTERN**

#### **Fluid tip or air cap is dirty/damaged**

Test spray pattern, rotate 180 degrees and test again to isolate cause.

Clean both items thoroughly or replace fluid tip or air cap if damaged.

---

### **HEAVY CENTER OR BALL END PATTERN**

#### **Too much fluid flow or bad air/paint setting**

Fluid flow too high—**reduce**

Air pressure too low—**increase**

Fluid tip too large—**reduce**

---

### **SINGLE OR DOUBLE SPLIT PATTERN**

#### **Too much air for fluid quantity used**

Reduce air pressure at regulator.

Increase fluid flow by changing fluid tip size or opening needle control knob.

---

### **INTERMITTENT FAN OR 'FLUTTERING'**

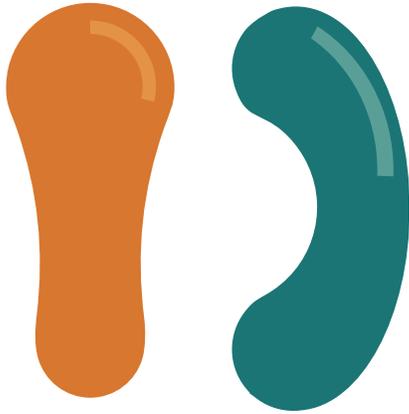
#### **Air in the fluid passageway**

Insufficient paint in cup

Fluid tip loose

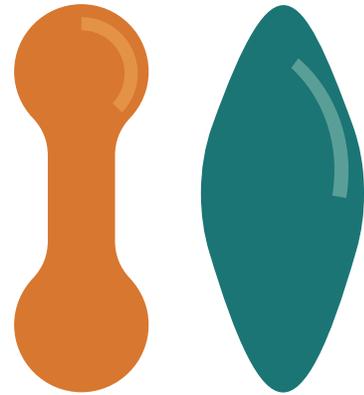
Fluid needle packing or packing screw loose

Cup vent hole clogged



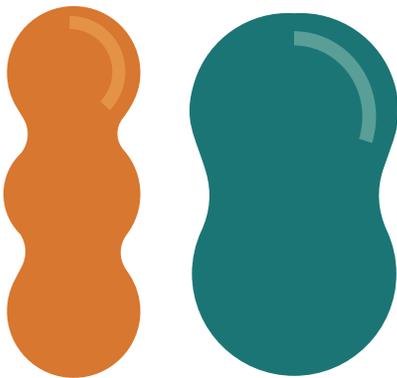
HEAVY TOP/BOTTOM

BANANA PATTERN



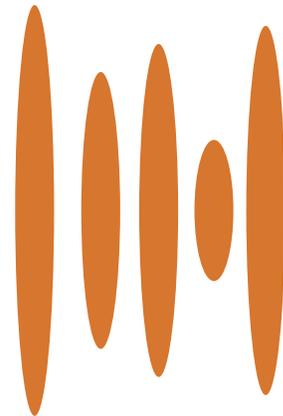
BALL END PATTERN

HEAVY CENTER



DOUBLE SPLIT

SINGLE SPLIT



FLUTTERING

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-0420

# SPRAY GUN CLEANUP

## QUICK CHANGE CUP SYSTEM

- 1** Use a disposable spray gun cup or a cup with a disposable liner.

---

- 2** Invert spray gun, pull trigger to release paint and remove gun cup.  
Dispose of leftover paint.

---

- 3** Remove air cap and clean it with a soft bristle brush and cleaning solvent.

---

- 4** Trigger the spray gun and remove the fluid tip with fluid tip wrench and clean it with a soft bristle brush and cleaning solvent.

---

- 5** Remove the fluid needle and wipe it clean with cleaning solvent.

---

- 6** Flush spray gun with cleaning solvent through the hole where the gun cup attaches.  
Flush until clean.

---

- 7** Wipe all parts and spray gun body dry with soft cloth.

---

- 8** Reinstall fluid needle while triggering the gun.

---

- 9** Lubricate according to spray gun manufacturer with approved spray gun lube.

# WATERBORNE CLEANING

## PROCEDURES:

1. **Immediately** after color application is complete, flush and clean the inside of the spray gun.
2. Rinse thoroughly with **SWX100 OneChoice Waterborne Gun Wash**.
3. **Remove air cap and clean separately.**
4. **Thoroughly dry** the inside of the spray gun and the air cap to **prevent corrosion.**

## GUN CLEANING SYSTEMS:

Several waterborne gun cleaners integrate the use of flocculating powder. This process reduces waste and improves the spray gun cleaning process.

PPG has developed a **flocculating agent** for the easy and efficient treatment of wastewater contaminated with waterborne paint residue during the gun cleaning process. This water waste should **NOT** be combined with **solventborne** waste of any type.

The solid sludge collected from the treatment process is classified as “Controlled Waste” and should be disposed of in accordance with local regulations.

## RECYCLING:

It is possible to use the filtrate from the flocculating process up to 10 times. When recycled 10 times, the filtrate must be taken away as waterborne waste. The filtrate produced from the waste treatment process should be disposed of following approved local regulations.

# OVERVIEW OF THE UNDERCOATS PRIMERS AND SURFACERS

## INTRODUCTION

Undercoats are used to create corrosion protection and a foundation of all repairs. There are four different types of undercoats, each having specific characteristics and roles. Some undercoats share the same catalysts with other products. This reduces inventory requirements and still allows each product to deliver the best overall performance possible.



### **PRIMER CHARACTERISTICS:**

Provides adhesion to bare substrates for subsequent coatings

Provides corrosion protection and resistance (sacrificial pigments) for metal substrates

Does **not** require sanding

Offers minimal filling properties

### **PRIMER SURFACER OR PRIMER FILLER CHARACTERISTICS:**

Designed to fill sand scratches and small imperfections

Has **less** sacrificial pigments than dedicated primers

Requires sanding after application

Sands easily and quickly

### **PRIMER SEALER CHARACTERISTICS:**

Provides a uniform foundation and can improve topcoat appearance over a wide variety of substrates

Optional in most cases, particularly on small spot repairs

**DOES NOT** require sanding, but can be sanded for a flatter finish.

Good flow and leveling; less surface texture than primers or primer surfacers

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

# PD-1510

# PRIMER FILLER PROCESS

Primer Filler, such as finishing putty or polyester primer, levels and fills minor imperfections, pinholes and P80 grit sand scratches. Spraying Polyester Primer (VP2100) will provide a more consistent sanding surface than spreading putty. However, care must be taken to NOT over-apply the polyester primer.

## CHECKPOINT:

Body filler work is **completed** and car is **straight**.

Body filler is finished with P120 grit and blown clean.

All bare metal areas are covered with epoxy primer. VP2100 Polyester Primer should not be applied over bare metal, only over epoxy primer, fiberglass, or body fillers.

Epoxy primer has dried overnight.

- 
- 1** Clean the area thoroughly with the appropriate PPG cleaner, using clean towels. Dry completely.

---

  - 2** **a.** Mix and apply finishing putty over the filler and **ENTIRE REPAIR AREA**—paint-edge to paint-edge or entire panel.  
**OR**  
**b.** Apply 3 coats of **VP2100** Polyester Primer to a maximum of 6 mils. Avoid reverse body lines, belt lines or any tight areas that the filler can bridge and over-build. These areas should be sanded down thoroughly or reverse-taped to avoid excessive build of polyester.

---

  - 3** Apply dry Guide Coat over putty or polyester primer. Block sand with P100 grit or finer sandpaper (P120-180 grit is a good start). Use a long block in a crossing pattern until guide coat is removed from all low spots, sand scratches and pinholes. If more fill is needed, reapply and re-block. The goal is to have a level panel without large sand-throughs.

---

  - 4** Finish sand with P220-240 grit if next step is Primer Surfacer.  
Finish sand with P320-400 grit if next step is Primer Sealer.

---

  - 5** Ready for Primer Surfacer **PD-1520** or Primer Sealer **PD-1701**.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1520

# SPRAYABLE PRIMER SURFACER PROCESS

Primer Surfacer is considered the final prime. In the restoration process, this stage is designed to fill P220-240 grit sand scratches and provide a uniform foundation for paint. The filler and polyester primers are too porous for painting over directly. A urethane primer surfacer yields a better surface for paint without the need for a primer sealer.

- 1** Scuff sand all recessed areas and panel edges with red scuff pad for adhesion of primer surfacer.

---

- 2** Clean the area to be primed thoroughly with the appropriate PPG cleaner, using clean towels. Dry completely.

---

- 3** Mask as necessary to protect vehicle from overspray.

---

- 4** Apply 2-3 coats of Primer Surfacer.
  - a.** If not using primer sealer later, use the recommended shade of gray surfacer.
  - b.** Evenly apply medium wet coats. **DO NOT DRY SPRAY.**
  - c.** Allow each coat of primer surfacer to dry 10-15 minutes before applying the next coat.  
This prevents trapping solvents and shrinkage of the primer.

---

- 5** Clean spray gun immediately following the application of the final coat of primer.

---

- 6** Force dry the primer surfacer or allow to air dry according to the PDS recommendations.

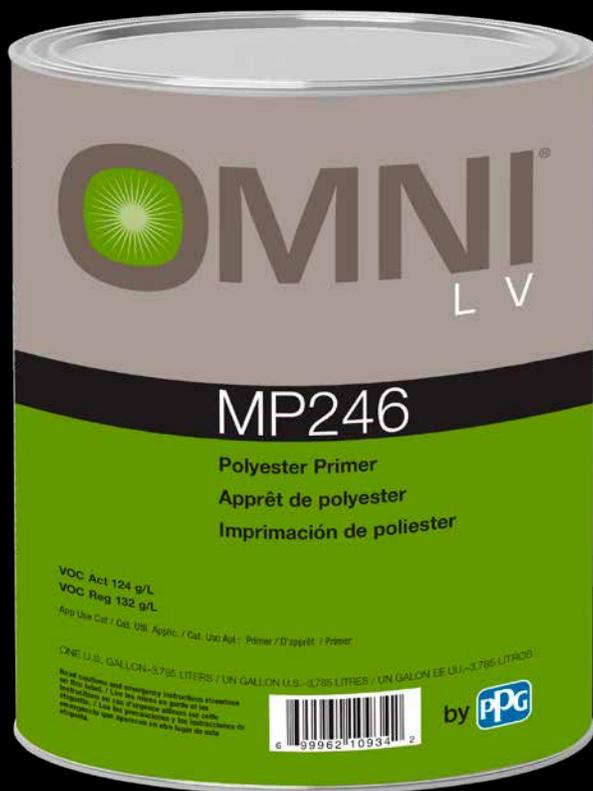
---

- 7** Ready for Sanding Primer Surfacer **PD-1590.**

# MP246

## OMNI® Polyester Primer

OMNI MP246 is a fast drying gray, two-component, high-build polyester primer with excellent filling properties that can be used over a wide variety of substrates. MP246 is lead and chromate free and is ideal for use in areas where VOC compliance is required.



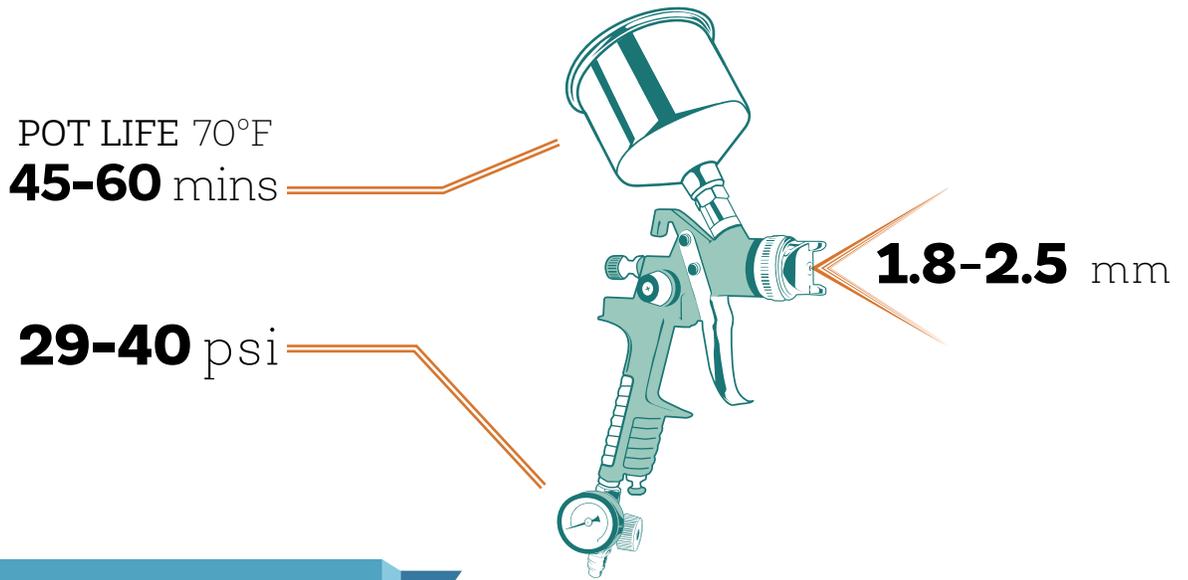
Polyester primer is a great product for use over bare fiberglass and epoxy. With its high solids content, there's minimal shrinkage and very desirable sanding characteristics. It's a "go-to" primer for achieving laser-straight panels and a show car-quality finish.

For more information on this product, refer to **OB-64**.

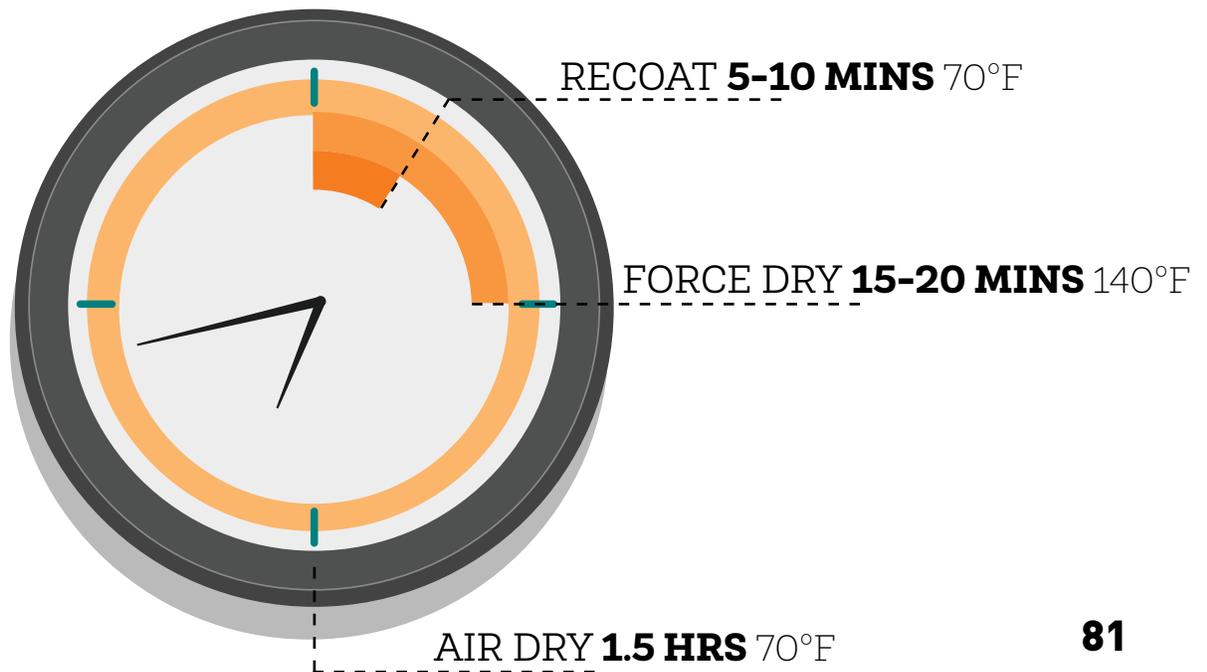
## MIXING RATIO

Add **1 oz.** of MEKP primer hardener per quart of MP246 Polyester Primer or **4 oz.** MEKP per gallon of MP246.

## GUN SETUP



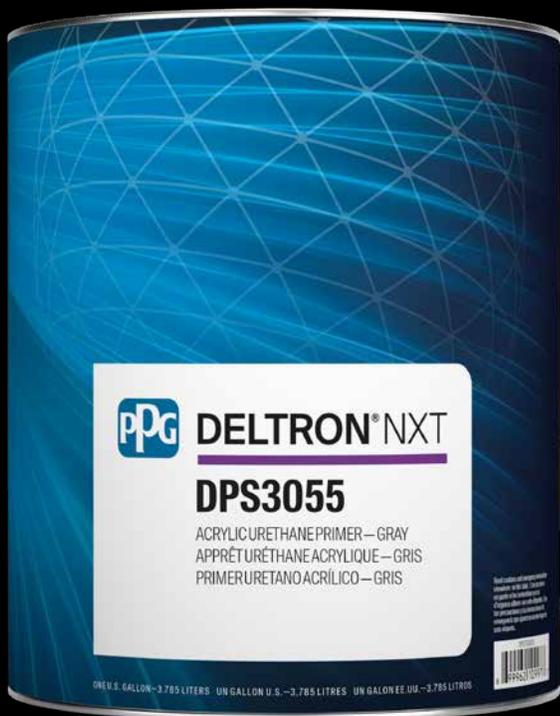
## DRYING TIMES



# DPS305X

## DELTRON® NXT Acrylic Urethane Primer

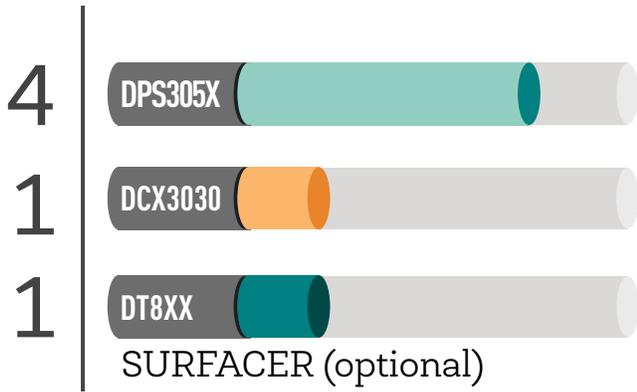
*Deltron* NXT DPS305X is a premium-quality primer surfacer available in White (3051), Gray (3055) and Dark Gray (3057). It's ideally suited for restoration work and day-to-day repairs performed in today's body shops.



DPS305X offers excellent adhesion, film build, surface leveling and gloss holdout over a wide range of substrates. Quick drying, easy to apply and sand, this versatile primer may be applied as a conventional spray filler or primer surfacer.

For more information on this product, refer to **P-238**.

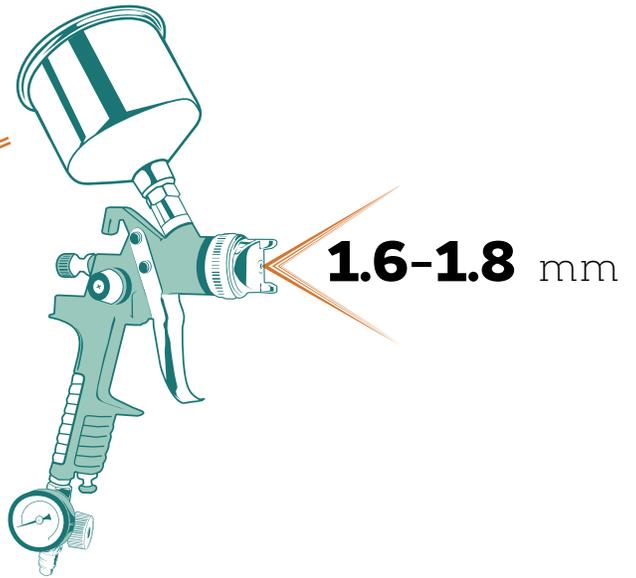
## MIXING RATIO



## GUN SETUP

POT LIFE 70°F  
**30-60** mins

**40-45** psi



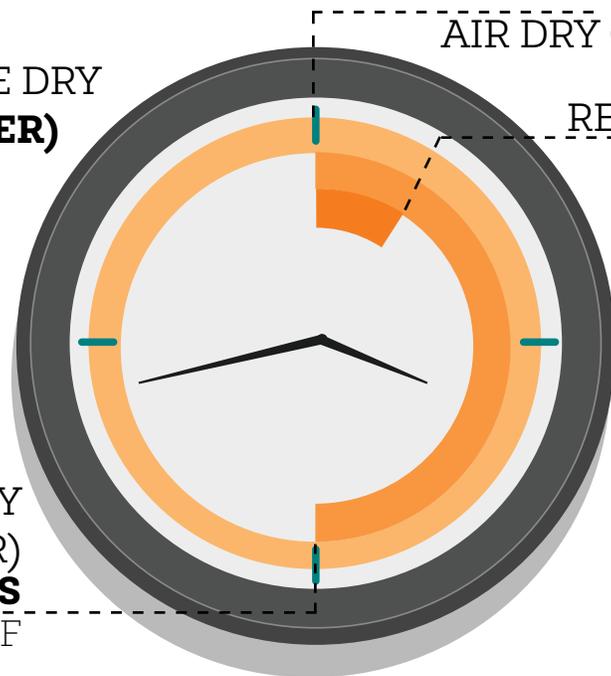
## DRYING TIMES

DO NOT FORCE DRY  
**(PRIMER FILLER)**

AIR DRY **OVERNIGHT** 70°F

RECOAT **5 MINS** 70°F

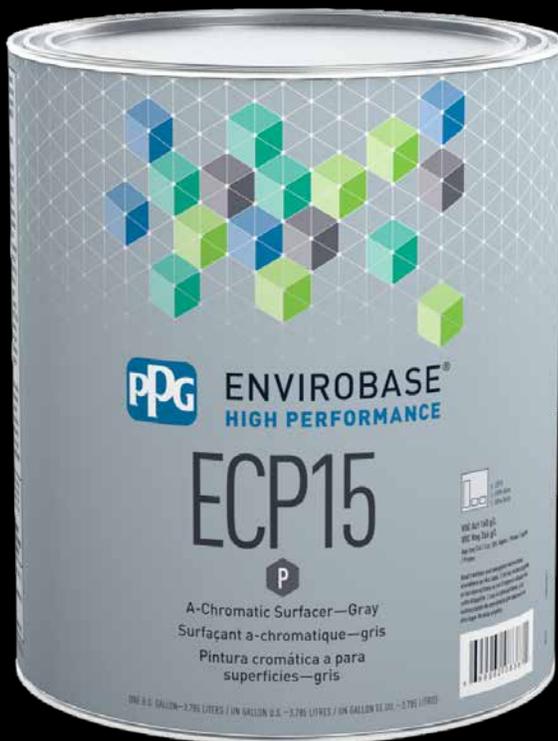
FORCE DRY  
(PRIMER SURFACER)  
**30 MINS**  
140°F



# ECP SERIES

## A-Chromatic Surfacer

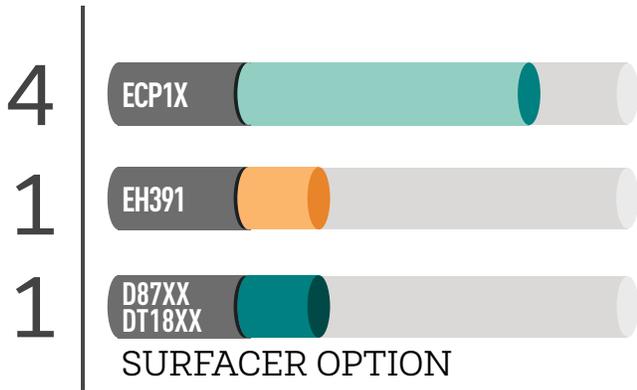
A-Chromatic surfacers are premium, low VOC primer surfacers for use with ENVIROBASE® HIGH PERFORMANCE basecoat. Available in three colors, ECP11 White, ECP15 Gray and ECP17 Black, they can be intermixed to create different shades of gray.



A-Chromatic surfacers offer excellent adhesion, film build, surface leveling and gloss holdout over a wide range of substrates. Quick drying and easy to apply and sand, this quality undercoat may be used as a conventional spray filler or primer surfacer.

For more information on these products, refer to **EB-100**.

## MIXING RATIO



## GUN SETUP

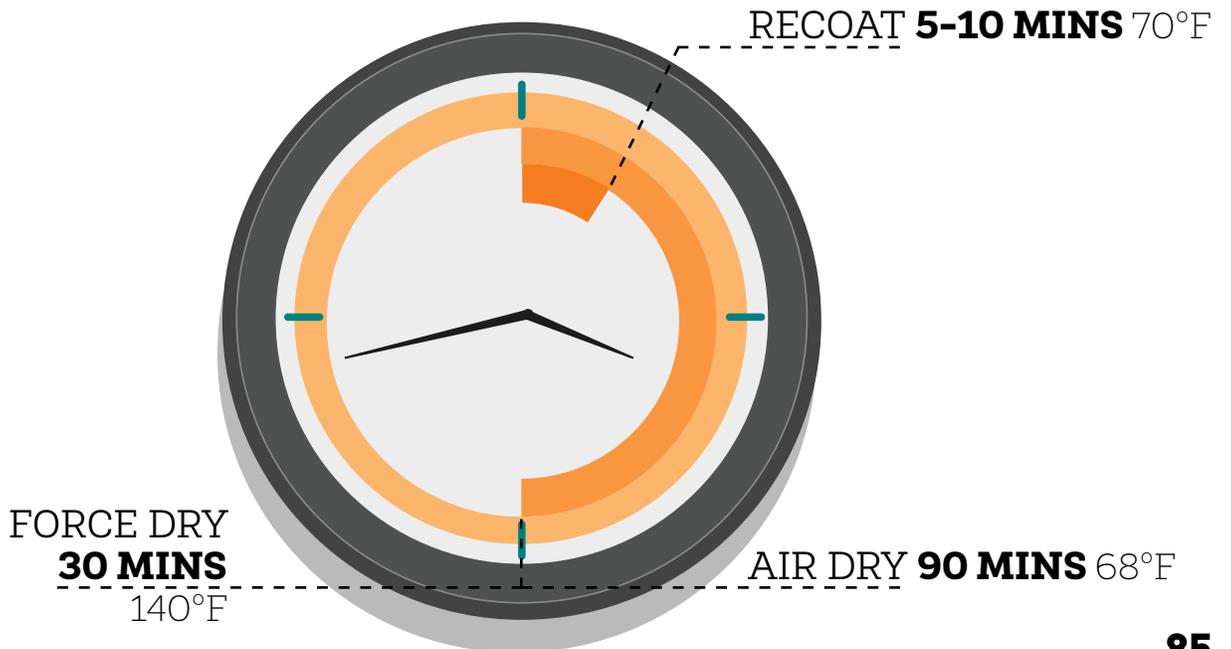
POT LIFE 68°F  
**30-60** mins

**29-40** psi



**1.6-1.8** mm

## DRYING TIMES



**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1530

# OPTIONAL USE OF SEALER

Using sealer in the final sanding process has proven to produce flatter paint jobs, less orange peel and better gloss, especially on areas that are difficult to sand and polish, such as door jambs, under hoods, and deck lids.

**Sealer has a higher level of resin than primers and primer surfacers. This results in a harder surface for the topcoat to be applied over, resulting in a better gloss. PPG sealers also offer recommended shades of gray (G-shades), from G1 white to G7 dark gray, which will help achieve the desired color.**

- 1** Finish sand polyester primer or urethane primer surfacer with P400 grit sandpaper.

---

- 2** Select the recommended G1 - G7 shade of gray sealer for the color that will be applied.

---

- 3** Clean sanded area with the appropriate PPG cleaner to remove all sanding dust.

---

- 4** Apply 2-3 coats of sealer.  
Allow each coat of sealer to flash to a uniformly dull appearance before applying the next coat.  
Let sealer dry **overnight**.

---

- 5** **Prep for Single Stage:** Apply dry guide coat and final sand sealer with a block or sanding pad using wet or dry P400-600 grit sandpaper.  
Ready for Single Stage, refer to **PD-1720**.  
**OR**  
**Prep for Waterborne basecoat:** Apply dry guide coat and finish sand with a block or sanding pad using wet or dry P600-800 grit sandpaper.  
Ready for Waterborne Basecoat, refer to **PD-1710**.  
**OR**  
**Prep for Solvent Basecoat:** Apply dry guide coat and final sand sealer with a block or sanding pad using wet or dry P500-600 grit sandpaper. Ready for Solvent Basecoat, refer to **PD-1715**.

**REMEMBER** to plan on painting after the final sand. Do not allow sanded sealer to stand for more than 24 hours before applying color. If sanded sealer sits for more than 24 hours, re-clean, sand and clean again before painting.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1563M

# DIRECT-TO-METAL (DTM) SEAM SEALER— RESTORATION

When restoring vehicles that have been stripped to bare metal, it is important to reseal all seams. Door panels will start to rust if not sealed properly with seam sealer. Primer is not enough to keep water from seeping into the seams and starting rust between panels. Brushable seam sealer is designed for all general-purpose automotive sealing over bare metal seams.

- 1** Remove all coating from both surfaces to expose bare metal.

---

- 2** Clean all exposed bare metal with 3M™ General Purpose Adhesive Cleaner.

---

- 3** Insert 3M™ 8310 DTM Seam Sealer into Applicator gun, remove the end cap, and equalize the cartridge. Attach mixing nozzle and retaining collar and discard a small amount of sealer.

---

- 4** Apply 3M™ 8310 DTM Seam Sealer to exposed seam. Tool, brush, or form to achieve desired appearance.

Do **NOT** apply over any primers and do **NOT** apply directly over welds.

When applying 3M™ 8310 DTM Seam Sealer over existing seam sealer, make sure existing sealer is sanded with P80 grit and seam is cleaned.

---

- 5** Allow to cure at least 15 minutes at 70°F before priming or painting.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-0570

# PINCHWELD PRIMING PROCESS

**A two-component epoxy primer must be used on bare metal areas of pinchwelds when installing stationary glass using urethane repair materials. If corrosion is present or if sheet metal repairs or metal replacement are required, the pinchweld flange must be primed in order to restore the strength of the bonding area.**

- 1** Perform all necessary metal repairs to pinchweld areas on roof, pillar and other panels where stationary glass will be installed.

---

- 2** Final sand all bare metal and body filler areas with P180 grit using a DA sander. **Do not apply body filler to pinchweld area.**

---

- 3** Final sand and featheredge all adjacent painted areas with P320 grit on a DA sander.

---

- 4** Clean the area to be primed thoroughly with the appropriate PPG cleaner, using clean towels. **Dry completely.**

---

- 5** Mask as necessary to protect vehicle from overspray.

---

- 6** Apply epoxy primer to the repair area allowing each coat to flash to a uniformly dull appearance before applying the next coat.

---

- 7** Allow the epoxy primer to air dry according to the PDS. Do not force dry.  
**REMEMBER** to mask off primed pinchweld area **BEFORE** color and clearcoat application. Windshield adhesive must only be applied to a clean, epoxy primed surface.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1590

# SANDING PRIMER SURFACER

**IMPORTANT**—If you are not ready to paint, do NOT sand. Sanded primer that sits for days can become contaminated. When you're ready: sand, clean and paint.

If you intend to wet sand the primer surfacer, you should paint within 24 hours. After 24 hours, re-sanding or re-scuffing is required since two-component primers may have case hardened.

**1** Apply dry guide coat primed area for final sanding.

---

**2** Block sand the entire area with P320 grit using a flat sanding block to remove the dry guide coat. Clean with an appropriate PPG cleaner. Ready for wet-on-wet sealer application. Refer to **PD-1701**.

---

## OPTIONS

**Sealer as Final Prime:** Sealer has more resin than surfacer to create a harder surface to paint. This inhibits the solvent from penetrating into the undercoats and leads to better gloss of the final finish. Refer to **PD-1530** for more information.

**Prep for Single-Stage Color without Sealer:** Reapply dry guide coat. Using a flat sanding block and P400 grit sandpaper, remove the dry guide coat. Ready for **PD-1720**.

**Prep for Waterborne Basecoat Color without Sealer:** Reapply dry guide coat. Using a flat sanding block and P600-800 grit sandpaper, remove the dry guide coat. Hand sand edges using gray scuff pads. Ready for **PD-1710**.

**Prep for Solvent Basecoat Color without Sealer:** Reapply dry guide coat. Using a flat sanding block and P500-600 grit sandpaper, remove the dry guide coat. Hand sand edges using gray scuff pads. Ready for **PD-1715**.

---

**NOTE:** If dry guide coat remains in low areas or if body filler is exposed, then additional primer surfacer must be applied. If bare metal is exposed, epoxy primer must be applied to bare metal area for corrosion protection, then primer surfacer may be reapplied.

---

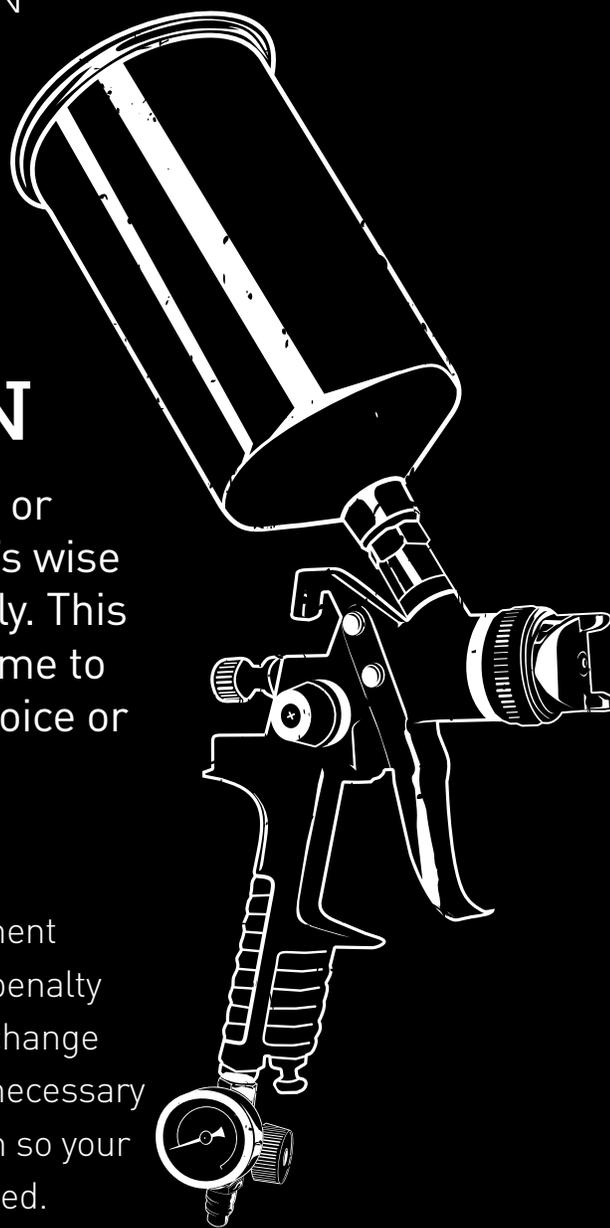
**3** Blow away sanding dust while wiping with a clean cloth. Clean all panels with the appropriate PPG cleaner, using clean cloths to dry thoroughly. Tack off all panels.

# RECOGNITION OF THE PIGMENT COLOR IDENTIFICATION

## INTRODUCTION

Choosing a color for your custom or restoration is a big decision, so it's wise to start the selection process early. This will give you and those involved time to get comfortable with the color choice or make a change, if necessary.

A color choice isn't necessarily a permanent decision, but there can be a substantial penalty in time and cost of materials to make a change late in the game. So be sure to take the necessary time to review your color options early on so your ultimate selection isn't rushed or regretted.



# CHOOSING THE RIGHT COLOR

When it gets down to it, there are two basic options when choosing a color for your vehicle:

1. Restore the vehicle to its original color by selecting the OEM color formula for that year and make.
2. Select a color according to your taste, whether it's a factory original of any make, or a custom color.

Keep in mind that the safest choices are black, white, gray, dark blue, red, etc.

If the plan is to resell, it is usually best to stick with the original color, or more traditional colors, such as black, white, gray, dark blue or red.

## COLOR TIPS

Dark colors make cars appear smaller and light colors make cars appear larger.

It is difficult to make the color decision based on a chip from a book or variant deck. It's best to spray out the color(s) on larger panels or car parts for a better verification that the color selected is the final choice (see next page on creating a sprayout).

For period-accurate restorations, use solid colors or formulas for metallic finishes of older vehicles. Newer pearls and metallic colors won't depict the correct appearance because they are too chromatic and sparkle too much in the sunlight.

## COLOR TRENDS

Get current on which colors are popular by:

Checking out dealerships for new car colors (both domestic and import)

Attending Goodguys events and other car shows

Reading classic car magazines

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1631

# MAKING A SPRAYOUT CARD

- 1** Obtain OEM color code for vehicle. Reference a color chip book or wall poster for color code locations on various vehicles.

---

- 2** Look up OEM color code using PPG Color Tools to find the color formula number. Note any variant colors available.

---

- 3** Check variant colors using **PPG Chromatic Color Deck**. When evaluating color match, use natural sunlight, color-corrected lights, or 3M™ PPS™ SUN GUN™ and view under equal gloss levels. Choose prime or variant color with best match.

---

- 4** **Mix color**—Once desired color is verified, mix a small amount of basecoat color on the scale—enough to make a sample and a few sprayout cards.

---

- 5** Apply 2-4 coats on the correct G-shade sprayout card until the desired color is achieved. Apply clearcoat and allow to dry.  
**NOTE:** For proper color evaluation, all sprayouts should be clearcoated.

---

- 6** Check the sprayout card under **natural sunlight, color-corrected light or 3M™ PPS™ SUN GUN™** to verify color match. Always compare the sprayout at 90° (face or head-on) and at angles between 20-60° (side tone) to the car.

---

- 7** When desired color match is verified, mix enough basecoat color for the entire paint job.

---

- 8** File sprayout card in **PPG sprayout card binder DOX44** or other suitable filing system for future reference.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1660

# TRI-COAT COLOR LETDOWN PANEL

Use these steps to determine the amount of pearl or tinted mid-coats that will be needed to achieve the desired color.

- 1** Obtain OEM Color Code and look up the code using PPG's color tools.
- 2** Note any variant colors available. Use PPG Variant Deck to check variant color chips against the area to be painted on the vehicle. Choose the prime or variant formula that aligns best with the desired color.
- 3** Prepare the **tri-coat letdown panel** as shown below. Apply the recommended shades of gray sealer for ground coat color to the letdown panel first.
- 4** Use the panel to determine the number of coats of **midcoat color** required to achieve the desired color.



CLEARCOAT ONLY HALF THE PANEL TO HIGHLIGHT DIFFERENCES IN MIDCOAT.

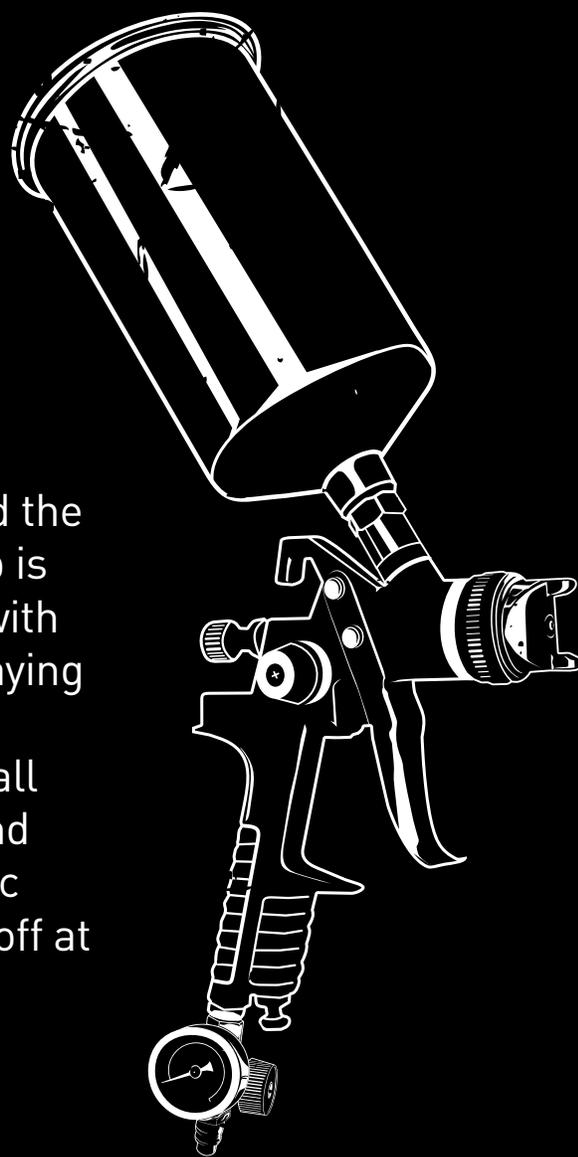
MASK OFF 5 HORIZONTAL SECTIONS OF THE PANEL. APPLY **5 COATS** OF MIDCOAT TO ENTIRE PANEL, REMOVING **1 SECTION** OF MASKING AFTER EACH COAT.

# APPLICATION OF THE PAINT

SEALER, SINGLE STAGE, BASECOAT, CLEARCOAT

## INTRODUCTION

Once the color has been chosen and the bodywork is complete, the next step is creating your final finish. It begins with choosing your paint system, then paying close attention to its recommended application procedures. Do so, and all those hours of sanding, prepping and bodywork will pay off with a fantastic paint finish you'll be proud to show off at your next cruise-in.



# CHOOSING YOUR PAINT SYSTEM

## SEALER

Whether or not to apply a sealer is an important decision to make before applying the paint finish. Unfortunately there is no simple answer. Often referred to as a “barrier coat,” a sealer is great for ensuring a uniform topcoat color and for sealing up any minor post-prime bodywork. It also maximizes adhesion of the topcoat with minimal shrinkage.

Keep in mind, however, that since a sealer isn’t normally sanded, it will leave more texture. A better option could be to finish sand your primer surfacer with P600 grit and move directly to color application.

Sanding the sealer with P600-P800 grit once the sealer is completely dry is another option. This will provide the uniformity benefits of a sealer with nearly the same finish quality of a sanded primer surfacer.

## SINGLE-STAGE COLOR

As its name implies, a single-stage (direct gloss) topcoat provides the desired color, gloss and film build all in one. It is a good choice for solid colors, as well as for mimicking metallic finishes of older-era vehicles. Two-component acrylic urethane technology provides better durability than the single-stage acrylic enamels of yesteryear.

## BASECOAT-CLEARCOAT

Introduced in the early ‘80s, basecoat-clearcoat is now used for the overwhelming majority of today’s new car finishes—for good reason. By applying a clearcoat over the basecoat color, the finish will keep its glossy, “wet look” longer than a single-stage and require less maintenance. Metallics and pearl coats can also be more sophisticated and applied more evenly. A basecoat-clearcoat system is also the best choice when applying multiple colors and graphics.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1701

# SEALER APPLICATION PROCESS

- 1** Sealer application is an optional step. If you choose to apply sealer, finish sand with **P320-P400 grit**.

---

- 2** **Mask vehicle appropriately.** If masking door jambs, etc., that have already been painted, be aware that the first coat of sealer will travel farther into the jamb than the color coats that follow. **This will leave an undesired sealer edge.**  
  
To minimize this effect, mask jambs for color application. Mask a second time, closer to the edge for sealer application. After sealer is applied, remove this masking before applying color and clearcoats.

---

- 3** Select the recommended **G1 - G7 shade** of gray sealer for the color that will be applied.

---

- 4** Clean area to be sealed with the appropriate PPG cleaner, and dry with clean towels. The use of a tack cloth is recommended to remove any final dust.

---

- 5** **Apply sealer.** Refer to **PD 1530** for specific application instructions.

---

- 6** Allow each coat of sealer to flash to a uniformly dull appearance before applying the next coat.

---

- 7** Clean spray gun **immediately** following the application of the final coat of sealer.

---

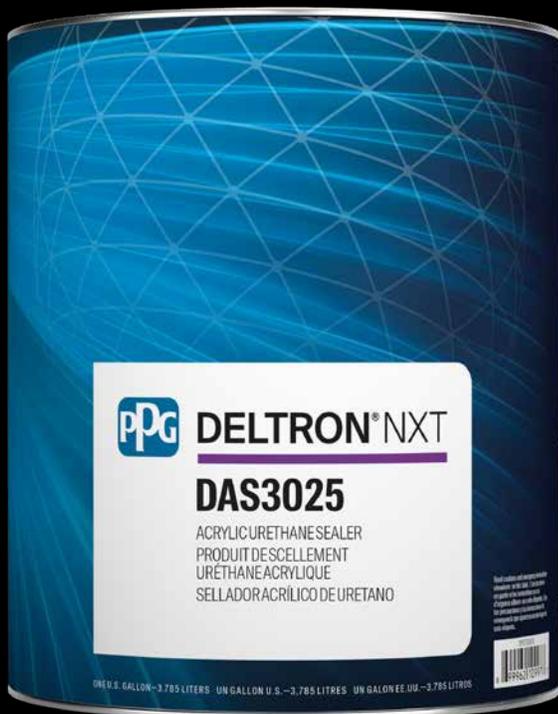
- 8** Allow the sealer to air dry according to the PDS recommendations before applying basecoat.



# DAS302X

## Deltron NXT Acrylic Urethane Sealer

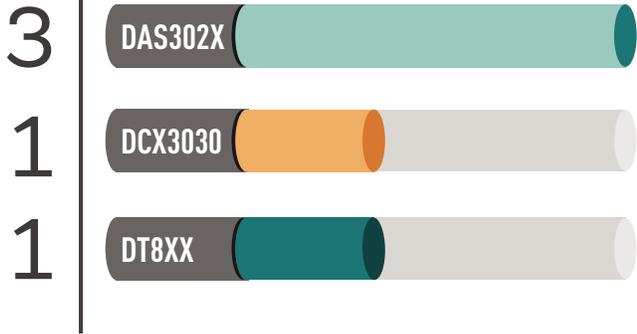
Deltron NXT DAS302X is a premium quality primer sealer available in White (3021), Gray (3025) and Dark Gray (3027). This advanced technology is ideal for preventing solvent from being trapped in the substrate and providing the best in topcoat performance.



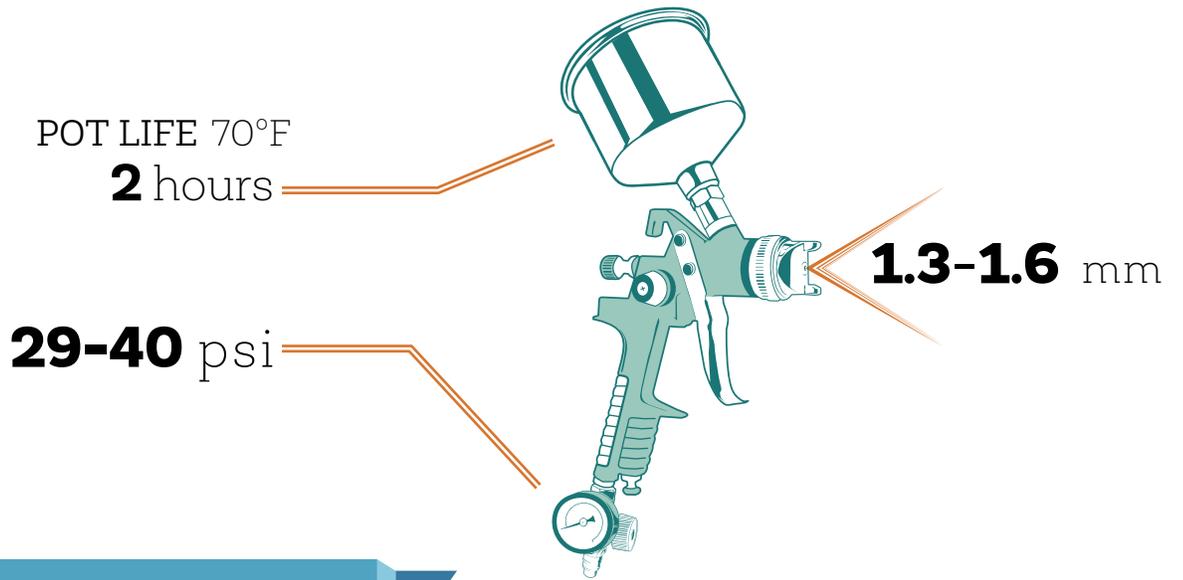
Deltron NXT Acrylic Urethane Sealers are fast-drying and offer superior flow properties and gloss holdout. They can be used directly over unsanded OEM e-coat, sanded finishes or over properly prepared and treated bare steel, fiberglass and plastic parts.

For more information on this product, refer to **P-237**.

## MIXING RATIO

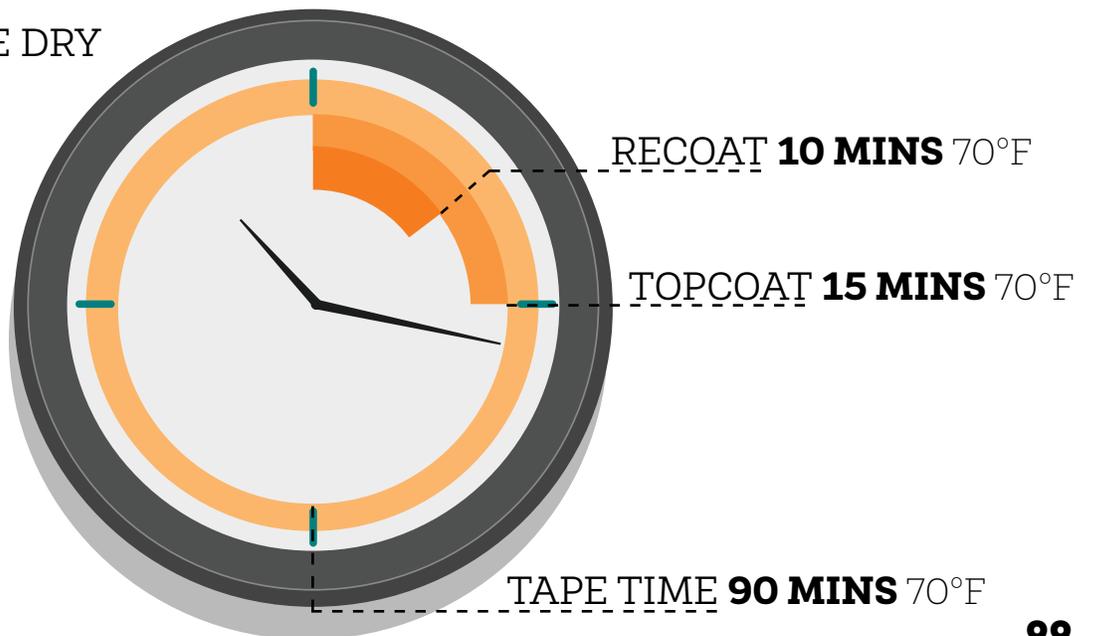


## GUN SETUP



## DRYING TIMES

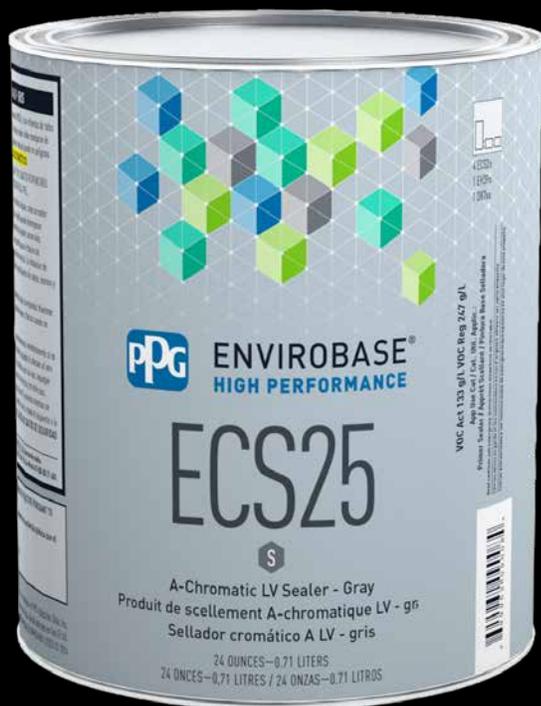
DO NOT FORCE DRY



# ECS Series

## A-Chromatic Sealers

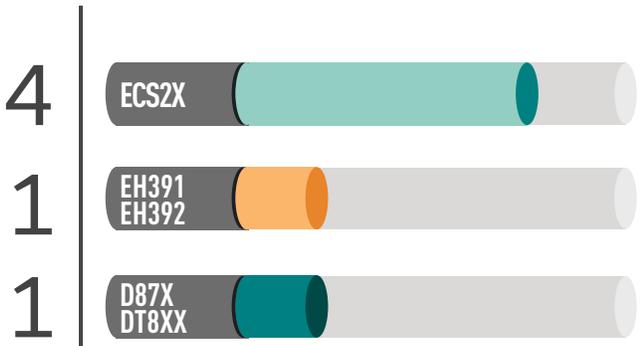
A-Chromatic sealers are premium-quality, wet-on-wet sealers specifically for use under *Envirobase High Performance* waterborne basecoat. Fast drying with superior flow and excellent color holdout, they are available in black, gray and white, which can be intermixed for a variety of shades.



A-Chromatic sealers are available in both compliant and National Rule versions. ECS2X series sealers are 2.1 VOC compliant and ECS6X series sealers have a VOC of 2.8 when mixed with compliant thinners.

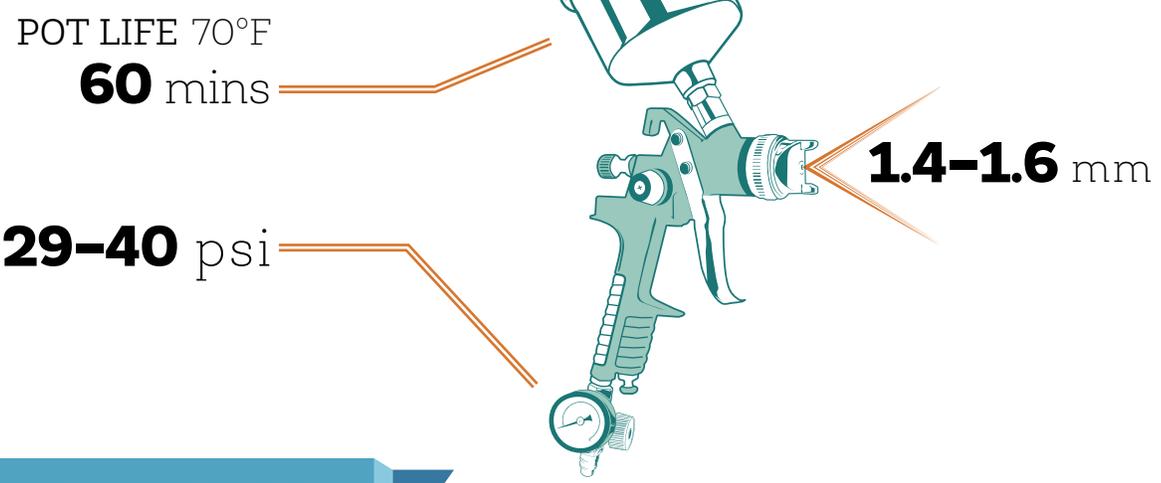
For more information on this product, refer to **EB-200**.

## MIXING RATIO

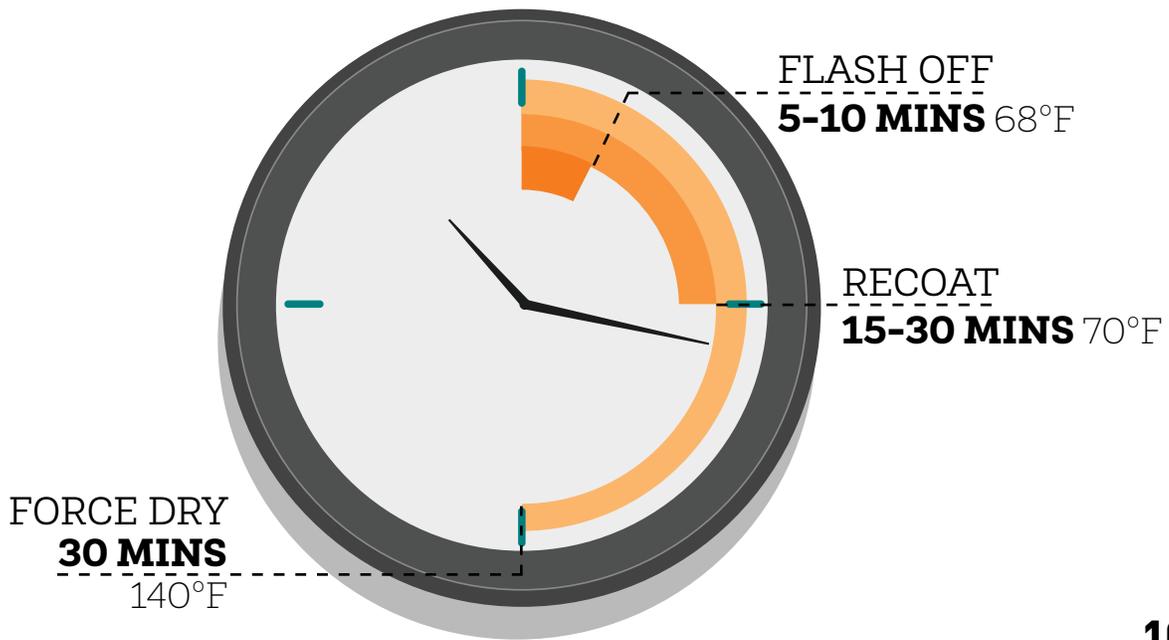


National Rule; see tech sheets for compliant and Canada.

## GUN SETUP



## DRYING TIMES



**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1710

# BASECOAT COLOR APPLICATION— WATERBORNE

**1** Verify color by preparing a sprayout card following **PD-1631**, Identify Color Formula, and confirm the number of coats required to achieve color match and the correct G-shade of primer and/or sealer.

---

**2** Ensure that all panels to be painted have been prepared according to directions in **PD-1590**, Sanding Primer Surfer.

---

**3** Apply **waterborne basecoat** color (reference PDS for more information).

- a.** Apply the number of coverage coats as indicated by the sprayout card. Flash-off with air amplifiers until uniformly matte in appearance.
- b.** Apply 1-2 control coats (reducing PSI, using an 85-90% overlap and increasing gun distance from panel) over the entire basecoat area.

---

**4** Flash-off the waterborne basecoat color using air movement equipment to achieve a uniformly matted appearance.  
Use this time to mix the clearcoat and prepare the spray gun for the clearcoat application.

---

**IMPORTANT**—Waterborne basecoat color can be de-nibbed between coats by **DRY** sanding with P600-800 grit sandpaper. **DO NOT USE WET/ DRY SANDPAPER.** Two coats of color should be applied over sanded areas when spraying metallic or pearl colors to hide any sand scratches. **Do not use solvent or water as a sanding lubricant.**

---

**IMPORTANT**—Waterborne basecoat colors cannot be wiped down at any time with a solvent or waterborne cleaner.  
Only use tack rags made for waterborne basecoats to clean before applying clearcoat.

---

**5** Follow with the clearcoat application process as outlined in **PD-1730**.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1712

# APPLYING MULTIPLE BASECOAT COLORS—WATERBORNE

**1** Verify colors by preparing sprayout cards, referring to **PD-1631** Identify Color Formula. Confirm the number of coats required to achieve color matches and the correct G-shade of primer surfacer and/or sealer.

---

**2** Apply waterborne basecoat color. Refer to **PD-1710** for more information.

---

**3** **Two-tones, custom painting, and multiple colors:**  
Use **T490 / VWM5556** as an intercoat clear to protect basecoat by mixing as engine bay. Reference Internal Repair / Engine Bay PDS for more information.  
Any waterborne tint, color or blending clear can be converted this way.

---

**4** Spray **2 – 3 wet coats**, force dry **60 minutes** at **120°** or air dry overnight at **70°**. Sand dry with **P800** grit dry or with light gray scuff pad.

---

**5** Tape over **T490 / VWM5556** clear and spray additional waterborne colors. The converted clear protects basecoat color if any paint blows through. It can easily be wiped off with solvent or waterborne cleaners without damaging the basecoat color underneath.

---

**6** Waterborne basecoat color can be clearcoated 15 minutes after the last coat has dried. For better results, let dry overnight but not longer than 24 hours.  
**NOTE**—If a wait longer than 24 hours is possible, **T490 / VWM5556** should be used and then sanded before clearcoat application.

---

**7** Since **T490 / VWM5556** was converted to Engine Bay, it can be wiped with cleaners after drying.

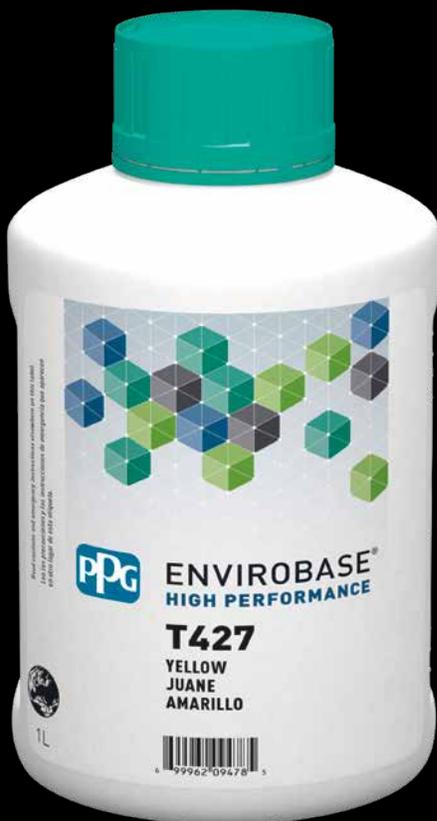
---

**8** Follow with the clearcoat application process described in **PD-1730**.

# ENVIROBASE HIGH PERFORMANCE

## Waterborne Basecoat

The *Envirobase High Performance* paint system is the premier waterborne system in North America. Keeping pace with the latest color trends and effects, this advanced basecoat is the best technology available for accurately reproducing solid, metallic or mica paint finishes of virtually all OEM manufacturers worldwide.



Waterborne basecoat differs from solventborne, and likely will require modifications to your existing equipment, such as a dedicated waterborne spray gun. The drying process also differs in that flash times are enhanced by creating turbulent air flow across the wet waterborne basecoat surface.

For more information on this product, refer to **EB-143**.

## MIXING RATIO

1  
10-20%  
BY VOLUME\*



23-28 sec **VISCOSITY**

\*REDUCTION CALCULATION  
DEPENDENT UPON WHETHER  
PAINT IS SOLID OR METALLIC.

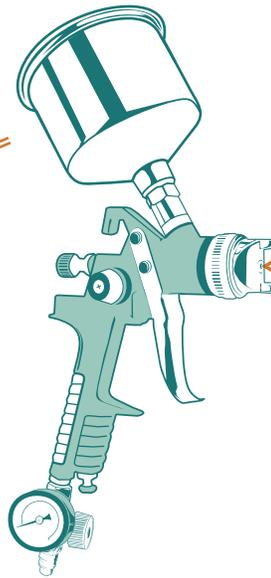
## GUN SETUP

POT LIFE 70°F

**2 hours**

IF ACTIVATED

**25-31** psi



**1.2-1.4** mm

## DRYING TIMES

RECOAT **2 MINS** AIR DRY

TOPCOAT **15 MINS** 70°F

USE PROPER  
AIR DRYING  
EQUIPMENT



**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1715

# BASECOAT COLOR APPLICATION—SOLVENT

- 1** Verify color by preparing a sprayout card following **PD-1631**, Identify Color Formula to confirm the correct number of coats needed to achieve color match and the correct G-shade of primer surfacer and/or sealer.

---

- 2** Ensure that all panels to be painted have been prepared according to process document **PD-1590**, Sanding Primer Surfacer.

---

- 3** Apply solvent basecoat color (reference PDS for more information).
  - a.** Apply the number of coats as indicated by the sprayout card. Follow PDS directions regarding flash time and other application guidelines.
  - b.** Basecoat activator may be added to improve durability and repairability characteristics. Use should be consistent throughout basecoat application.
  - c.** Once color is achieved, color blenders can be used in final coats if needed for metallic control.

---

**IMPORTANT**—Solvent basecoat color can be de-nibbed between coats by sanding with **P600-P800** grit sandpaper. Use the appropriate PPG cleaner as a sanding lubricant if needed. When spraying metallic or pearl colors, 2 coats of color should be applied over sanded areas to hide any sand scratches.

---

- 4** Follow with the clearcoat application process as outlined in **PD-1730**.

# SOLVENT BASECOAT ADDITIONAL TIPS

## REDUCER SELECTION

Reducers in solvent basecoat should be selected according to the temperature of the environment in which the vehicle is sprayed. Selecting slower solvents will result in a smoother finish, better metallic orientation and better drying of the basecoat. Faster solvents will flash off the surface too quickly and may lead to mottling, poor drying characteristics for taping and die-back in clearcoats. Be sure to check the temperature ranges for the reducers available with the solvent basecoat you're using.

## BASECOAT TIMING

Basecoat can be cleared in **20 minutes** air dry for **3 coats**.

REMEMBER with more coats of basecoat, longer dry times will yield better gloss and less chance of die-back in the clearcoat. An overnight dry will provide better results when more than 3 coats of base are applied.

If you apply **2 wet coats** of basecoat blender before 24 hours expire, you can extend clearcoat time another 24 hours.

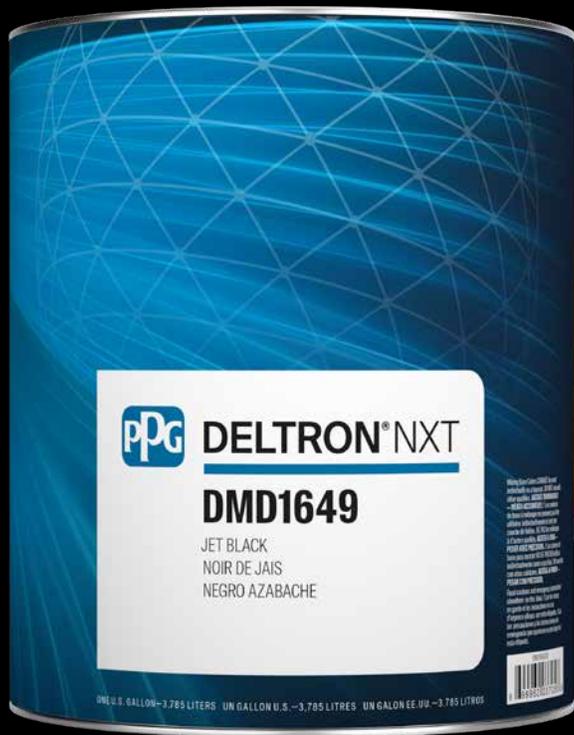
Color blenders can be used as a **inter-coat clear** for **two-tones, custom painting and multiple colors**. This will protect the basecoat color from tape marking and paint blow through, as well as protect any artwork.

When adding **basecoat activator** to any color containing dyes, all basecoats must be applied in **1 hour** at **70 degrees**, otherwise **lifting** can occur.

*Deltron NXT*

# BASECOAT

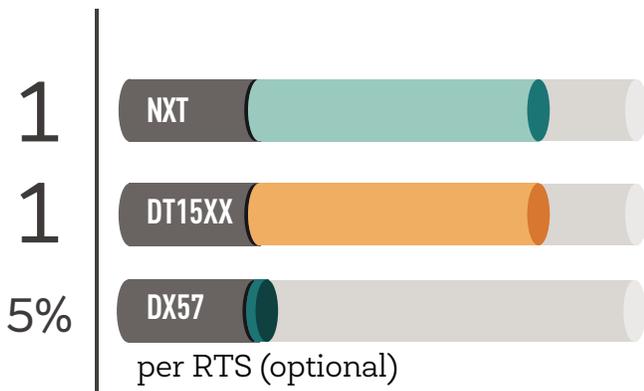
PPG's *Deltron NXT* Basecoat is a state-of-the-art, premium quality basecoat system. *Deltron NXT* has been a longtime paint of choice of today's leading custom painters and builders.



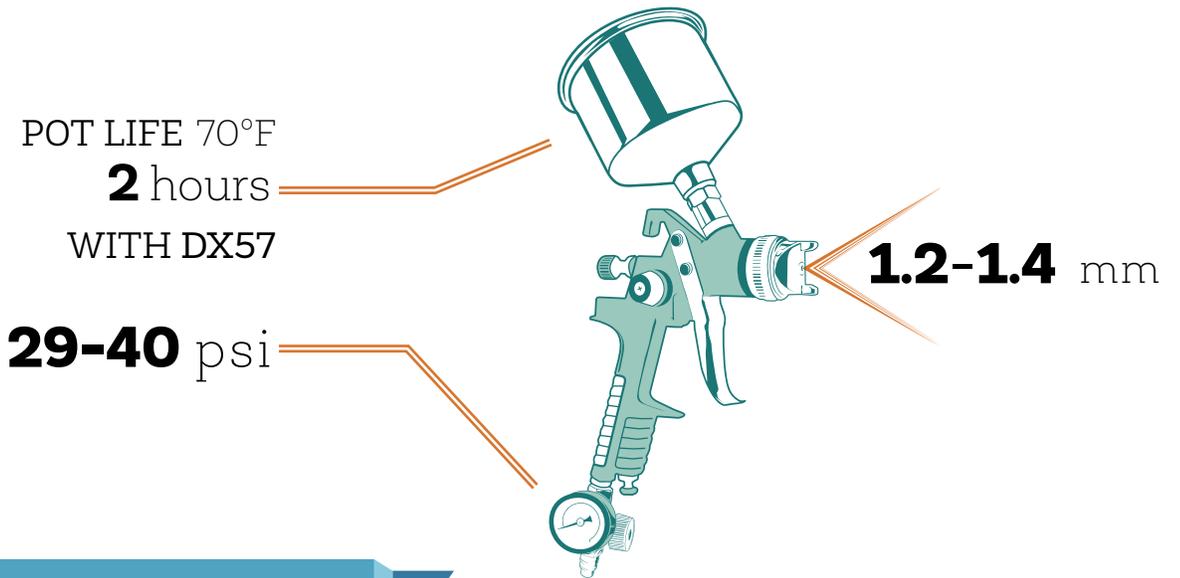
*Deltron NXT* basecoats offer excellent color match and coverage, while maintaining outstanding adhesion to PPG undercoats. With a wide variety of colors and special effects available, *Deltron NXT* basecoats are an excellent choice for that one-off color that will leave everyone's jaws dropped at your next cruise-in event.

For more information on this product, refer to **P-251**.

## MIXING RATIO

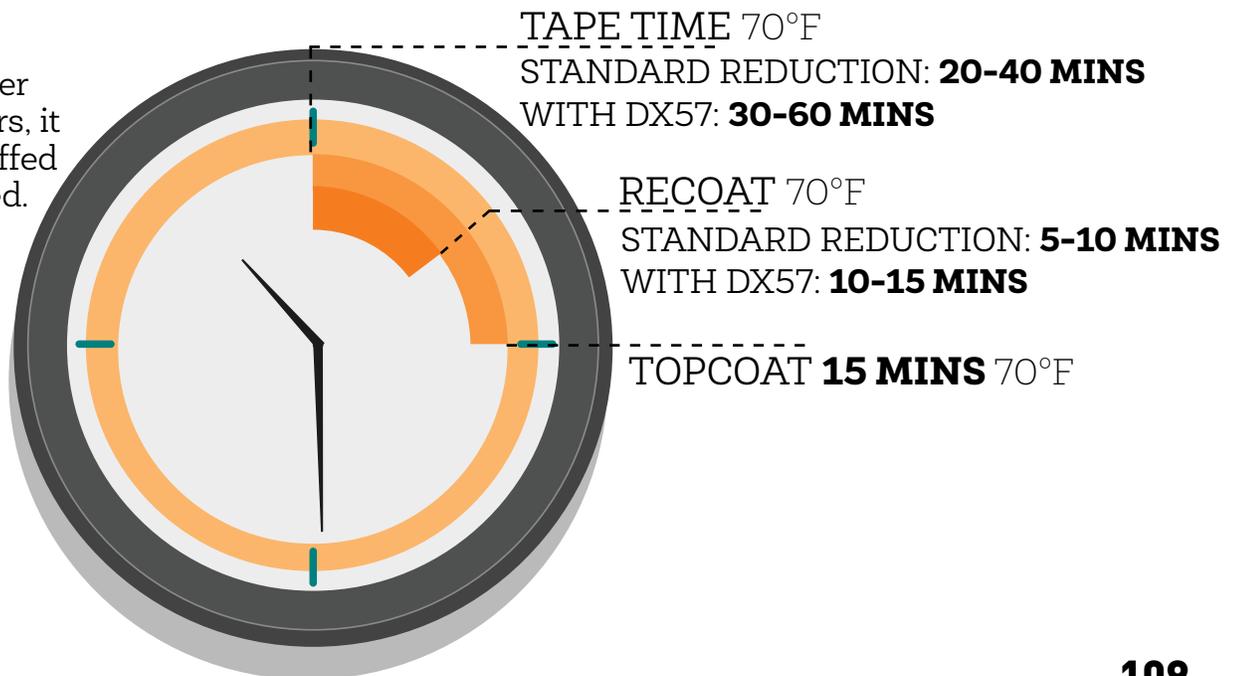


## GUN SETUP



## DRYING TIMES

If dried longer than 24 hours, it must be scuffed and reapplied.



# SINGLE-STAGE COLOR OVERVIEW

Automotive single-stage paint has been around since the beginning of the automotive era. For many years, it was the best available paint technology. Today's urethane single-stage colors are more attractive, more durable, and longer lasting than older technologies.

**Single-stage** paint is often preferred for the **blackest black** paint jobs. **Reds, whites** and many other **solid colors** are popular choices. Single-stage metallic colors can be tricky to spray since it can be difficult to achieve good gloss and metallic control.

**Single-stage** paint should be sprayed in **wet coats**—appearing like the finished appearance you desire.

Single-stage colors perform two roles—color and gloss. Their formulas have more resin than basecoat colors. Occasionally, single-stage coats do not cover as quickly as a basecoat color might.



**Single-stage** colors do **NOT** require clearcoat, however when **clearcoat** is added to the **color** or applied over the color, buffing becomes much easier.

## **USE OF CLEARCOAT**

### **OPTION 1:**

Once color coverage has been achieved as indicated by your sprayout card, you're ready for a compatible clearcoat that uses the same hardeners (refer to Single-Stage PDS). Reduce the clearcoat per its PDS recommended RTS mix, and add it to the RTS Single-Stage color at a 1:1 ratio. Apply 2-3 wet coats. The finish will polish much better and will not affect the color.

Combine clear with single-stage color for the final two coats. This is the preferred method, and best for polishing.

### **OPTION 2:**

Once color coverage has been achieved, allow proper dry time and then apply two wet coats of a compatible clearcoat. This may change color slightly and require more work than applying a basecoat/clearcoat with the same basic results.

Single-stage color can be clearcoated. Apply clearcoat within 24 hours of single-stage application.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1720

# SINGLE-STAGE COLOR APPLICATION

- 1** Single-Stage colors are designed to be applied over properly cleaned and sanded 2K primer surfacers or 2K primer sealers. Finish sand primer surfacer with **P400-600** grit sandpaper. Sealers can be sanded with **P600** grit sandpaper if desired or topcoated wet-on-wet. Select the proper **G-shade** undercoat to achieve proper color match and coverage.

---

- 2** Single-Stage color has several options for mixing. Typically, general-purpose hardeners dry quicker and are easier to polish. Mar-resistant hardeners are slower but will provide the best gloss before polishing.

---

- 3** Single-Stage is sprayed in wet coats similar to a clearcoat application. Follow the **PDS** recommendations for flash, air dry and bake times.  
Apply **2-3 coats** to achieve proper coverage and hiding. Apply 2 additional coats if you plan to flat sand and polish, allowing adequate flash time between coats.

---

- 4** Single-Stage color can also be sanded after 3 coats have been applied. After a minimum eight hours dry time, flat sand with **P600** grit sandpaper.
  - a.** Apply 2 more coats of color.
  - OR**
  - b.** Apply 1 coat of color, followed by 2 coats of **color/clearcoat** mix (see Option 2 below).

---

- 5** **OPTION #1:** Combine clear with single-stage color for the final two coats. This is the preferred method, and best for polishing.  
**OPTION #2:** Single-stage color can be clearcoated. Apply clearcoat within 24 hours of single-stage application.  
See single-stage PDS for recommended clears and mix ratios.

---

- 6** Single-stage usually can be polished **24** hours after application. However it will polish best when Clearcoat is added to the single-stage color and allowed to dry for 7 days. Single-stage can be sanded with **P800** grit sandpaper after **8** hours dry time. Let the remaining solvent evaporate before polishing.



# DCC

## Deltron NXT Acrylic Urethane

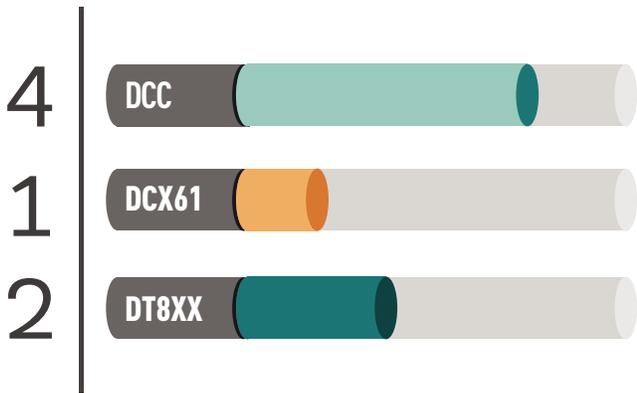
DCC is a premium, two-component, single-stage topcoat designed to offer exceptional gloss and color match.



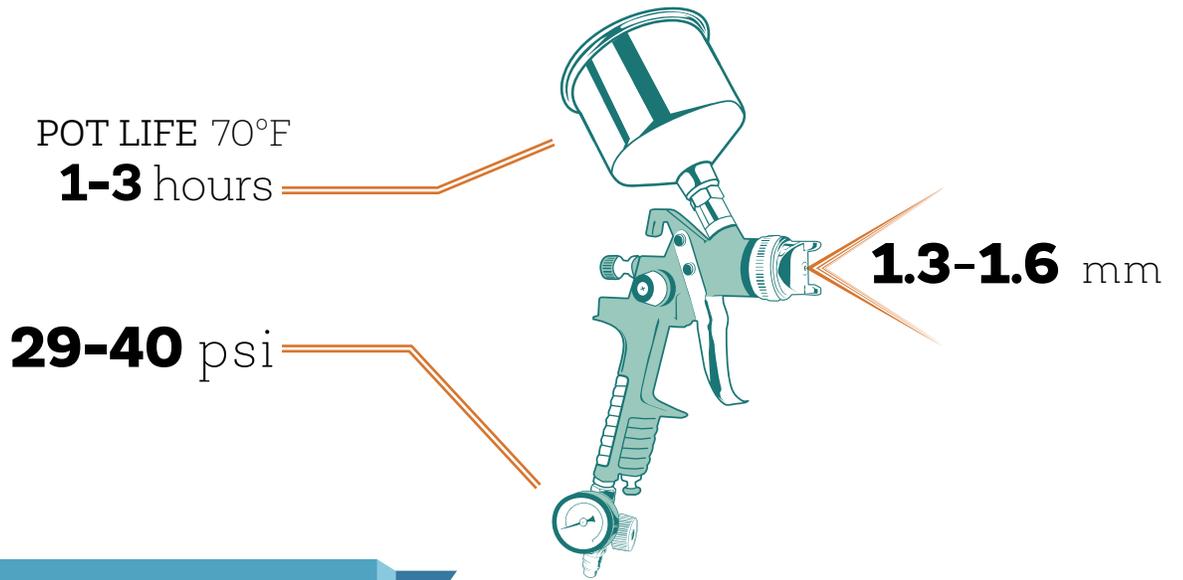
DCC is an excellent choice for any restoration project that involves a solid color. Since this direct gloss topcoat doesn't need to be clearcoated, the color will have a more intense hue. However, if it is decided to "flow coat" the single-stage color will still remain vibrant and have much greater strength and mar resistance.

For more information on this product, refer to **P-168**.

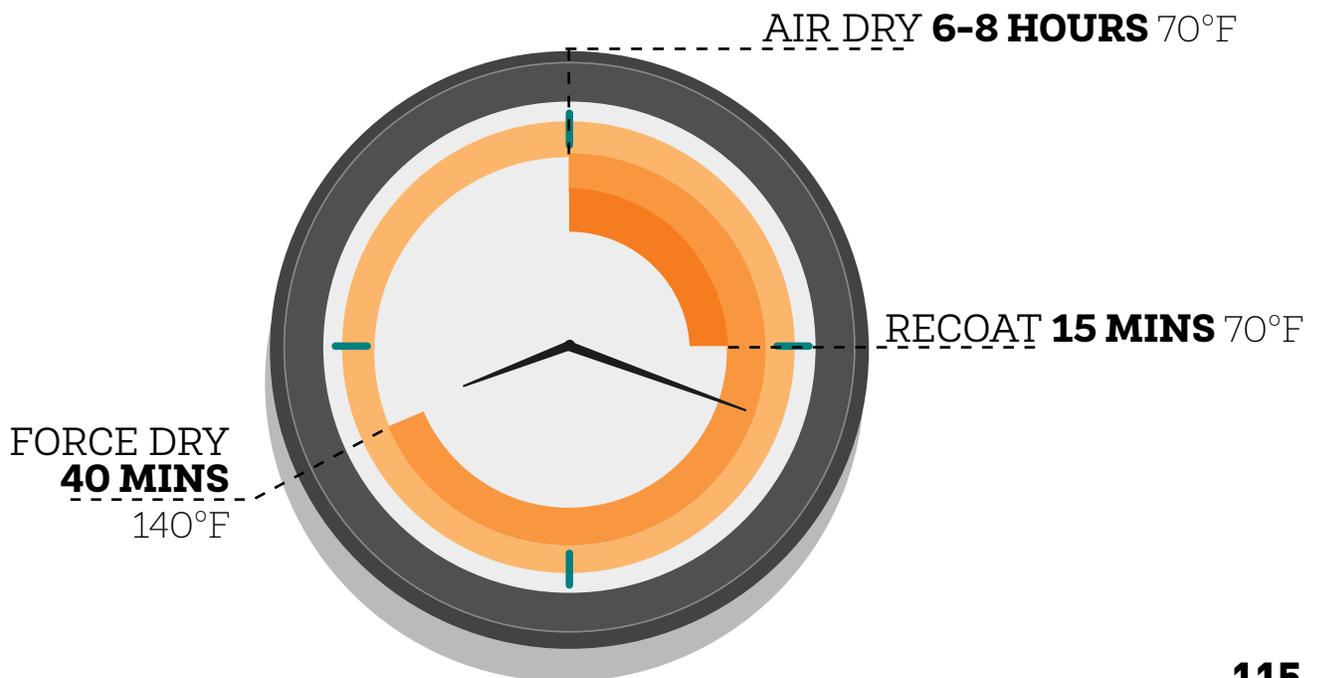
## MIXING RATIO



## GUN SETUP



## DRYING TIMES

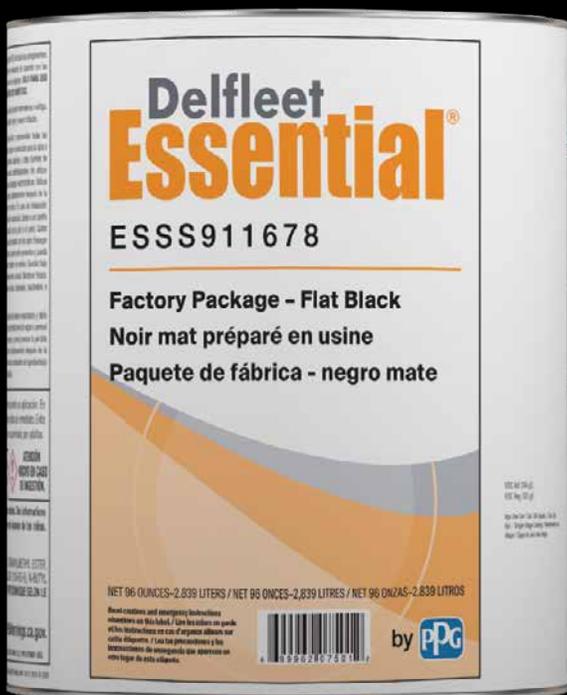


DEL FLEET ESSENTIAL®

# ESSS911678

## Factory Package Flat Black

Factory Package Flat Black is a low gloss, single-stage polyurethane enamel offering a smooth, satin, deep black finish popular with today's custom painters.



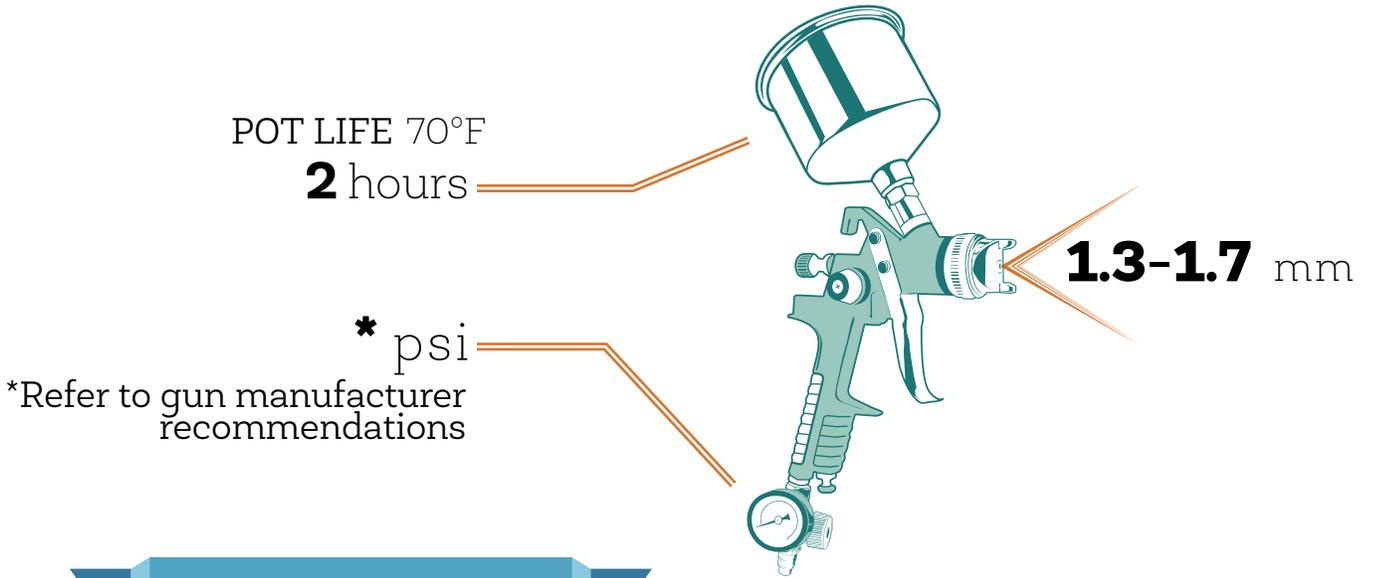
Factory Package Flat Black is VOC compliant for all regions. Eliminating the need to mix a color formula, this premixed product saves time and improves productivity.

For more information on this product, refer to **DFE-20**.

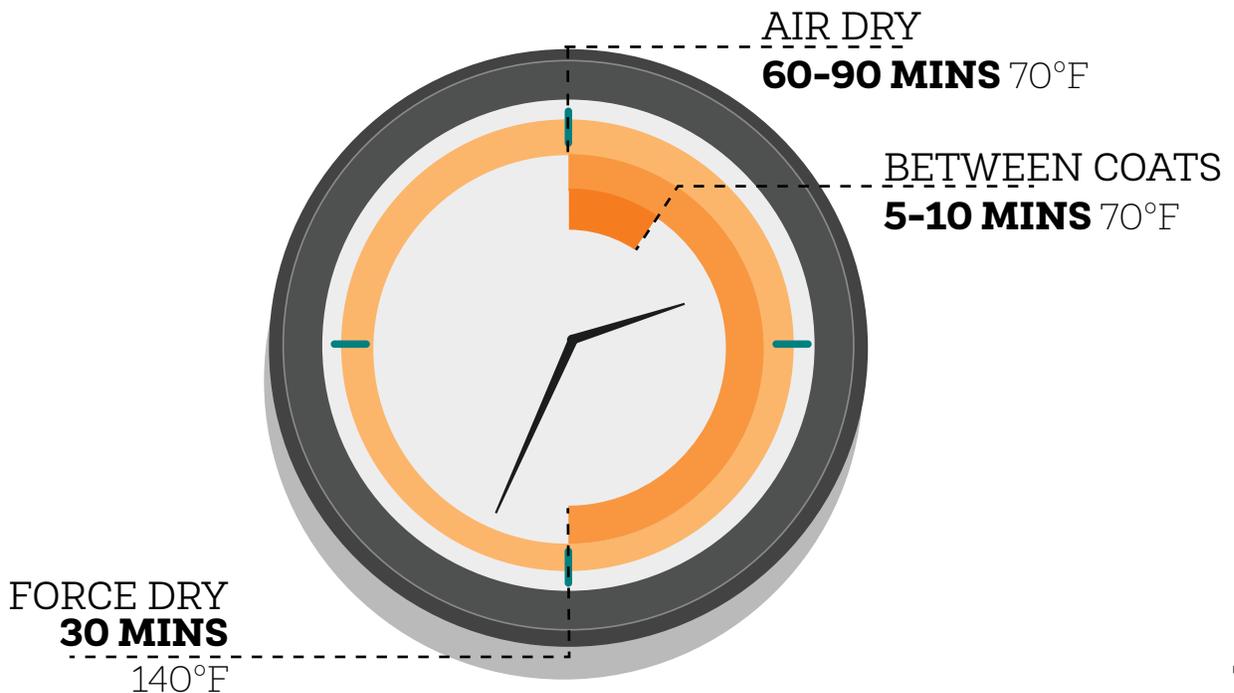
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



# CLEARCOAT OVERVIEW

Clearcoat technology has come a long way since the late '70s at the introductory of basecoat clearcoat. The benefits of a clearcoat layer being applied over a color layer are many. Clearcoat improves gloss, distinction of image, durability and protection from harmful UV radiation.

For the purposes of this discussion, clearcoats fall into three categories:

Midcoat clears	PD-1725
General Clearcoats	PD-1730
Specialty clearcoats	PD-1735

Midcoat clears can be thought of as clear basecoat. It allows for the use of **effect pigments such as pearls and dyes** to be used to enhance the overall impact of the finished product.

General clearcoats are the final piece of the basecoat clearcoat puzzle. **They provide the final protection and gloss.**

Specialty clearcoats offer unique benefits for the job at hand. Clearcoats that offer a **matte finish** fall under this category.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1725

# MIDCOAT CLEAR APPLICATION

Midcoat clears are products specifically designed to be used as a tool to create custom candy or pearl layers over waterborne or solventborne basecoat. Allows painters to create multiple color layers using special-effect pigments and dyes and can also be used as a lockdown clear to isolate graphics, especially when the custom finish is performed over an extended period of time. For durability and appearance, midcoat clears must be clearcoated with a general clearcoat. Midcoat clears are not intended for use as a stand-alone clearcoat.

- 
- 1** Allow basecoat to flash an appropriate amount of time before applying midcoat layers. Ensure waterborne basecoat is thoroughly dehydrated before applying the midcoat layer.

**NOTE:** The preparation of a midcoat letdown panel is recommended prior to applying midcoat layers to your project. Refer to **PD-1660** for Letdown Panel preparation instructions.

- 
- 2** Apply 2-4 medium coats until the desired effect is achieved, allowing sufficient flashtime between coats.

As a lockdown clear, apply 1-2 medium coats, allowing sufficient flashtime between coats.

- 
- 3** The midcoat layer must be clearcoated within 24 hours. After 24 hours, a light scuff and another midcoat layer must be applied before clearcoat.

- 
- 4** Proceed with Clearcoat Application Procedures **PD-1730** or **PD-1735**.

# VWM500

## VIBRANCE COLLECTION® Custom Midcoat

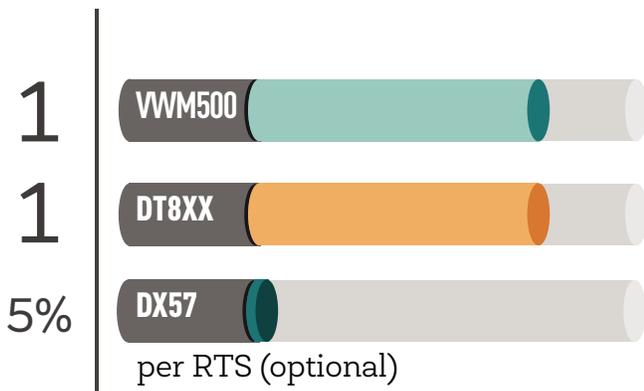
VWM500 Custom Midcoat allows painters to create multiple color layers over waterborne basecoat using *Vibrance Collection* special-effect pigments and dyes. It can also be used as a lockdown clear to isolate graphics.



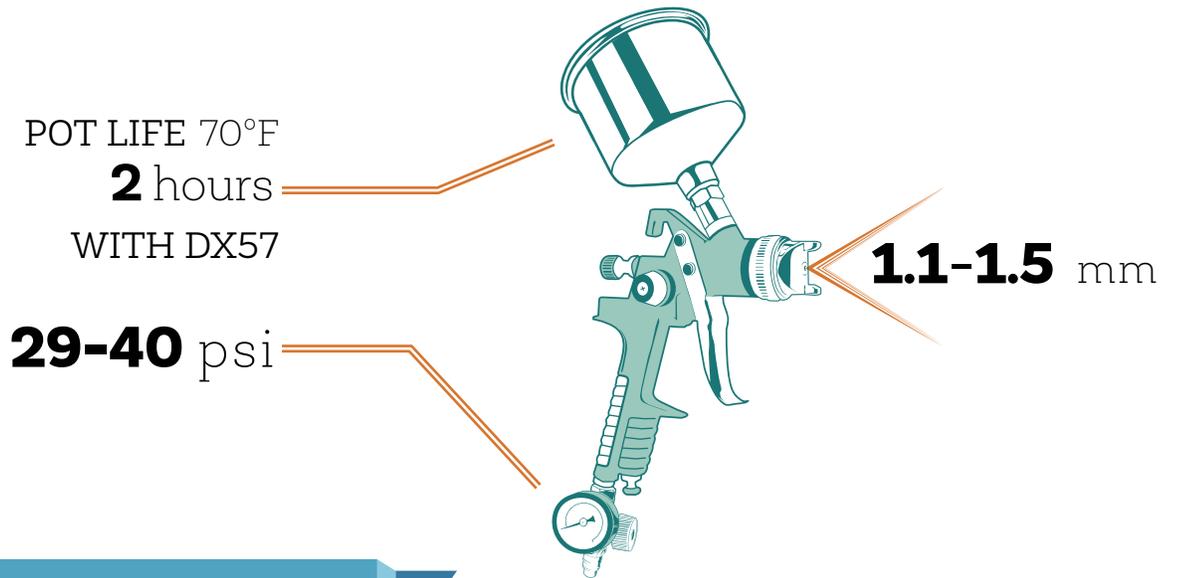
VWM500 is fast drying, easy to apply, and is an essential tool for having full range, VOC-compliant capability in creating show-stopping, eye-catching custom finishes.

For more information on this product, refer to **VB-22** and **VB22NR**.

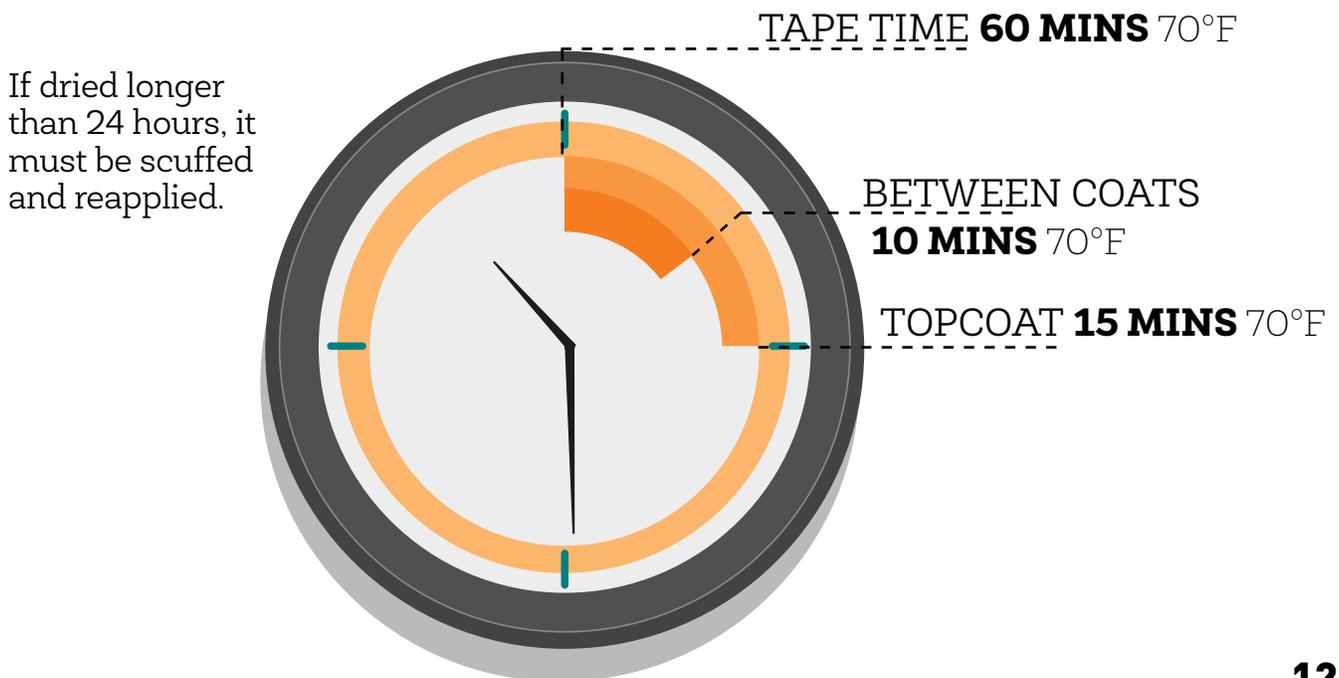
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



# VWM5556

## VIBRANCE COLLECTION Waterborne Midcoat

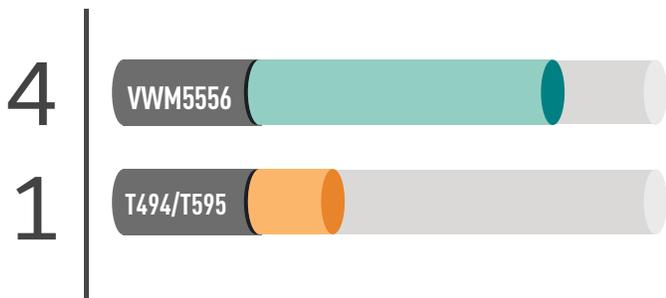
VWM5556 Waterborne Midcoat is specifically designed for use with waterborne basecoat. It provides a midcoat layer that can be used to isolate graphics. It can be tinted with waterborne basecoat, powdered pearls or specialty flakes to create custom colors.



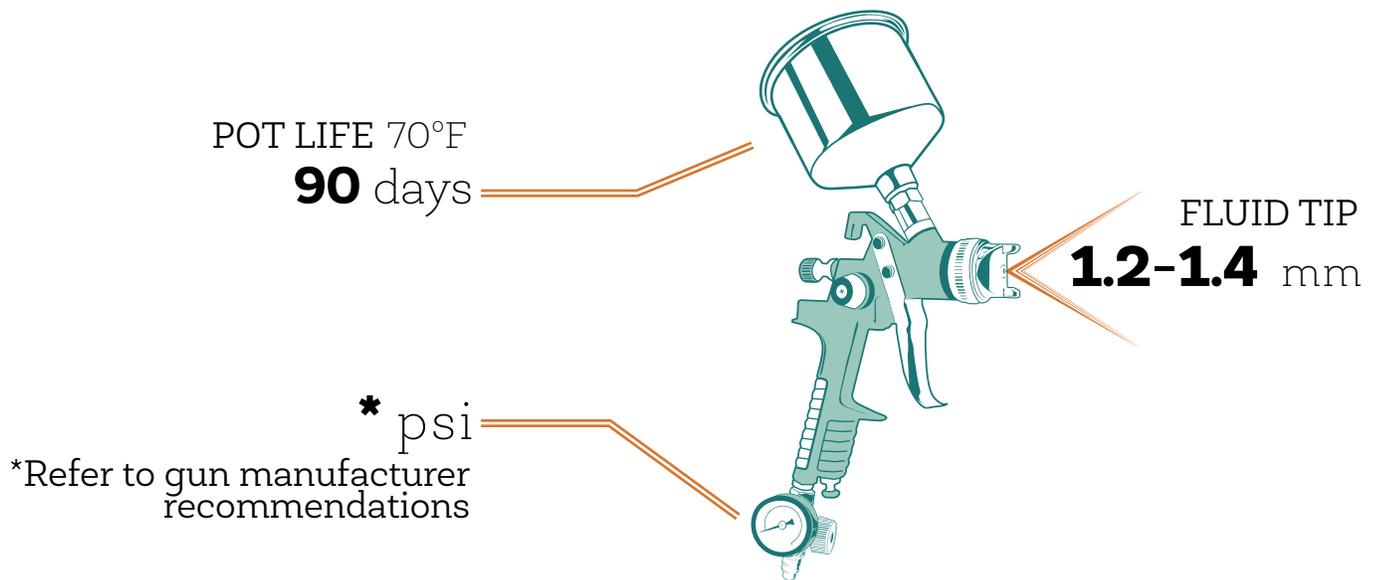
VWM5556 is ideal for taking advantage of *Vibrance Collection* special effects options and create VOC-compliant, waterborne custom finishes.

For more information on this product, refer to **VB-15**.

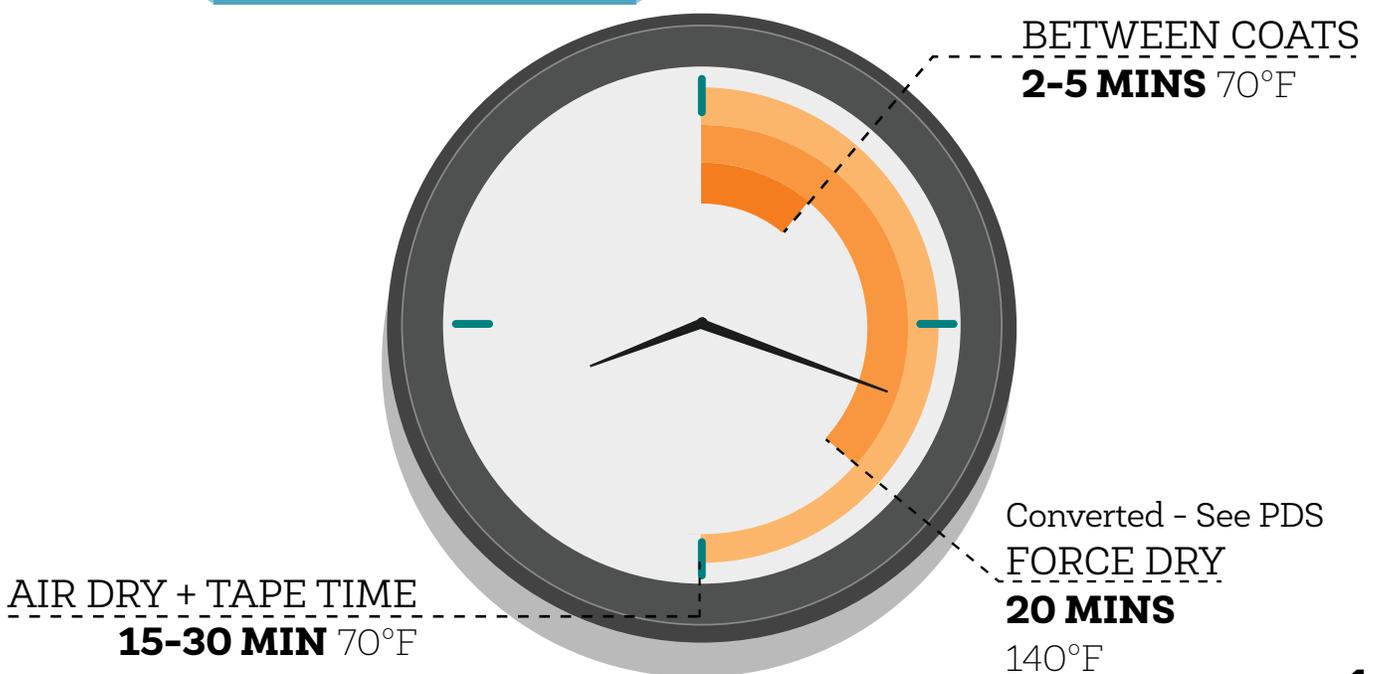
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



# Deltron NXT DBC500 Color Blender

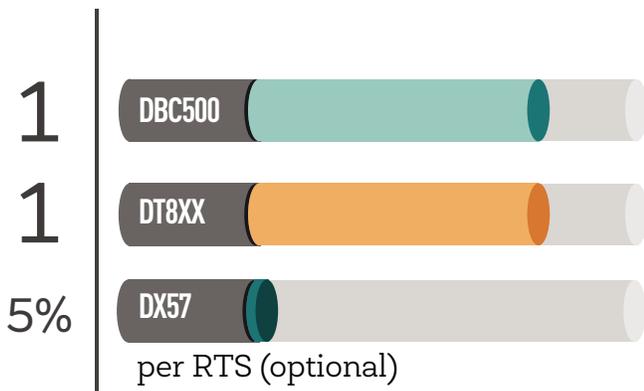
DBC500 is a solventborne midcoat designed to be used specifically with *Deltron NXT* basecoat. It can be tinted with *Deltron NXT* color, tri-coat pearls and light or hard-to-control metallics.



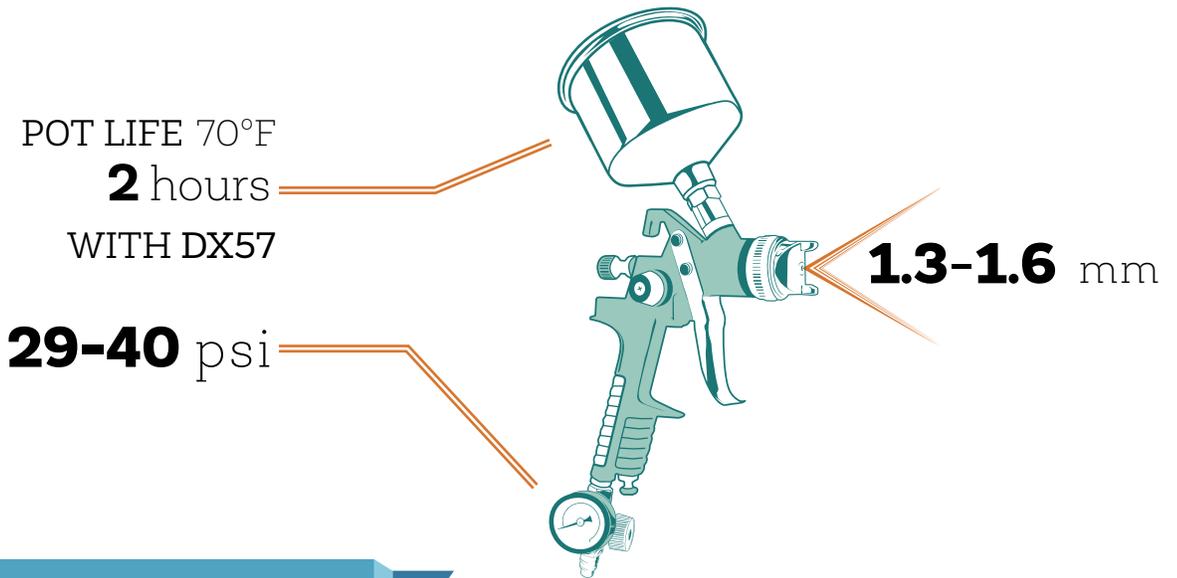
DBC500 may be used as a fast-drying cut-in clear for *Deltron NXT* color in areas that are not exposed to direct sunlight. All exposed areas must be clearcoated.

For more information on this product, refer to **P-176**.

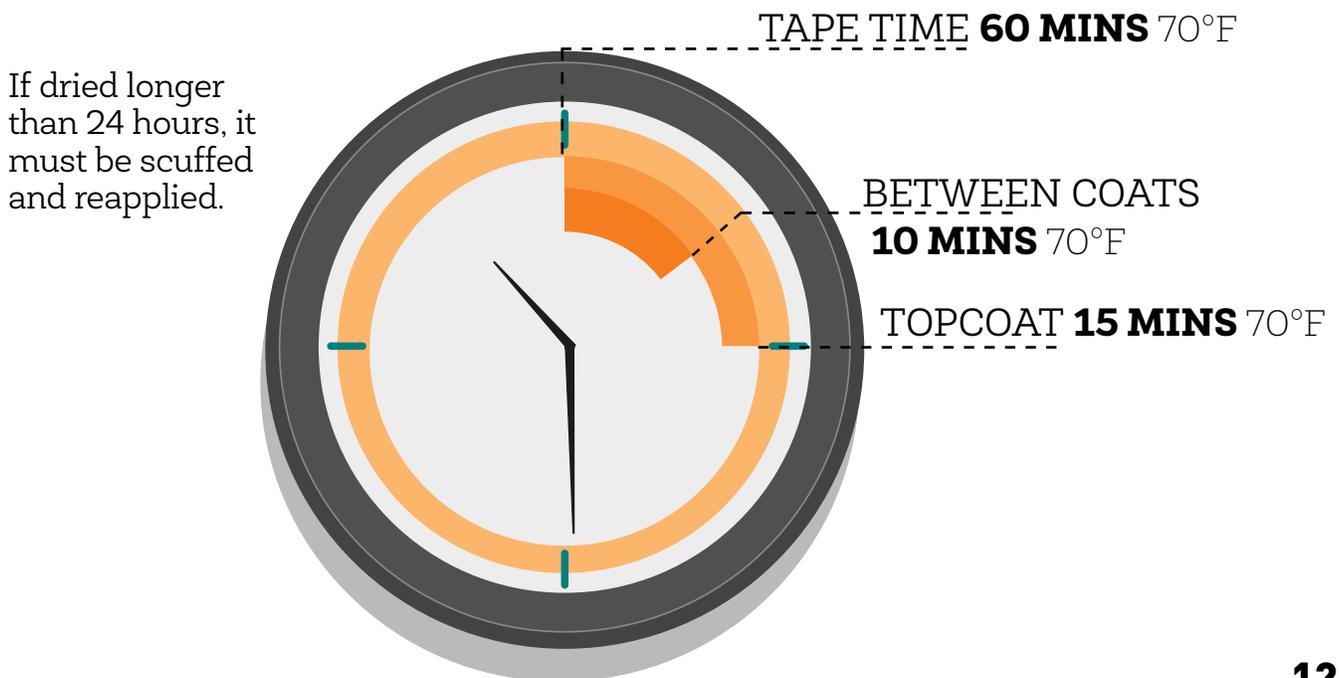
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1730

# CLEARCOAT APPLICATION

**IMPORTANT** Custom and restoration shops often apply a minimum of 4-5 coats of clear, while collision repair shops typically apply only 2-3 coats. Custom jobs with multiple colors may require the clearcoat process to be repeated 3 times or more to level out the paint edges.

Avoid applying 5 or more heavy coats of clear at one time. The dry time will be considerably slower. See Slow Coat Process, Step 3, for the proper steps when applying a large number of coats.

Reducer and hardener selections play a critical role. The slower choices will lead to better results.

---

**1** Allow basecoat to flash an appropriate amount of time before beginning the clearcoat application process. This provides more time for the basecoat reducer to evaporate and minimizes the risk that the reducer will get trapped under the clearcoat and create hazing or dieback.

---

**2** Apply 2-3 wet coats of clearcoat to the entire vehicle according to the directions found in the PDS. Allow proper flash time between coats. Each coat should appear like a final coat. Too light of an application between coats may lead to lifting. Waiting too long between coats may lead to increased texture (orange peel).

---

**3 FLOW COAT PROCESS:** There are occasions where it is necessary to apply multiple layers of clear. Burying graphics is one example. It's recommended that desired film build be achieved by multiple applications rather than by multiple coats in a single application.

- 1)** Apply 3-4 coats of clear, each appearing like a final coat. **Dry overnight.**
- 2)** Flat sand with **P500-600** grit sandpaper. Use caution on edges and peaks to avoid cut-throughs.
- 3)** Blow away sanding dust and clean with an appropriate PPG cleaner.
- 4)** Apply an additional 2 coats of the same clear.
- 5)** Dry overnight.
- 6)** If desired clear thickness has been achieved, **proceed to #4** below. **Steps 5-6** may be repeated again if additional clearcoat thickness is needed.

---

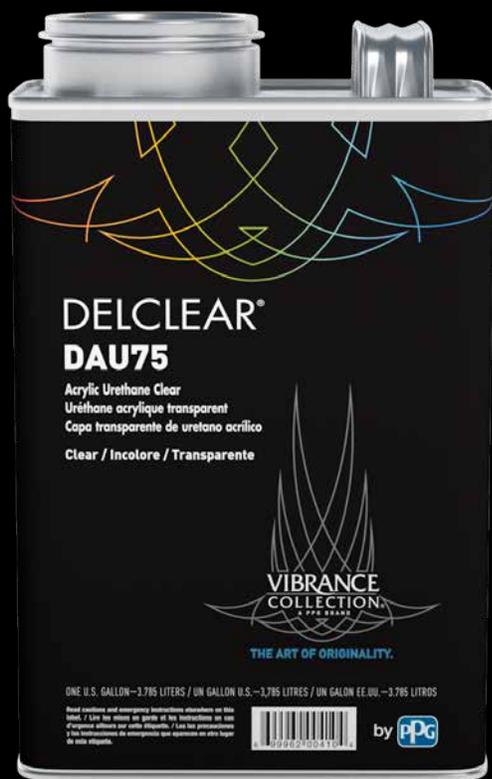
**4** Proceed with Finished Paint Procedures:  
Removing Defects **PD-0800M**  
Buffing and Polishing **PD-1805**  
Final Cleaning and Detail **PD-0810M**



# DAU75

## DELCLEAR® Acrylic Urethane Clear

Introduced into the market in 1975, DAU75 became an industry leader because of its unique ability to be applied over a variety of substrates. To this day DAU75 is the only PPG Refinish clearcoat that offers recommendations for application over various metals and wood, making it a perfect choice for specialty finishes.

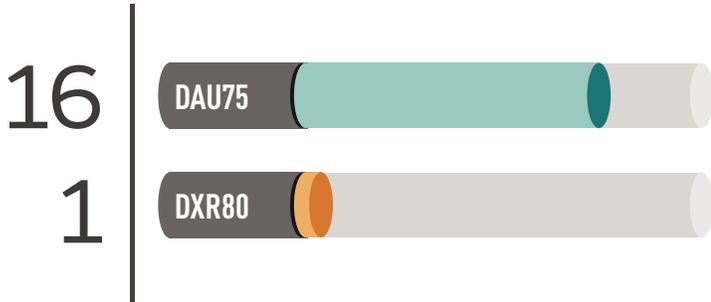


DAU75 may be applied over:

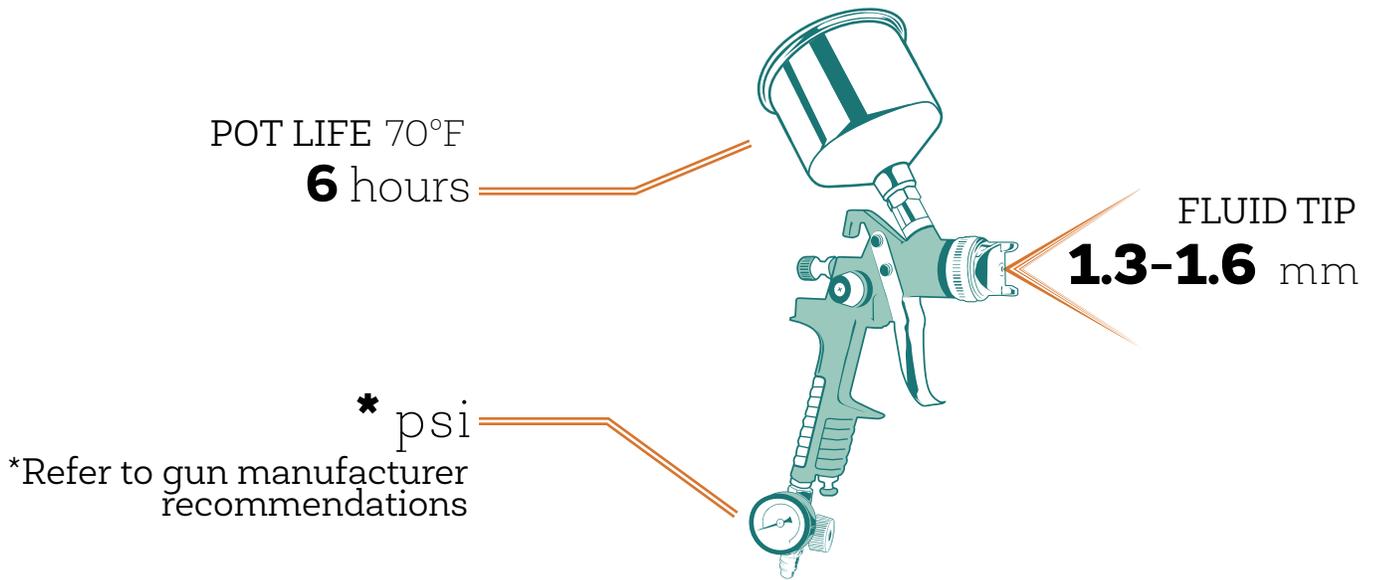
- Properly treated bare aluminum (use metal treatments per OC-36)
- Properly treated bare brass (use metal treatments per OC-36)
- Properly treated bare copper (use metal treatments per OC-36)
- Wood

For more information on this product, refer to **VB-26**.

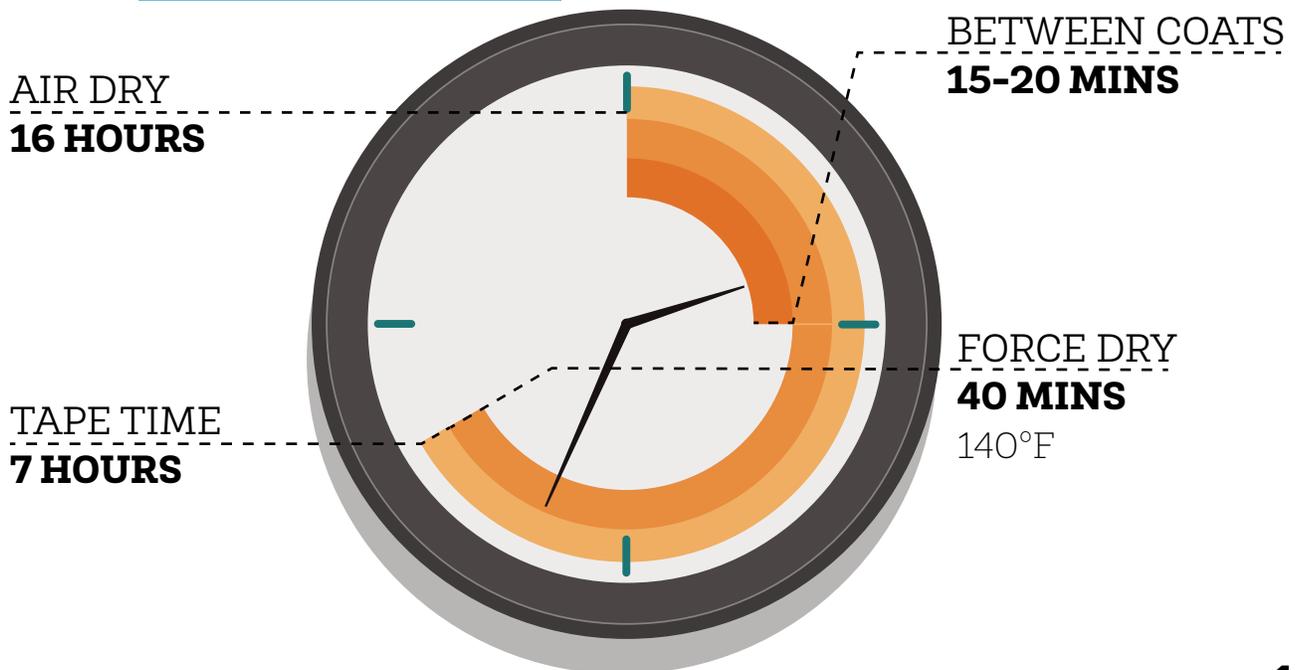
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



# VC5700

## DITZLER® Custom Clear

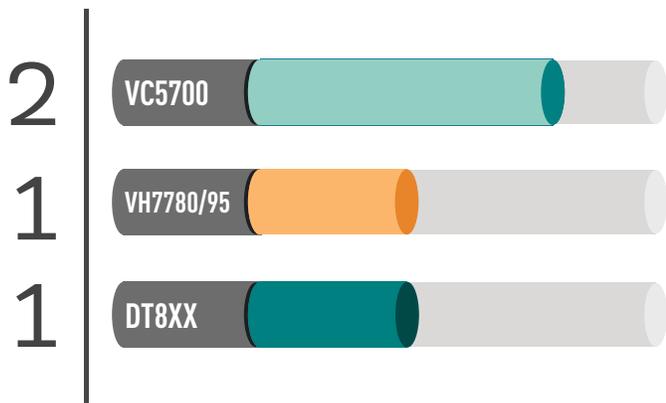
*Ditzler Custom Clear is a high build, easy-to-apply urethane clearcoat that provides a deep, high gloss appearance perfect for a show quality finish.*



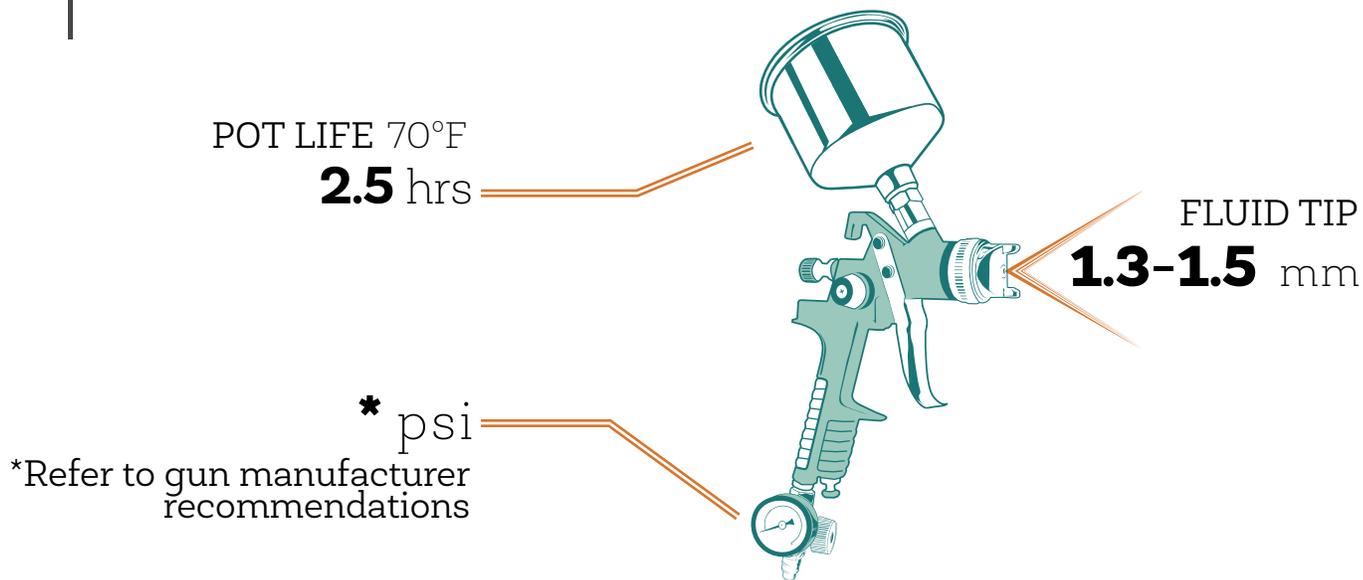
VC5700 is specifically designed for custom shops. VC5700 fills tape lines and graphics, has great vertical hold and is very easy to polish. It can also be used as a lockdown clear to protect and level graphics and provide a layer to sand prior to flow coating.

For more information on this product, refer to **VB-24** and **VB24NR**.

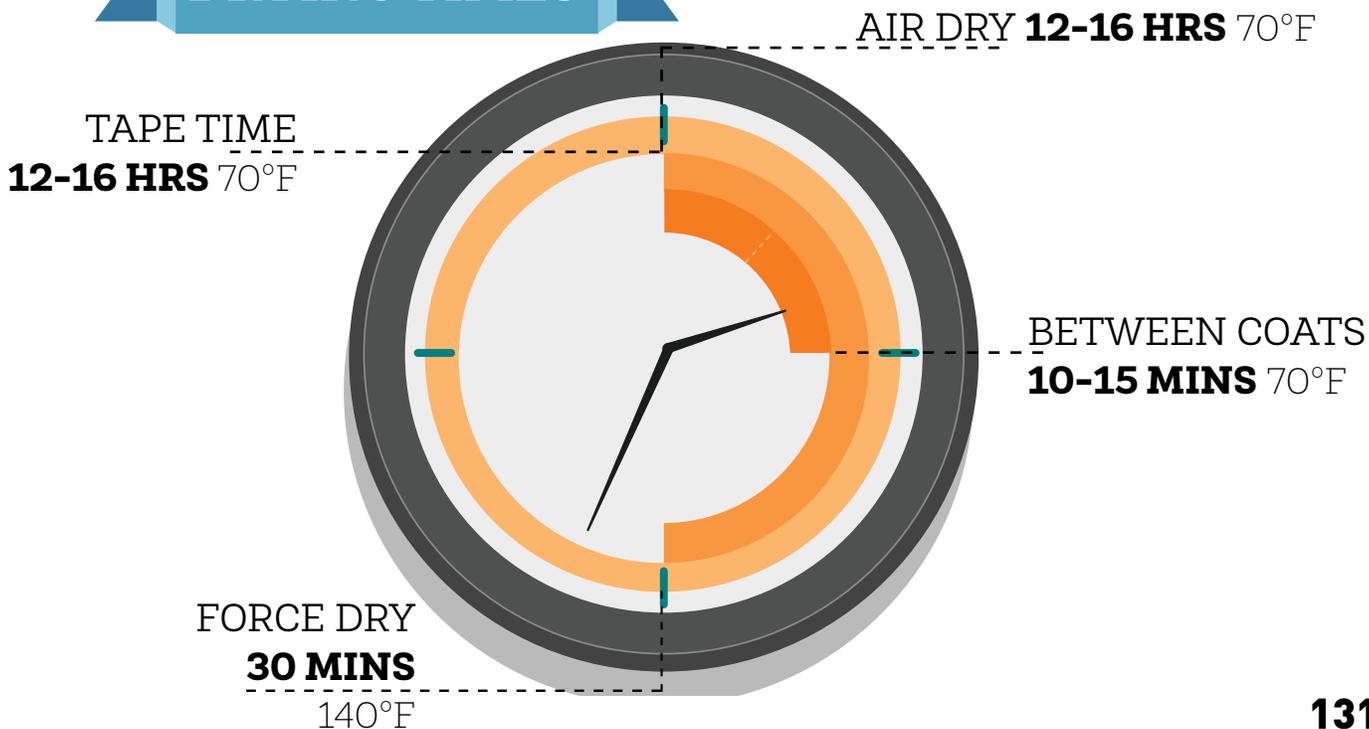
## MIXING RATIO



## GUN SETUP



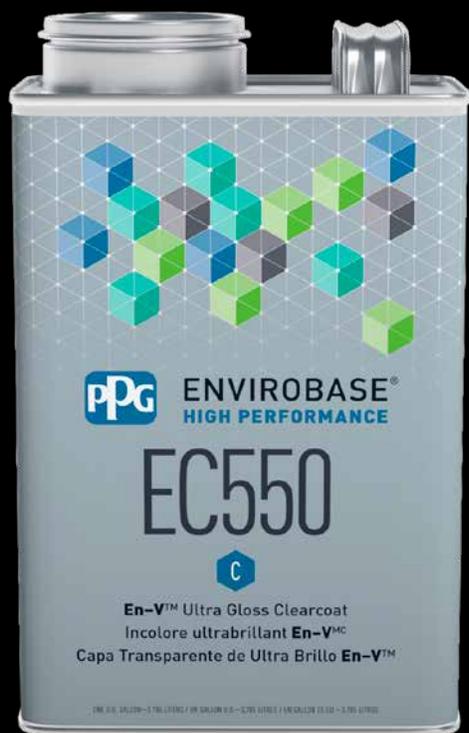
## DRYING TIMES



# EC550

## En-V<sup>®</sup> Ultra Gloss Clearcoat

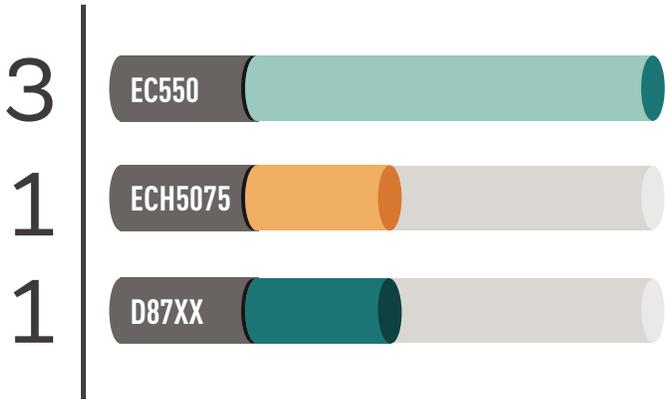
EC550 is a high gloss overall clearcoat designed specifically for use with *Envirobase High Performance* waterborne basecoat. EC550 has outstanding appearance and gloss retention and is ideal for high temperature and/or large job applications. This premium clearcoat continues the easy-to-apply characteristics of the **En-V** clearcoat platform and provides a robust application window under extreme conditions. EC550 **En-V** Ultra Gloss Clearcoat is available in all North American refinish markets.



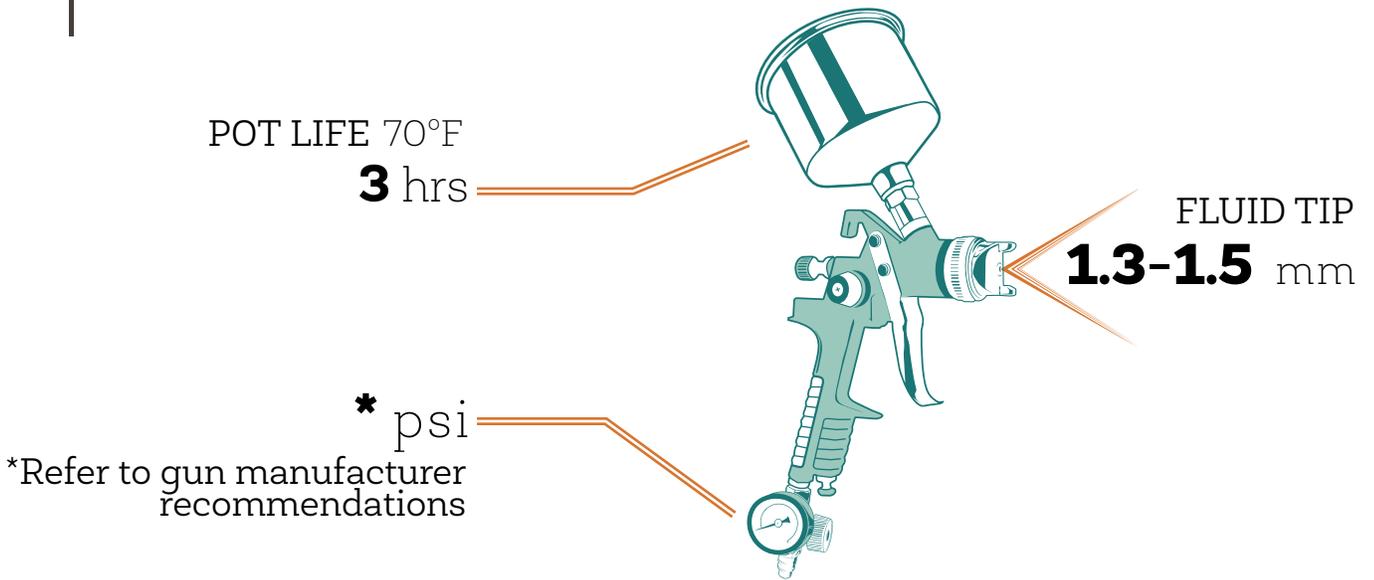
From an environmental standpoint, the low VOC of EC550 clearcoat along with the high solids resin decreases clearcoat material usage and therefore greatly reduces the overall VOC emissions.

For more information on this product, refer to **EB-550** and **EB-550NR**.

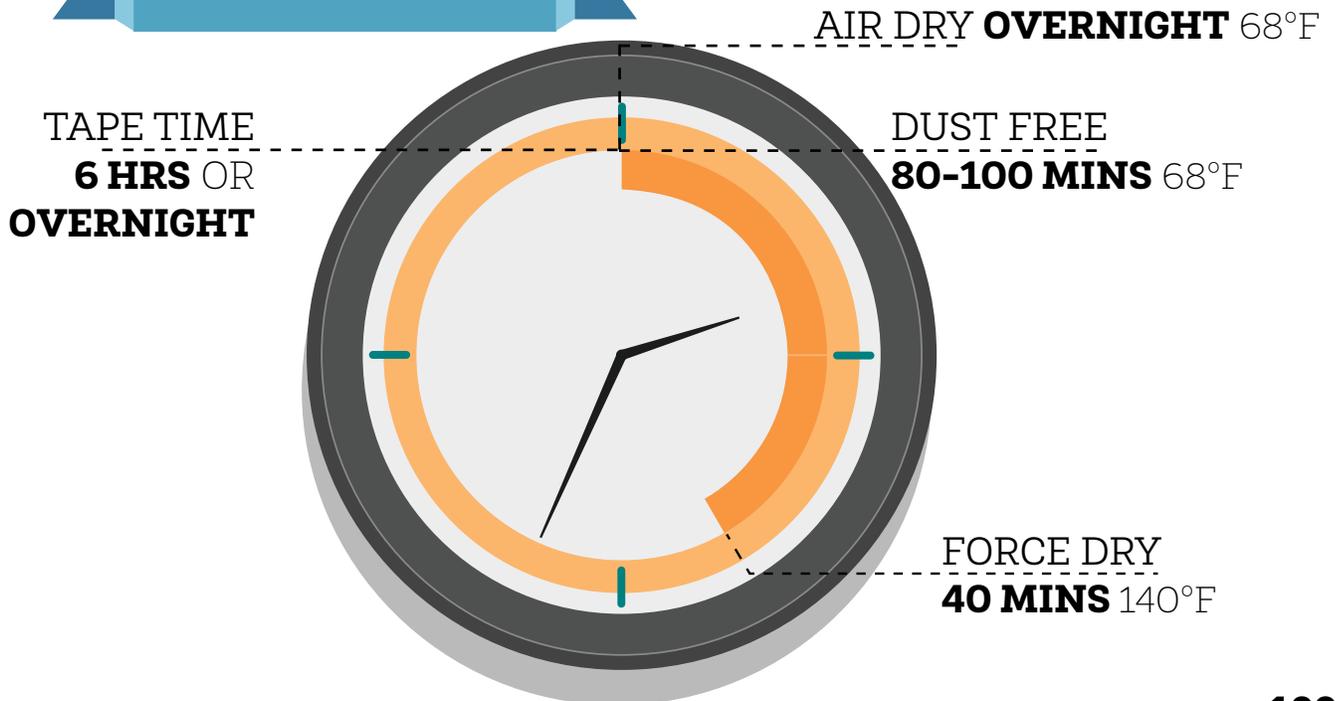
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



**Deltron NXT**

# DC5050

**NXT Premium Glamour Clearcoat**

DC5050 NXT Premium Glamour Clearcoat is a premium clear specifically developed for exceptional gloss, ease of application, easy buffability and exceptional holdout.



If you're seeking the ultimate gloss for a high-end restoration or show car, DC5050 is a great choice. It's especially ideal if you want to load up on the clear or if you plan on flow coating. Given its relatively slow cure time, you don't want to rush applying this clear, especially if applying multiple coats.

For more information on this product, refer to **P-254**.

## MIXING RATIO

3



1



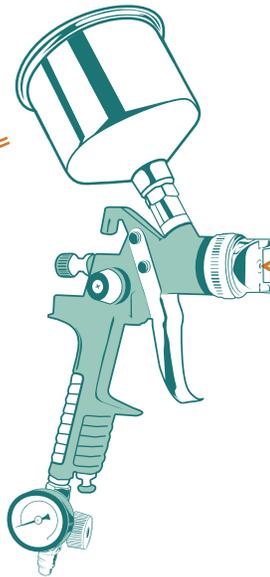
1



## GUN SETUP

POT LIFE 68°F  
4 hours

29-40 psi

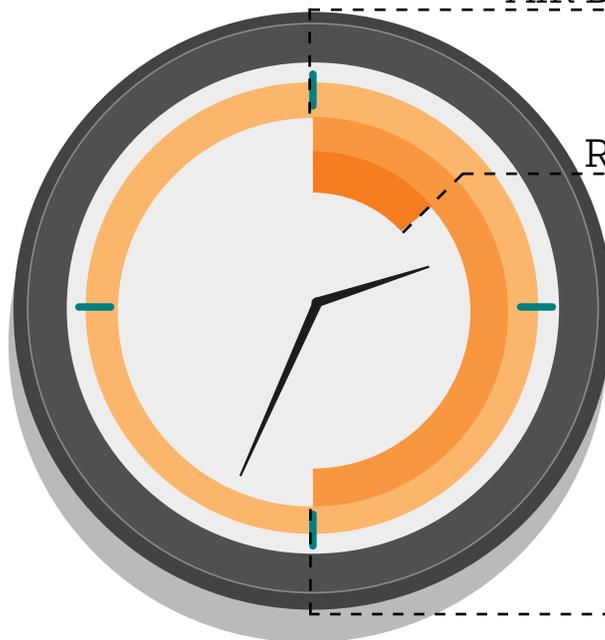


1.2-1.5 mm

## DRYING TIMES

AIR DRY **OVERNIGHT** 68°F

RECOAT **5-10 MINS** 68°F



FORCE DRY

DCH3070: **20 MINS** 140°F

DCH3085/3095/3098: **30 MINS** 140°F

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1735

# MATTE CLEARCOAT APPLICATION

**Matte or flattened clearcoats have grown in popularity in recent years. They offer a unique appearance to any project and can be used in conjunction with gloss clearcoats to add an accent within a panel.**

---

Variations in temperature and gun set up can affect the final gloss of matte clearcoats. Before spraying the vehicle, it is recommended that a test panel be sprayed to determine the overall final appearance.

---

**OPTIONAL:** Matte clearcoats may also be applied as a flowcoat over a gloss clearcoat. This allows the painter to generate a perfectly smooth finish prior to applying the matte clearcoat. In this case, 2-3 coats of a general clearcoat is applied and allowed to fully cure. It is then sanded using P600-P800 grit sandpaper to remove all texture. The project must be thoroughly cleaned and remasked prior to applying the matte clearcoat as described in steps 1 and 2 below.

---

- 1** Allow basecoat to flash an appropriate amount of time before beginning the matte clearcoat application process. This provides more time for the basecoat reducer to evaporate and reduces the risk that the reducer will get trapped under the clearcoat.
  - 2** Apply 1 full wet coat and allow to flash off until evenly matte over the entire project. Apply a second full wet coat followed immediately by a lighter cross coat to ensure a uniform finish.
  - 3** The final coat must go uniformly matte prior to force dry. To achieve optimal mar resistance, the vehicle should not be put into service for an additional 4-6 hours after baking, or 24-48 hour if air dried.
  - 4** Proceed with Final Cleaning Procedures Matte Clearcoat **PD-0820M**.
-



# DSC5250

## DITZLER Satin Clear Kit

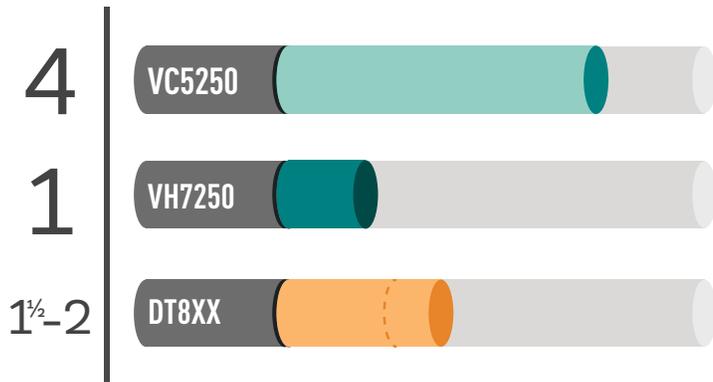
*Ditzler Satin Clear* is a low gloss custom clear providing a uniform, low gloss finish. It provides superior mar resistance and outstanding color retention. It can be used on accent stripes, hoods or the entire vehicle.



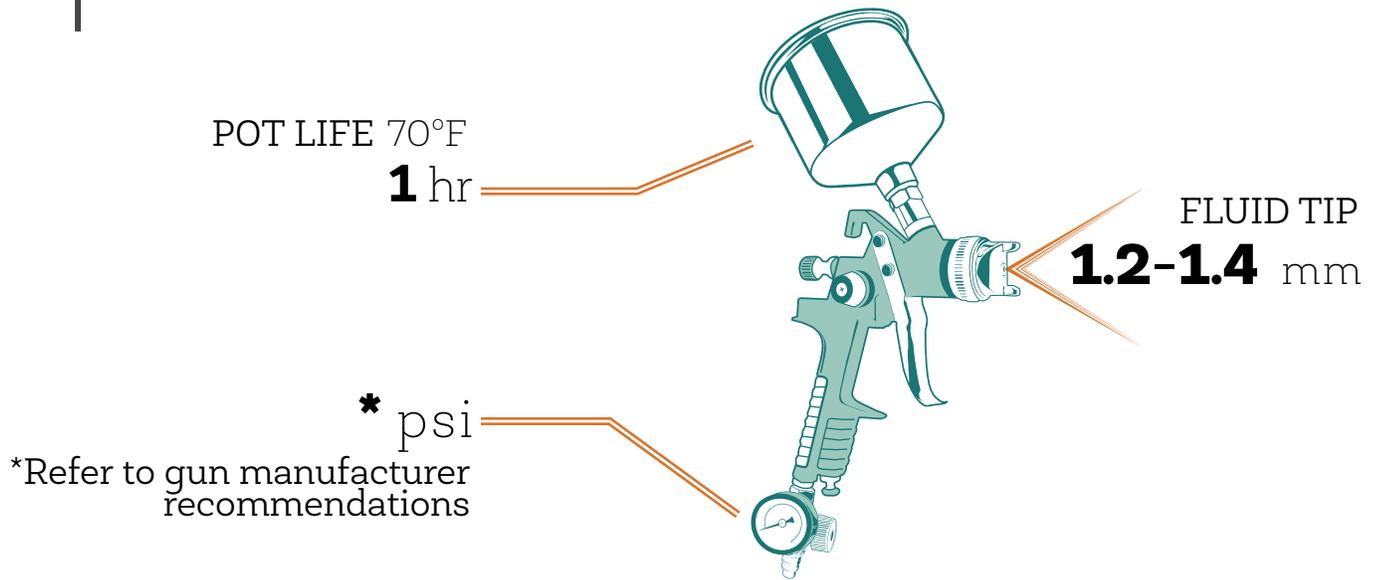
The DSC5250 *Ditzler Satin Clear* Kit provides a durable, two-component, low gloss finish with a smooth, even appearance.

For more information on this product, refer to **VB-25** and **VB-25NR**.

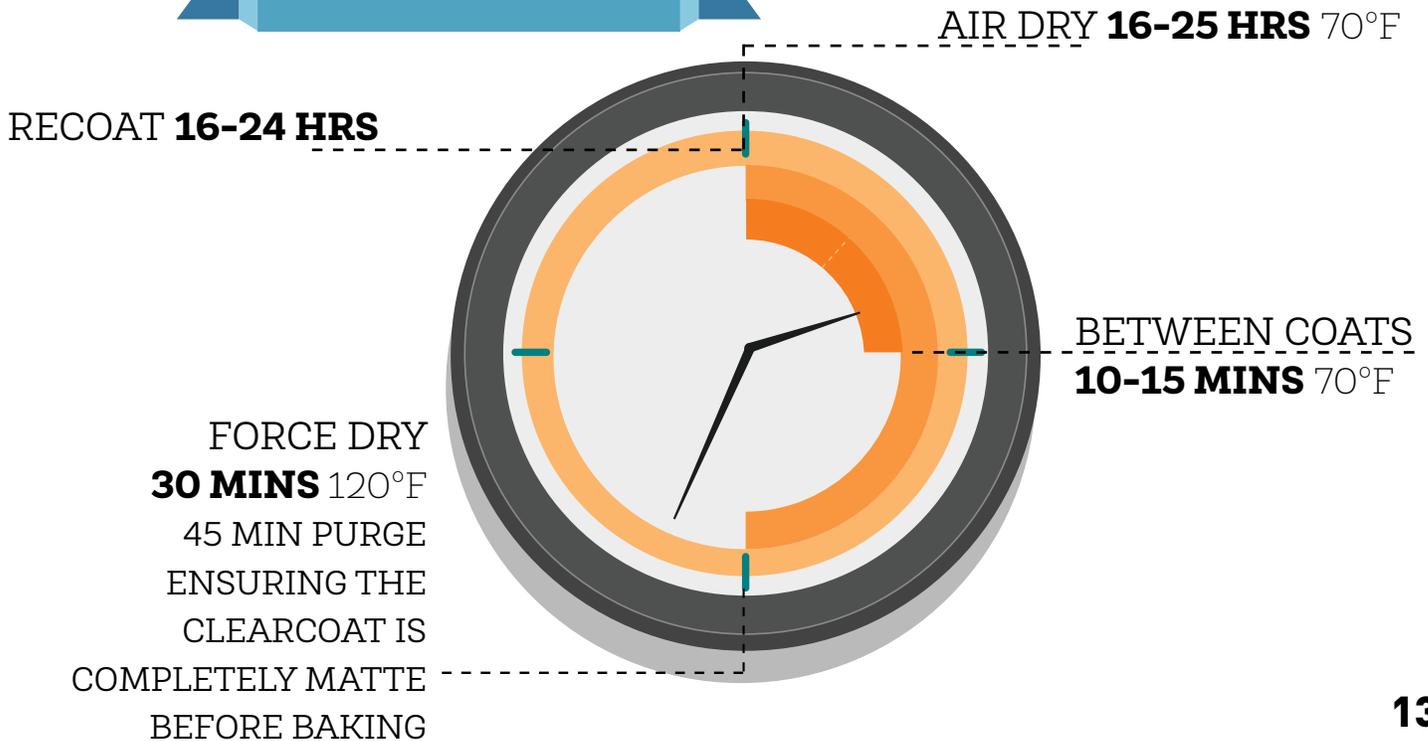
## MIXING RATIO



## GUN SETUP



## DRYING TIMES



**Deltron NXT**

# DC8115/7

## Matte and Semi-Gloss Clearcoat System

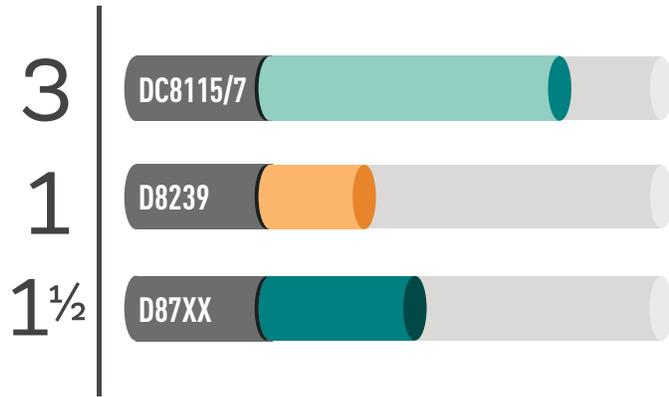
The *Deltron NXT* Matte and Semi-Gloss Clearcoat System consists of two versatile 2K acrylic urethane clearcoats designed to reproduce a range of low gloss levels. This system can be used for the specialized repairs of vehicles or areas of vehicles originally finished with a low gloss clearcoat over a single or multistage basecoat color system.



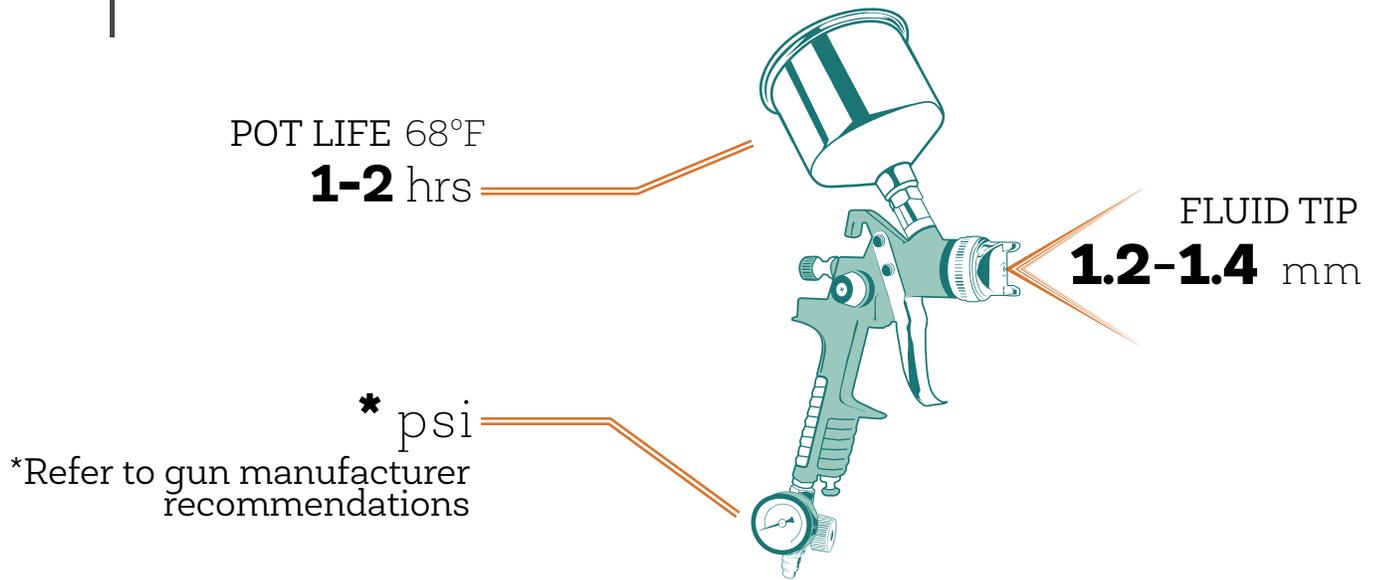
To allow for the normal gloss variations due to color, model, position or repair on vehicle etc., the actual mix of the two clearcoats can be varied to match the vehicle to be repaired.

For more information on this product, refer to **P-252**.

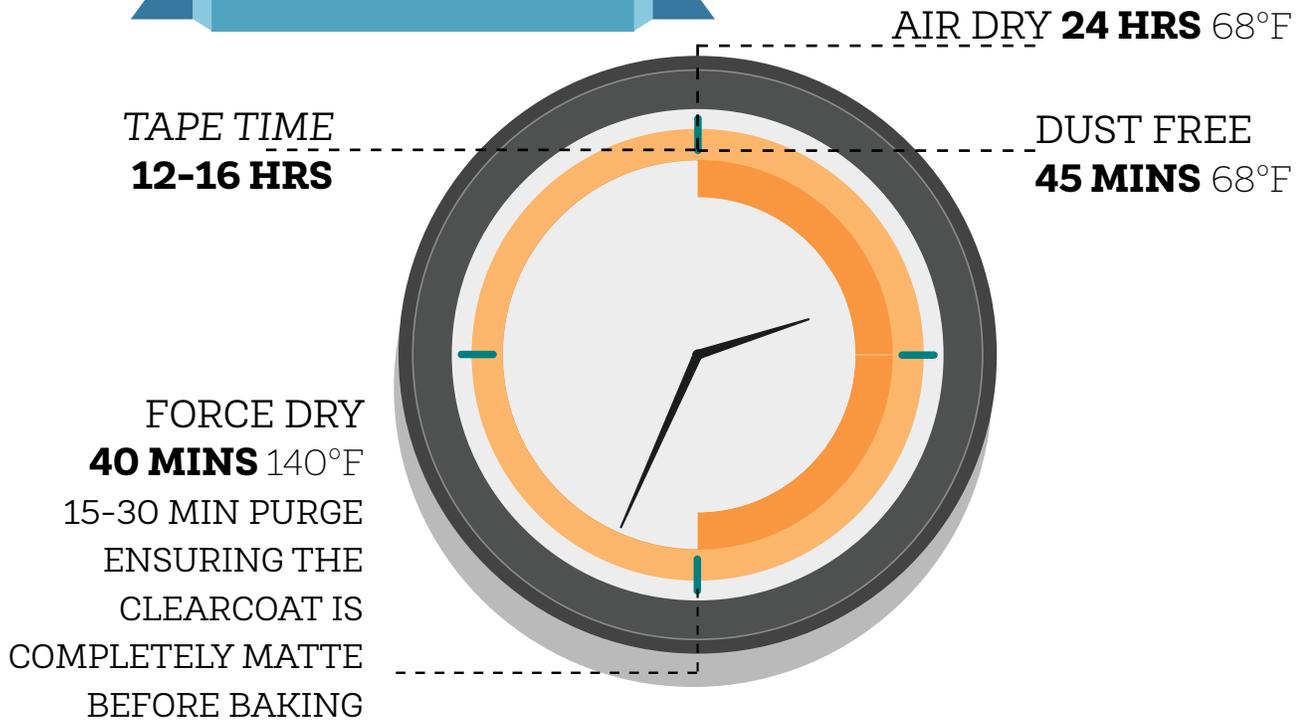
## MIXING RATIO



## GUN SETUP



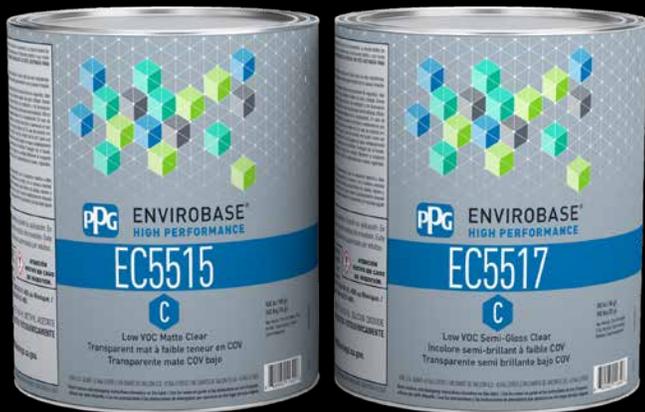
## DRYING TIMES



# EC5515/7

## Matte and Semi-Gloss Clearcoat System

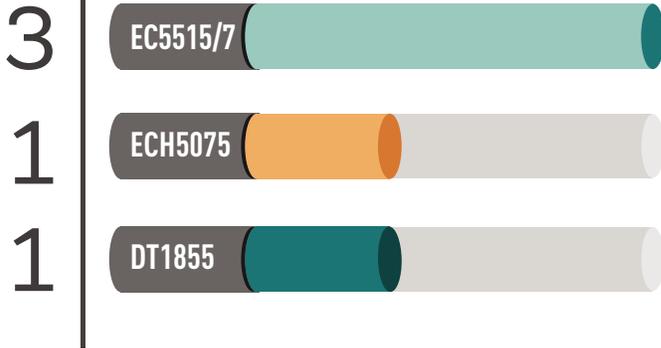
The *Envirobase* High Performance Matte and Semi-Gloss Clearcoat System consists of two versatile 2K acrylic urethane clearcoats designed to reproduce a range of low gloss levels. This system can be used for the specialized repairs of vehicles or areas of vehicles originally finished with a low gloss clearcoat over a single or multistage basecoat color system.



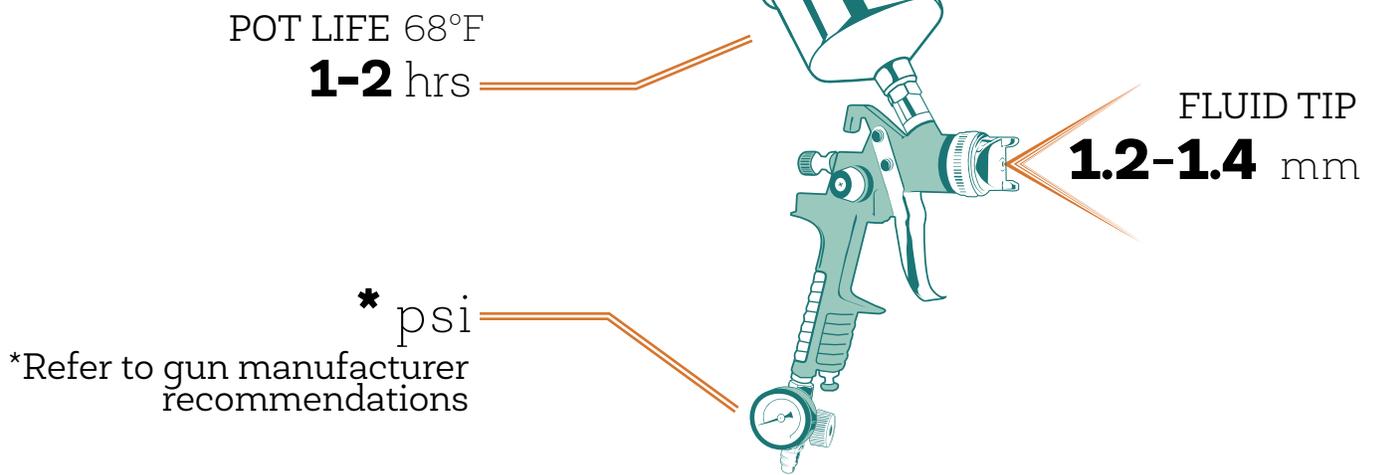
To allow for the normal gloss variations due to color, model, position or repair on vehicle etc., the actual mix of the two clearcoats can be varied to match the vehicle to be repaired.

For more information on this product, refer to **EB-551**.

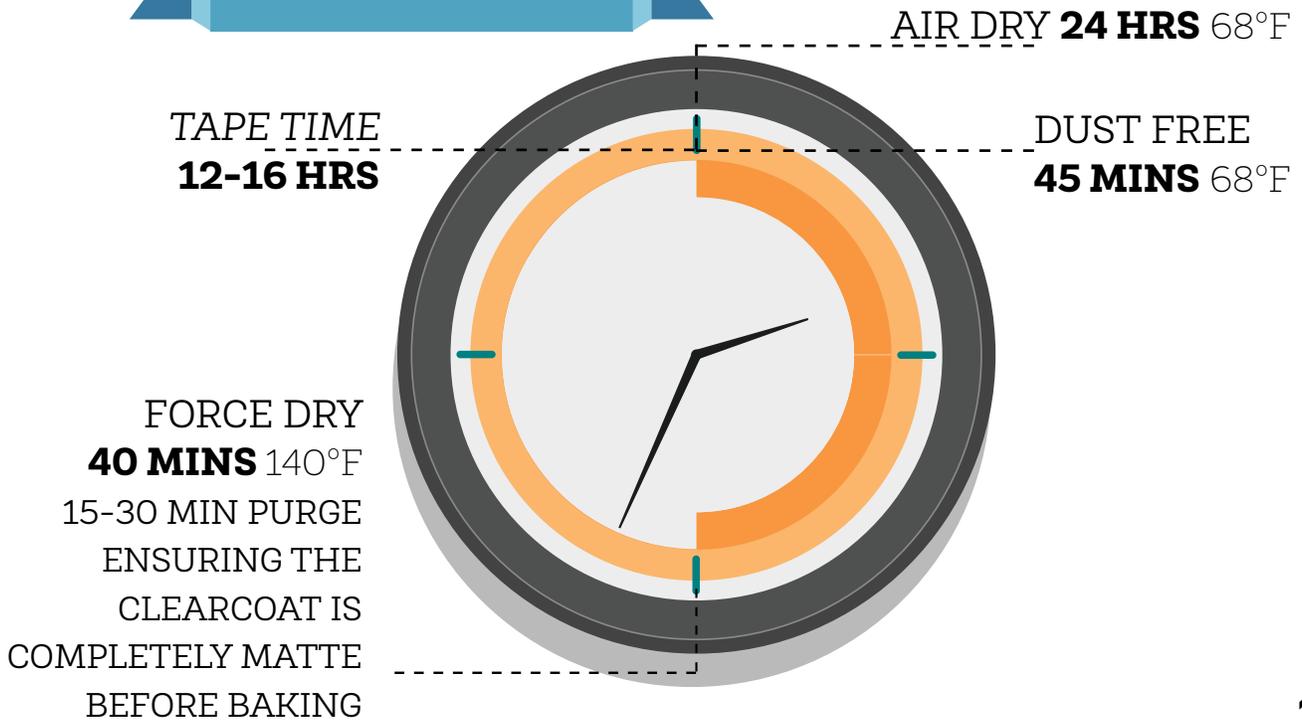
## MIXING RATIO



## GUN SETUP



## DRYING TIMES

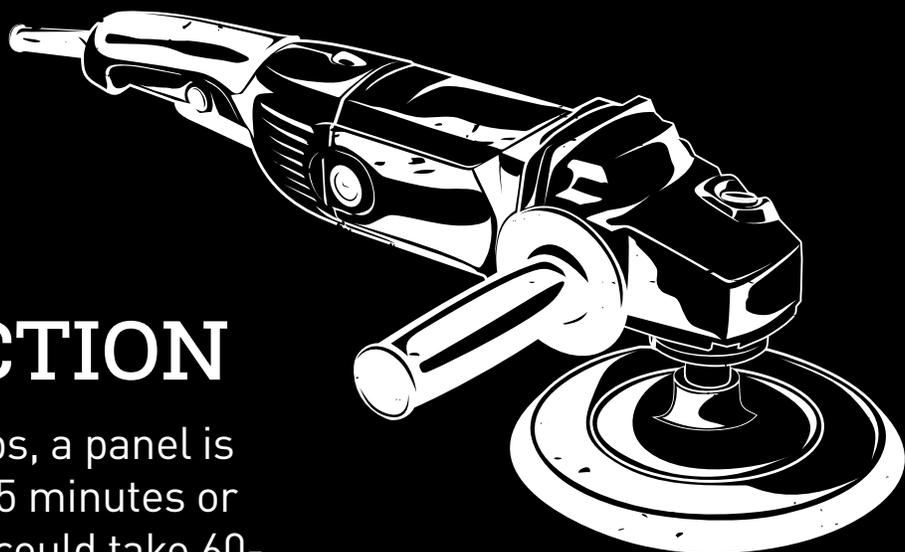


# COMPLETION OF THE PROJECT

## FINISHED PAINT PROCEDURES

### INTRODUCTION

In typical collision shops, a panel is sanded and buffed in 15 minutes or less. That same panel could take 60-120 minutes or more if a custom or restoration shop is looking to achieve a “show quality” finish. It’s even common to spend 40 hours on this step alone. So be patient. It takes time.



# FINISHED PAINT OVERVIEW

Clears have a “tail solvent” that evaporates slowly during the 30 days following application.

As the solvent leaves the clearcoat, buffing gets easier. During the first week, more solvent is releasing and buffing is difficult because the surface of the clear film is soft.

As solvent evaporates, buffing gets easier. It is **BEST** to wait at least 14 days before buffing, depending on the temperature.

However, you can speed up this process by sanding the surface with **P800 grit** wet sandpaper as soon as the paint is dry, usually overnight at **70°F**.

This opens the surface and allows the solvent to evaporate faster. Wait a minimum of 24 hours before buffing. Since the ideal time varies from job to job based on the temperature and paint film thickness, you can test a panel to find the optimum time to begin buffing. The test panel should buff to a deep glossy, scratch-free finish without hazing back overnight.

If you are sanding a paint job with heavy orange peel, you have your work cut out for you. To achieve a **smooth glass finish**, it would be better to flatten the finish with **P600 grit** and reapply clearcoat (flowcoat). A smoother paint job will yield a better finish that's easier to buff.



Move vehicle inside. Don't sand or polish on a hot surface.

Work under adequate lighting to help see what you are working on—a light stand is helpful for viewing side panels.

Use wet/dry paper and clean water. A hose or squirt bottle is a good idea. Dirt trapped under sandpaper causes nasty scratches. Use a clean sponge to keep sandpaper wet, and a clean towel or a squeegee to wipe dry.

Stay off panel edges. Paint flows away from edges, peaks in fenders, etc., so the film is thinner and easier to cut/burn through. Use a piece of 1½" masking tape to help protect them.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

# PD-0800M

# REMOVING DEFECTS

**1** Wash vehicle with soap and water. Clean with the appropriate PPG cleaner.

---

**2 DUST NIBS:**

1. Sand nib with P1500 grit using a finishing DA sander with an interface backup pad. Visual and hand check area to make sure nib is removed.
2. Refine entire sanded area with P2000-P3000 damp on a DA sander with a backup pad.
3. Proceed to the compounding procedure below.

**RUNS/SAGS:**

1. Ensure finish is completely cured.
  2. Remove defect using razor blade.
  3. Block sand with P1200 grit Wet-or-Dry sandpaper to remove the defect.
  4. Refine entire sanded area with P1500 grit using a DA sander with an interface pad.
  5. Refine entire sanded area with damp P2000-P3000 grit on a DA sander with a backup pad.
  6. Proceed to the compounding procedure below.
- 

**3 COMPOUNDING:** Working in 2' x 2' sections, compound the entire vehicle with extra cut compound using a white foam pad or a wool compounding pad.

---

**4 POLISHING:** Polish the entire repair area with a swirl mark remover and a **black** foam pad.

---

**5 FINISH:** Polish the entire vehicle with ultra-fine glaze and a **blue** foam pad. Hand wipe with a clean microfiber towel to finish.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-1805

# BUFFING AND POLISHING

**1** Wash vehicle with soap and water.

---

**2** If you have some **orange peel** / texture, start with **P600-800** grit on a block or hard pad to smooth / flatten the paint.

---

**3** Sand only enough to take out peel then move onto **P1000-1200** grit working toward **P3000** grit sanding in a criss cross pattern.

Sand with **P1500-2000** grit. The finer you sand, the less you have to cut with a buffer.

Use **3M™ TRIZACT™ HOOKIT™ P3000 / P5000** foam discs on a DA to help start the buffing process. Be careful **not** to let paper *dry*.

**Watch for curlicues—you don't want them. Lightly sand edges and peaks with P2000-3000 paper only.**

---

**4** Wash and dry the finish, inspecting to insure it's completely flat sanded. Begin with a wool pad and cutting compound. Keep buffer moving, bringing up a 2' x 2' area to a scratch-free shine. Then move on to the next section.

Keep buff pad clean. Don't let excess compound build up and dry on the pad. Take your time. Use sufficient lighting to help see if you have a scratch-free, smooth surface. If not, stop and re-sand with P2000-3000 grit and re-polish.

---

**5** Once the finish is buffed with sanding marks and scratches removed, wash the vehicle to remove any compound residue. Moving slowly in one 2' x 2' area at a time, machine polish with a foam pad. Don't let polish build up on the pad. Once completed, wash vehicle again to remove any polish residue.

---

**6** Use an **ultra-fine pad** and **ultra-fine glaze** to machine work the finish. Buff by hand with a microfiber towel to a deep gloss finish.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-0810M

# FINAL CLEANING AND DETAIL

- 1 INSPECTION:** Inspect the vehicle for any heavily soiled areas or bug spatter, tree sap and other sticky substances.

---

- 2 INTERIOR:** Pre-spot any heavily soiled interior spots using an All-Purpose Cleaner and Degreaser.

---

- 3 WHEELS:** Apply a heavy-duty wheel cleaner. Do not use on uncoated aluminum wheels.  
**OTHER AREAS:** Apply an all-purpose cleaner and degreaser to engine compartment, wheels, tires, jambs, etc.  
**TIRES AND WHEELS:** Brush tires and wheels as needed.  
**RINSE:** Rinse all areas where wheel cleaner or all-purpose cleaner and degreaser were applied.

---

- 4 TAR:** Remove tar, tape or adhesive residue with an Adhesive and Tar Remover.

---

- 5 PRE-TREAT:** Pre-treat heavily soiled, bug spatter, tree sap and other sticky substances with an all-purpose cleaner and degreaser.

---

- 6 WASH:** Wash entire vehicle with car wash soap and water.  
**CLEANER CLAY:** If paint overspray, oxidation, or environmental fallout such as acid rain or bird droppings are present, use 3M™ Cleaner Clay to remove.  
Rinse and dry.

---

- 7 TIRES:** Dress tires with a Silicone-Free Tire Dressing.

---

- 8 INTERIOR:** Clean interior with an all-purpose cleaner and degreaser. Rinse any pre-spotted materials and treat again if necessary.  
**WINDOWS:** Clean interior and exterior windows with glass cleaner.

---

- 9** Wipe vehicle with a detail cloth and inspect the vehicle for any remaining soiled areas.

**Caution:** Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PD-0820M

# FINAL CLEANING MATTE CLEARCOAT

To maintain your vehicle's low-gloss appearance for years to come, please refer to the following maintenance recommendations below.

- 1** In order to keep the low gloss surface effect, avoid using paint cleaners, abrasives, polishes or waxes. The vehicle must not be polished. Polishing will lead to a higher, uneven gloss effect.

---

- 2** Cleaning with unsuitable materials could alter the low gloss effect (generally increasing gloss).

---

- 3** Avoid automated car washing. The preferred car washing method is by hand with a soft sponge, mild soap and lots of water. Frequent car washing over a period of time could lead to increased and inconsistent gloss levels across a panel. Washing under direct sunlight should also be avoided.

---

- 4** Insects and bird droppings should be removed immediately. These residues should be soaked in water to soften and/or remove carefully with high pressure cleaning equipment. In the case of strongly adhered residues, a spray-on insect remover should be used prior to washing.

---

- 5** Whenever using any type of cleaning fluids with soft sponges or cloths, it is essential not to apply pressure or rub the low gloss finish. A gentle wipe/spray-on, wipe-off technique should be used. Applying pressure will alter the low gloss effect and result in an uneven appearance.

---

- 6** Refer to the Matte Finish Care Guide (part number **ARMATTECRG**), for more detailed instructions maintaining the perfect matte finish.

# APPENDIX: PD NUMBERS

PD NUMBER	TOPIC	PAGE NUMBER
<b>PD-0001</b>	Choosing Personal Protective Equipment (PPE)	<b>10</b>
<b>PD-0105</b>	Initial Cleaning	<b>19</b>
<b>PD-1120</b>	New E-Coat Parts	<b>26</b>
<b>PD-1130</b>	Used Parts	<b>27</b>
<b>PD-1151</b>	Sandblasted Bare Metal	<b>30</b>
<b>PD-1152</b>	Chemically Stripped Bare Metal	<b>31</b>
<b>PD-1153</b>	Mechanical Strip—Hand or Sander	<b>32</b>
<b>PD-1154</b>	Bare Metal Preparation	<b>33</b>
<b>PD-1180</b>	Body Filler Process	<b>46</b>
<b>PD-1210</b>	Plastic Bare Parts	<b>50</b>
<b>PD-1220</b>	Primed Plastic Parts	<b>51</b>
<b>PD-1230</b>	Plastic Used Parts	<b>52</b>
<b>PD-1280</b>	Plastic Body Filler	<b>53</b>
<b>PD-0400</b>	Spray Gun Setup	<b>67</b>
<b>PD-0410</b>	Spray Gun Troubleshooting	<b>72</b>
<b>PD-0420</b>	Spray Gun Cleanup	<b>74</b>
<b>PD-1510</b>	Primer Filler Process	<b>78</b>
<b>PD-1520</b>	Sprayable Primer Surfacer Process	<b>79</b>

<b>PD NUMBER</b>	<b>TOPIC</b>	<b>PAGE NUMBER</b>
<b>PD-1530</b>	Optional Use of Sealer	<b>86</b>
<b>PD-1563M</b>	Direct-to-Metal (DTM) Seam Sealer	<b>87</b>
<b>PD-0570</b>	Pinchweld Priming Process	<b>88</b>
<b>PD-1590</b>	Sanding Primer Surfacer	<b>89</b>
<b>PD-1631</b>	Making a Sprayout Card	<b>92</b>
<b>PD-1660</b>	Tri-Coat Color Letdown Panel	<b>93</b>
<b>PD-1701</b>	Sealer Application Process	<b>96</b>
<b>PD-1710</b>	Basecoat Color Application—Waterborne	<b>102</b>
<b>PD-1712</b>	Applying Multiple Basecoat Colors—Waterborne	<b>103</b>
<b>PD-1715</b>	Basecoat Color Application—Solvent	<b>106</b>
<b>PD-1720</b>	Single-Stage Color Application	<b>112</b>
<b>PD-1725</b>	Midcoat Clear Application	<b>119</b>
<b>PD-1730</b>	Clearcoat Application	<b>126</b>
<b>PD-1735</b>	Matte Clearcoat Application	<b>136</b>
<b>PD-0800M</b>	Removing Defects	<b>146</b>
<b>PD-1805</b>	Buffing and Polishing	<b>147</b>
<b>PD-0810M</b>	Final Cleaning and Detail	<b>148</b>
<b>PD-0820M</b>	Final Cleaning Matte Clearcoat	<b>149</b>

PPG

Automotive Refinish

19699 Progress Drive

Strongsville, Ohio 44149

800.647.6050

PPG Canada Inc.

2301 Royal Windsor Drive, Unit #6

Mississauga, Ontario L5J 1K5

888.310.4762

Follow us online:   

[www.ppgrefinish.com](http://www.ppgrefinish.com)

[www.vibrancecollection.com](http://www.vibrancecollection.com)



We protect and  
beautify the world\*