PPG Refinish UK & Ireland

Technical Product Process Manual

Best Practice Guidance to cover:
Ease of Use | Efficiency | Speed | Compliance
Process Robustness | Right First Time

Products for professional use only

Technical Product Process Manual

PPG Value Statement

As the worlds leading global supplier of paints, coatings and speciality materials, PPG understands the need to perform to the highest standards in today's highly competitive market.

PPG will work with you to respond to the market challenges and enhance bodyshop efficiency and profitability. The PPG Approach combines an integrated toolbox of bodyshop solutions, with the expertise of a winning team and the strength of a leading coatings company, to help you deliver great quality repairs, on time and to remain competitive for the future.

To help you maximise the potential of PPG product and colour, we offer nationwide technical support and training solutions to help you achieve optimal product usage and processes to:

- Reduce the cost per job to maximise bodyshop efficiency
- Increase through-put to increase bodyshop sales and profitability

Our support commitment covers a range of services, product recommendations, colour support, troubleshooting and technical application support.

Our support approach is a continual improvement process where we work with you to measure, implement and re-measure to make sure your bodyshop potential is realised and performing as well as it can be.

This document is the PPG Refinish UK & Ireland Technical Product Process Manual, it is designed to maximise bodyshop efficiency and profitability.

Technical Product Process Manual

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Section 1

Health & Safety

Health & Safety:

PPE

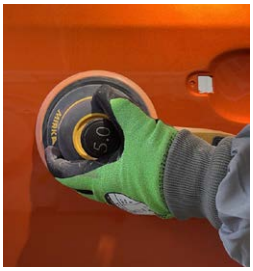
Always ensure you have the correct/appropriate PPE available for all the processes covered within this guide.











Appropriate examples of typical PPE items required for most Workshop and Paintshop operations:

- Protective Work Wear for the Workshop Environment
- Professional Bodyshop Coveralls and Spray Suits
- Workshop Safety Footwear
- Safety Goggles and Glasses
- Ear Defenders and Disposable Ear Plugs
- Protective Gloves/Rigger/Gauntlets
- Nitrile Disposable Gloves
- Protective Particulate Dust and Fume Masks
- Fully Regulated Air Fed Respirator
- Bodyshop/Paintshop Compatible Hand Cleaners/Conditioners and Barrier Cream
- First Aid Stations and Eye Wash product


Health & Safety:

EV vehicles

Refinish Painting Vehicles with High Voltage Battery Systems

Vehicles with high voltage battery systems should be repaired and painted by trained professionals with knowledge of vehicle and high voltage electricity repairs.

Vehicle repair and paint technicians should refer to the vehicle manufacturer's specific instructions and recommendations.

OEM Manufacture Recommendation

Manufacturer	Maximum Baking Temperature	Maximum Baking Time
Audi	<70°C	<90 minutes
BMW	60°C	120 minutes
Ford	<60°C	<45 minutes
Honda	65°C	60 minutes
Jaguar Land Rover	<80°C Infra-red 18kW	<60 minutes 18 minutes
Mazda	<60°C	None
Mercedes-Benz	<80°C	60 minutes
Nissan	60°C	Not Specified
Opel	60°C	60 minutes
Porsche	60°C 80°C	120 minutes 60 minutes
Tesla	60°C	45 minutes
Toyota	60°C (Lithium-ion battery) 65°C (Nickel metal hybrid battery)	None

For additional information, please see our Technical Bulletin for Painting Vehicles with High Voltage Battery Systems

This information is given in good faith and without warranty. PPG will assume no liability for injury or property damage due to failure to properly follow instructions or for repairs attempted by unqualified technicians. Vehicle manufacturers' instructions may change or be updated from time to time, always refer to the most up-to-date guidelines.

Section 2

Paint Storage & Maintenance

Mixing Room Paint Storage

Best Practice:

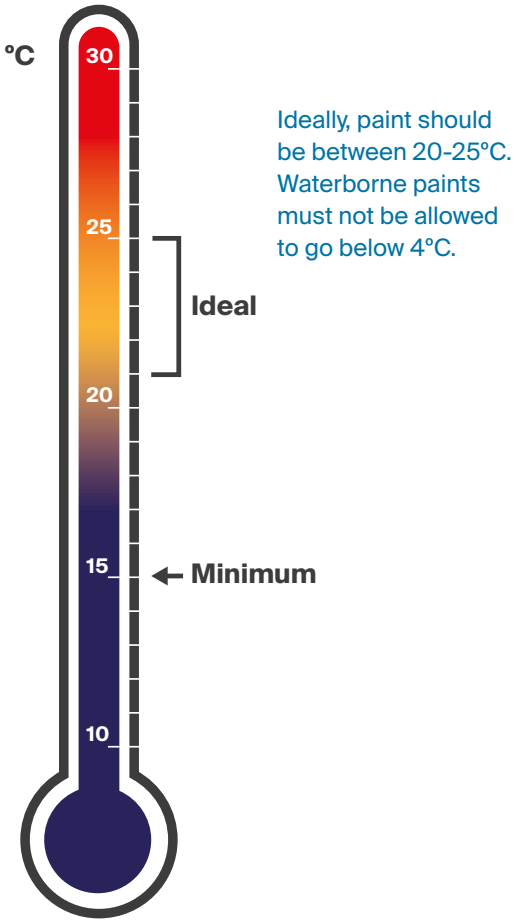
PPG's recommended paint storage guidance within a mixing room plays a vital role ensuring that all products perform at their optimum level.

The use of a thermostatically controlled heat source within the mixing room will greatly assist by ensuring consistent and correct paint viscosities are achieved.

This helps in providing robust application benefits, improved final appearance and colour match quality. Consistent flash-off and curing times are easily achieved, along with ensuring PPG product shelf life guidelines are met.

These guidelines cannot and should not be overlooked.

Always ensure paint is at the correct temperature.
Ensure that paint is warmer than 15°C before application.

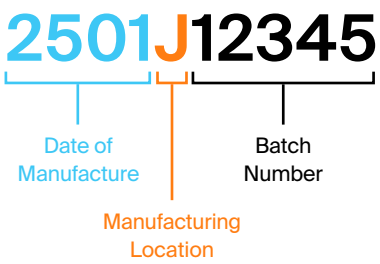


Product Expiry Date & How To Read Barcodes

The recommended usage periods for the listed Refinish products are based on their manufacturing dates. However, reaching the end of these periods does not necessarily mean the products are out of specification. Many products have shown stability even after several years of storage, provided they are kept in appropriate conditions to prevent packaging deterioration.

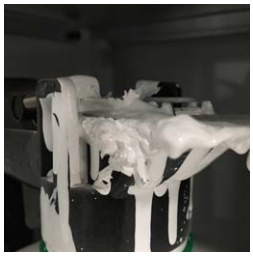
Products	Unopened use period
Preparatory products	4 years
Polyester fillers & peroxide activators	18 months
Primers, Surfacers, Sealers	4 years
Basecoats	4 years
Topcoats	4 years
Clears	4 years
Hardeners (fast & productive polyisocyanate hardeners)	4 years
Hardners (normal & slow polyisocyanate hardeners)	4 years
Hardeners (polyamine types for epoxy primers)	4 years
Thinners	4 years
Ancillaries, Additives	4 years

The date of manufacture can be determined from the first 4 digits of the batch number.



Paint Storage & Maintenance

Good Housekeeping



High Performace Waterborne Basecoat:

PPG ENVIROBASE® Dousing Spouts

The pouring spouts help provide an efficient seal preventing air or dust from entering the pot that could potentially contaminate the paint.

They are also designed to provide the operator with an accurate and very controllable pour.

If paint is allowed to build up and dry on and around the pouring spout it can compromise your ability to accurately pour amounts of paint which could compromise colour matching capabilities.

It could also allow air and contaminates into the pot eroding the quality of the tinter.

A blocked dirty head can also stress the spout and may cause a mechanical failure making it impossible to use properly.

Applying some common sense and good basic housekeeping practices when mixing will prevent any issues when pouring *Envirobase* High Performance toners.

Paint Storage & Maintenance

MOONWALK® Housekeeping

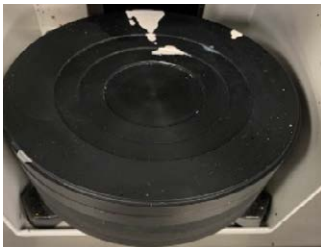
Regular cleaning is important to keep your *MoonWalk* working correctly.

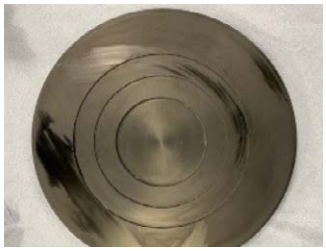
Moonwipes are recommended for use when cleaning *MoonWalk* as they have been tested and are compatible with all areas of the machine and PPG paint.

Wear gloves when cleaning the *MoonWalk*.

Cleaning the Plexiglass and Scale

Use Moonwipes to remove any paint spills from Plexiglass, scale and pans.

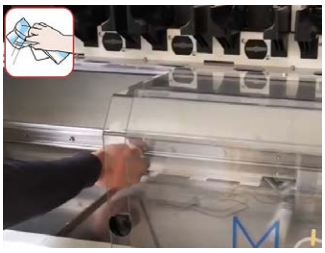




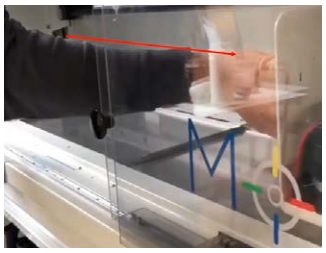
Cleaning the Lower Rail

Step 1: Ensure Moonwalk is switched off

Step 2: Slide scale to the left



Step 3: Using Moonwipes clean the lower rail



Step 4: Slide scale to the right and repeat the cleaning process

Step 5: Close the door

Step 6: Return the lock bar to the down position

Step 7: Turn the power back on

Step 8: Reset the *MoonWalk* software: Maintenance > Machine Commands > Scale will align itself back into the central position

MOONWALK® Housekeeping

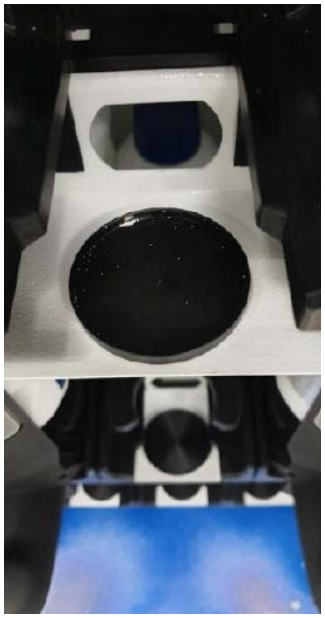
Cleaning Drip Cups

Step 1: Push the nipple underneath the drip cup to remove the cup.

Step 2: Clean the cup using a Moonwipe.

Step 3: Replace the drip cup, ensuring that the locating nipple is secure.

Step 4: Reset the *MoonWalk* software: Maintenance > Machine Commands.



The drip trays on the shelf can also be removed.

Push the nipple underneath the drip cup to remove.

Remove the peel, clean and push in again.

Cleaning the Dosing Valve Heads

Keeping the dosing valve heads clean is critical for correct functioning of *MoonWalk*. PPG recommends that this is completed once a week.

Step 1: Remove pumping group.

Step 2: Using Moonwipes clean any paint residue from the valve.

Step 3: Return pumping group to *MoonWalk.*

MOONWALK® Housekeeping

Cleaning Breather Tube and Duck Valve

Occasionally the breather tube or the duck valve in a tinter may become blocked or the breather tube comes away from its housing. This results in leaking tinter or a crushed tinter bottle.

In this situation:

Step 1: Invert the pumping group into the changing station and remove the bottle from the housing.

Step 2: Wipe the tube and the valve with a lint free cloth. Check the duck valve opens and closes, and that the gasket isn't damaged. If either the duck valve or the gasket are damaged then the pumping group will need to be replaced.

Step 3: Return the tinter bottle to the pumping group, and tighten until you feel resistance, then add in 1/8 of a turn. Return pumping group to *MoonWalk*.

Section 3

General Panel Repair: Preparation Guidance

General Panel Repair:

Cleaning / Degreasing Process

Best Practice:

To ensure the vehicle is sufficiently clean and ready for repair PPG recommend that the vehicle is thoroughly cleaned prior to it entering the workshop.

Removal of general traffic film, dirt and tar spots will help ensure a consistent and a RIGHT FIRST TIME repair can always be achieved.

Recommended Best Practice:
Jet Wash or Steam Clean the vehicle.

Any initial 'In Process' cleaning to the repair should be done using both solvent and water based cleaners at all workshop stages. Both cleaners will ensure any mineral salts and contaminants are removed.
(For cleaning polyester bodyfiller – only use solvent spirit wipe)

The PPG Cleaning range includes:
D837 Spirit Wipe and D8401 Waterborne Low VOC Cleaner to assist with this process.

Both products should be used via a pressure pump dispenser bottle. Excess product is then removed using a premium lint free cloth.

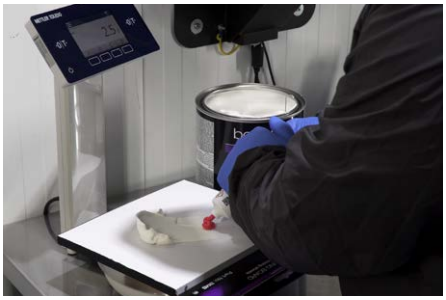
These products are for professional use only.
For full technical specification refer to TDS: RLD63V.

General Panel Repair:

Bodyfiller

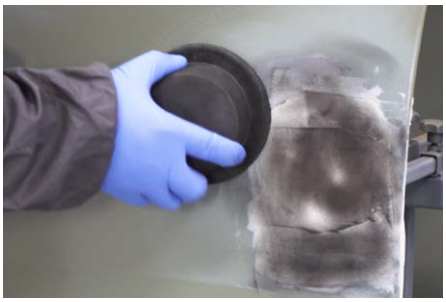
Step 1: Preparation
Ensure panel is clean, following paint specifications.

Step 2: Sanding
Remove all paint from the damaged area using a P80-120 abrasive; allowing enough space to ensure the filler is within the bare substrate area.

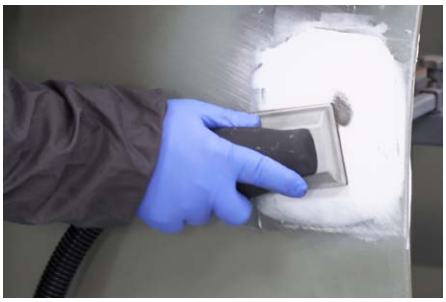


Step 3: Filler Mixing
Select the appropriate filler for the job. Ensure correct mixing ratio of filler to hardener. Mixing ratio 2–3% (by weight). Mix thoroughly to ensure a consistent colour.

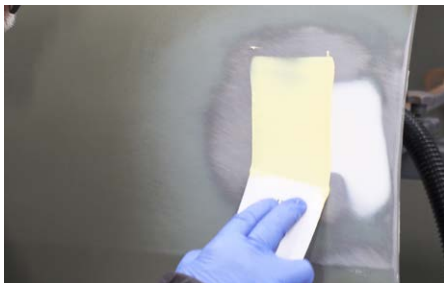
Step 4: Filler Application
Apply the filler to the damaged area in even coats, building to the required depth, making sure to avoid paintwork.



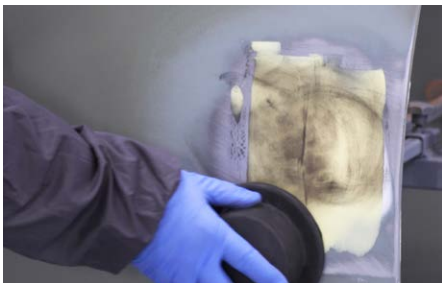
Step 5: Dry Guide Coat Application:
Ensure filler is fully cured, as per TDS recommendation. Apply Bodyline by PPG guide coat to highlight any filler high/low spots and imperfections.



Step 6: Sanding:
Once fully cured, block the filler to the required profile using P80 and finishing with P180. Apply guide coat between grit changes.



Step 7: Glaze Application
If required, apply glaze to reduce the paint primer consumption and achieve a smooth surface prior to painting. After application, apply guide coat and sand the surface.



Step 8: Final Preparation
Re-apply guide coat to view deeper imperfections and remove these with a fine abrasive, grade 240+. A hand block can be used.

Always ensure that you select the appropriate Personal Protective Equipment for the process.

Bodyfiller Repair Process

Bodyfiller Plastic Repair Process

Section 4

Colour Identification

Colour Identification:

PPG LINQ™

Sustainable PROCESS:

By implementing our innovative suite of tools, you will work smart and easy, error-free and improve your overall efficiency.

Sustainable PROFIT:

By streamlining processes, reducing waste, cutting down on energy bills and enhancing efficiency, you can achieve sustainable profitability.

Sustainable FUTURE:

PPG LINQ™ is where tradition meets technology, making it an enticing environment for the next generation of talented painters speaking their language - digital, efficient and sustainable. You will also be more attractive to work providers.

PPG LINQ™

Colour Identification:

PPG LINQ™

PPG VisualizID™

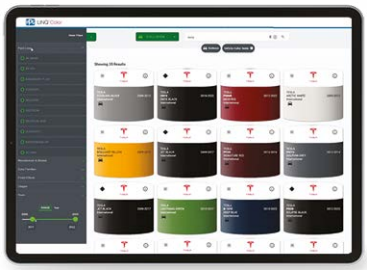
Visualise colours before mixing

- PPG exclusive technology
- Digital color box - 100,000 colours, variants and specials
- Authentic - realistic digital 3D-colour chips, always up to date
- Simulation of natural light effects, daylight, mode with clearcoat simulation

PPG DigiMatch™

Next level of colour reading

- Intuitive, high-resolution 2.8-inch touchscreen with large icons for easy navigation
- Ergonomic design - operation with just one hand
- High-resolution digital camera, measurement can be seen directly on the spectrophotometer
- High-performance camera with 6 reflection angles and 6 camera angles for pigment detection
- Option to send measurements automatically via WIFI or USB cable



PPG LINQ™ Color

The future of digital colour search

- Fast cloud search anywhere
- Accessible from all connected devices
- Always fully updated
- Wireless communication with scales
- No installation required

PPG MoonWalk®

Automate your colour mixing

- 100 % accurate mixing - every time
- Reduce consumption - up to 9% material savings
- Reduce process time, eliminate waste and reduce mess
- Save time - 10 min per mix
- Attract & retain the best talent
- State-of-the-art mixing equipment

Colour Identification:

PPG LINQ™ – How to Prepare a Surface to Take a Colour Reading with PPG DigiMatch™

Proper preparation of the surface to be scanned for colour reading is essential in order to get the best colour match possible. To get an accurate reading the surface area to be measured should be approx. 10 x 20 cms in size. Surface temperature must be between 20° - 25°C

Follow these steps in the correct sequence to get the best possible colour match:

Thoroughly clean the vehicle surface near the repair area. Soiling such as tree resin, tar stains etc must be removed without leaving a residue.

OPTIONAL: For fine scratches or heavily weathered surfaces: sand P3000 – P4000.

Polish with coarse abrasive polish and a firm polishing pad.

Remove polishing residues with a clean microfibre cloth.

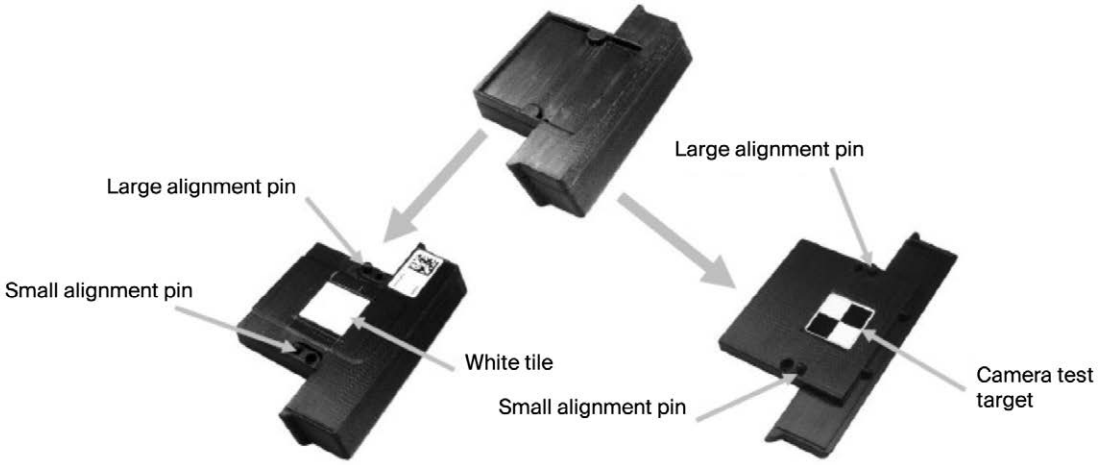
Polish with fine, high-gloss polish and soft polishing pad.

After cleaning wipe the vehicle surface with a clean, soft microfibre cloth. Do not use aggressive cleaning agents.

Colour Identification:

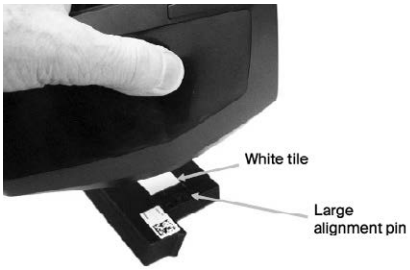
PPG LINQ™ – How to calibrate PPG DigiMatch™

PPG *DigiMatch* must be calibrated every 30 days using the white tile and the camara test target in order to function correctly. The calibration reference is stored in the docking station and is separated into 2 parts when used. Ensure that you are using the calibration reference that was supplied with the *DigiMatch*.



Step 1: Disconnect the device from the USB cable while calibrating the device.

Tap calibrate on the main screen. The calibration menu will appear showing the number of days until the next calibration is required.



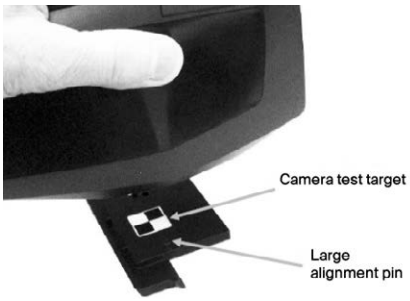
Step 2: Separate the calibration reference and position the device measurement port over the white tile as show. Make sure that the two alignment pins insert into the openings in the white tile reference.

NOTE: the pins will only insert in one direction. Make sure you have the device aligned correctly.

Colour Identification:

PPG LINQ™ – How to Calibrate PPG DigiMatch™

Step 3: When ready, tap Calibrate. Do not touch the device throughout the measurement sequence.



Step 4: After white tile calibration, remove the white tile and position the device measurement port over the camara test target as shown. Make sure that the two alignment pins insert into the openings in the camera test target.

NOTE: the pins will only insert in one direction. Make sure you have the device aligned correctly.

Step 5: When ready tap Continue. Do not touch the device throughout the measurement sequence.

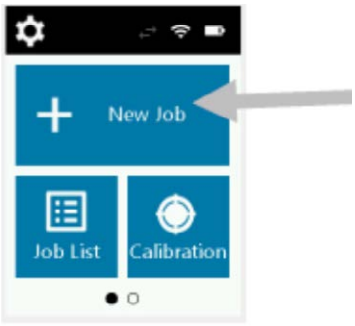
Step 6: The device performs a self-test after the external calibration. Remove the device once the selt-test is complete.

Step 7: Combine the two calibration reference tiles together and return to the storage location in the docking station

Colour Identification:

PPG LINQ™ – How to Take a Reading with PPG DigiMatch™ Spectrophotometer

In order to get an accurate colour reading 5 measurements are taken over the 10 x 20 cm area near the repair. The measuring port must be flat with a sample surface to be measured, any movement of the device can cause the measurement angles to vary, greatly affecting the measurements on metallic and pearlescent paint finishes. The pressure sensors ensure the integrity of the measurement data. Hold the device firmly during measurement.



Taking a measurement

The New Job mode is used to create and measure jobs on the device. The device stores measurements as jobs.

Tap New Job on the main screen. The device automatically goes into targeting mode.

Step 1: Position the measurement port in the bottom of the device over the measurement area while viewing the screen.

Step 2: Gently rock the device until all three positioning indicators on the screen turn green. This indicates that all of the pressure sensors are activated.

Step 3: If the device is configured for automatic measurement, the measurement will be triggered as soon as the device is correctly positioned and all pins are in contact with the surface, with a 1 second delay. If Manual measurement mode is selected, start the measurement by tapping the screen or by pressing the measure and On/Off button.

Step 4: Hold the device steady throughout the entire measurement.

Step 5: Once the measurement is finished, lift the device, move it to a new location and continue with the measurements to complete the job. 5 measurements are required.

NOTE: you cannot start another measurement until the device has been lifted off the surface and repositioned.

Step 6: After the measurement is completed the quality of the measurement is indicated with a 5 star system. These starts indicate the amount of variation between the readings and should be interpreted as follows:

You can remeasure the job if required by tapping the icon and then tapping Yes to start the measurement sequence over.

Measurement result	★★★	★★★★	★★★★★
Solid colors	✗	✗	✓
Metallic, pearl effect colors	✗	✓	✓

If achieving a 4/5-star rating isn‘t possible - whether due to the panel having been previously painted or simply being unable to exceed a 2 or 3-star rating—then aim for the highest rating achievable within those constraints.

Step 7: You can edit the name of the job if desired. Tap the icon and enter a job name using the keyboard. Tap the ✓ icon to save the job name.

Colour Identification:

Spray-Out Cards

Why it should be considered?

For many operatives the ‘best practice’ of constructing a spray-out card to asses the match quality of a selected formula plays a pivotal role in ensuring a ‘Right First Time’ repair is achieved.

With modern colour identification and retrieval tools such as PPG‘s LINQ™ Digital eco-system including VisualizID™, the need for a physical panel to be produced is dramatically reduced. Additional cost and time implications will also influence the decision or need for a card to be completed.

However in some cases Motor Manufacturer OE paint production processes, spraying equipment and product types will vary across territories and continents.

Paint production techniques and colour matching tolerances between paint manufacturers can also vary in the same way. This can also be exacerbated by with the fact that many vehicles on our roads today may have already had remedial repair work.

These combined factors could mean there is always a chance the colour may not be easily matched with the industry available technology and a sprayed out test card is a necessary and sensible ‘go-to’.

Subtle colour variances with a vehicle colour will in the main be taken care of by systems like the RAPIDMATCH™ GO as well as the tried and tested blending techniques available for the operative. As ‘fail safe’ and often as part of a repairer‘s mission statement of getting it ‘right first time‘ the best practice of a correctly sprayed out test card should not be overlooked.

It can make the difference and be the ‘insurance policy’ the bodyshop needs, meaning a quality colour match every time on every repair.

Overtime these test cards can build into an extensive library, a reliable reference point for the operative meaning in the long term significant time savings are achieved, costly reworks minimised and bodyshop repair reputations enhanced.

Colour Identification:

Spray-Out Cards

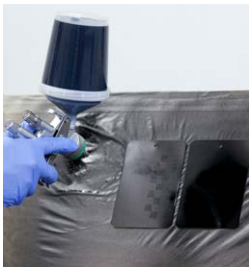
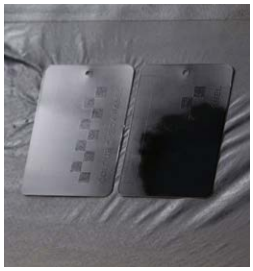
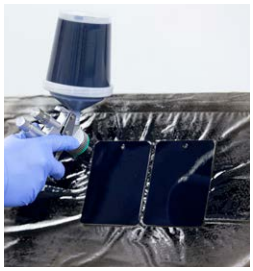
Best Practice:

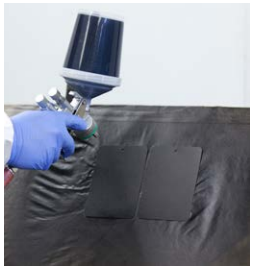
Colour test cards must be sprayed using the same technique and gun set up used when painting the vehicle. Replicating this process will ensure consistent, accurate and reliable results.

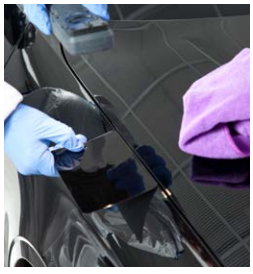
Attach the test card panels to a flat surface and not a stirring stick.

Follow the relevant process whether that being Standard Application or OneVisit Application.





Clearcoat the panel, bake dry then record the colour code and variant used, and date as a minimum ready for checking against the vehicle.

Section 5

Priming

Priming:

Panel Preparation

Powder Guide Coat.

P320 Abrasive.

Sand from ‘out to in’.

Strip cleaning.

Re guide coat.

P500.

Use controlled motion.

Clean the repair area

P1000 film disc.

Use controlled motion.

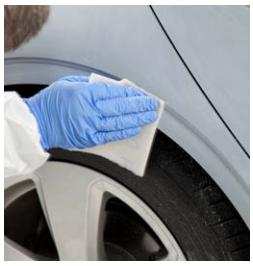
Lubricated weave pad.

Abrade all hard to get to areas.

Priming:

Panel Preparation - Masking

Lubricated Weave Pad.

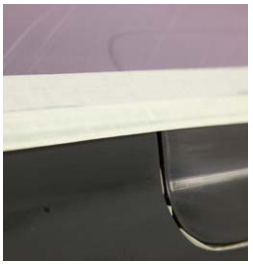


Ensure all swages and edges are abraded.

Clean the repaired area thoroughly before masking.

Thorough masking of apertures is essential.

Sponge foam is ideal for small gaps/ apertures.



Use break lines where possible.

Clean the repaired area again before painting.

Use D8416 / D8421 / D8424 / D8426 1K Aerosol Primer on any small areas of bare substrate.

Priming:

D8092 DELTRON® Wash Etch Primer – Chromate Free

Product Description:

D8092 *Deltron* Wash Etch Primer is a two component, pigmented chromate-free etch. Designed to give good adhesion when used on new and bare metal repaired panels and to promote the adhesion of subsequent paint films.It can be over coated with any current PPG 2-pack Acrylic Primer. This product must always be catalysed with its own reactive thinners.

Best Practice:

- Must be used on any exposed Steel, Galvanized, Aluminium, GRP type substrate.
- Can be sprayed (optimum), rolled or applied via a lint free cloth or sponge.
- Once mixed allow to stand for 10 mins prior to application.
- Must be over-coated with a PPG acrylic primer

The Tech Stuff:

Mixing Ratio:	1 Part Primer : 1 Part Thinner
Pot Life:	5 Days
Application:	One 100% coat
Gun Set-up:	1.3-1.6 Gravity feed (Optimal)
Dry Film:	10-15 microns (Optimal)
Recoat:	15 mins

Range:

D8092 Wash Etch Primer
D8293 Reactive Thinner (optimal)
D833 Slow Reactive Thinner (warm temps: +35°C / +70% humidity)

These products are for professional use only.
For full technical specification refer to TDS: RLD261V.

Priming:

SP3006 Adhesion Wipes

Application Process for SPP3006 Adhesion Wipes

SPP3006 Adhesion Wipes are designed for the pre-treatment of bare metal surfaces, enhancing adhesion and corrosion resistance of subsequent primers. Suitable for aluminium, steel, stainless steel, and galvanised or sandblasted metal surfaces. This water-based treatment wipe is chromium-free with VOC <1% and complies with all PPG Primers.

Surface Preparation:

- Sand and clean bare steel, galvanised steel, or aluminium thoroughly.

Application:

- Wipe/apply SPP3006 evenly and thoroughly crosswise.
- Ensure the metal surface remains wet for at least one minute for effective passivation.
- Do not use wipe on different types of metal.

Primer Application:

- Only use 2K acrylic primer; avoid 1K primer, acid primer, polyester products, or epoxy primer.
- Ensure complete coverage of the treated surface.
- Apply 2K primer within 15 minutes after a flash-off time of 5 minutes.

Health, Safety, and Storage:

- Wear appropriate personal protective equipment (protective clothing, safety glasses, gloves).
- Store wipes in a dry location (10-25°C)
- Close the container immediately after removing a fresh wipe.
- Store used wipes in a sealable plastic bag for up to one working day.
- Do not put used wipes back into the container.
- Rewet unused wipes by rolling the container.

Priming:

DP4000 Primer
D8501 / D8505 / D8507

Product Description:

DP4000 Primer is designed to deliver a high quality final appearance through a non sand process that is equivalent to a sanded primer. Excellent application, very smooth flow and superb holdout properties are at the core of this products' performance.

Due to superior adhesion characteristics DP4000 negates any sanding of sound, good condition electrocoat.

DP4000 can be recoated directly after 15 minutes, or left or up to 5 days with no major sanding required, meaning new parts can be primed in batches in advance with minimal preparation.

The addition of D8740 Plastic Primer Additive will also allow new bare TPO, PP / EPDM panels to be painted.

Best Practice:

- Always use the correct Greymatic shade for the colour type.
- Option to use G3 on light colours instead of G1 to maximise primer opacity. (Good for priming spot/small repair areas).
- One 100% wet coat is all that is required.
- Optimum appearance and flow is achieved using a dedicated primer gun with a 1.4 fluid tip @ 2bar.
- D8092 is required for all areas of bare metal paying special attention to any vulnerable areas.
- Use D8731 Spot Blender to dissolve the primer edge and smooth its profile prior to topcoat application.

Range:

D8501 White G1
D8505 Grey G5
D8507 Dark Grey G7
D8302 / D8238 UHS Hardener
D8740 Plastic Primer Additive

The Tech Stuff:

Mixing Ratio:	4 Parts Primer : 1 Part Hardener : 2 Parts Thinner
Pot Life:	1 hour @ 20°C
Application:	One 100% wet coat.
Gun Set-up:	1.4 Gravity feed (Optimal) Sprayed @ 2bar
Drying:	15 mins @ 20°C
Dry Film:	25-35 microns

These products are for professional use only
For full technical specification refer to TDS: RLD282V.

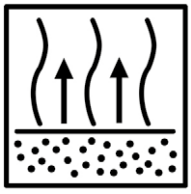
Priming:

DP4000 - New Genuine Electrocoat Panels (in sound condition)

Thoroughly clean the new e-coat panel.

Apply a 100% full closed coat of DP4000 Primer @ 2 bar inlet pressure.

Top Tip: Attention should be given to vulnerable areas!



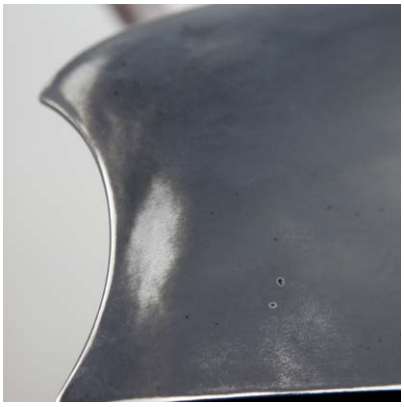
Flash-Off @ 20°C for 15 mins before topcoating.

Dry to sand – 30 mins @ 60°C 5 Days - pre-clean prior to top coating.

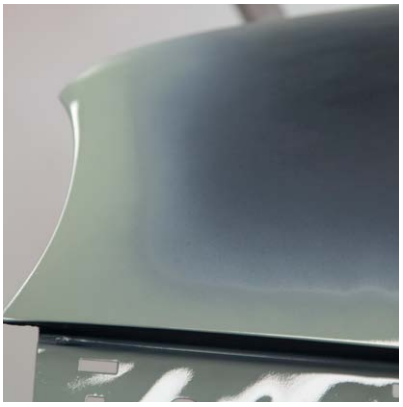
Priming:

DP4000 - New Genuine Electrocoat Panels (with minor scratch abrasions)

Thoroughly clean the new e-coat panel.

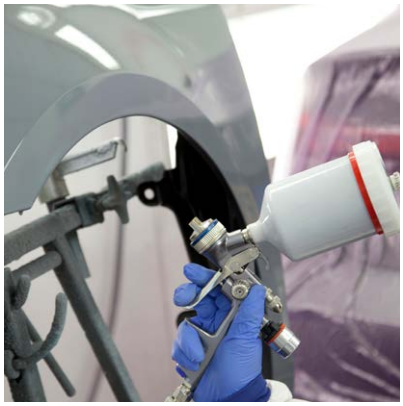


Prep scratches using P500 abrasive.

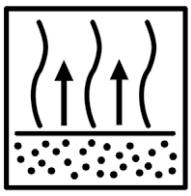


Apply D8092 Chromate Free Etch primer to these areas. Or use SPP3006 Adhesion wipes.

Apply a 100% full coat of DP4000 Primer @ 2 bar inlet pressure.



Top Tip: Attention should be given to vulnerable areas!



Flash-Off @ 20°C for 15 mins before topcoating.

Dry to sand – 30 mins @ 60°C 5 Days - pre-clean prior to top coating.

Priming:

ENVIROBASE® High Performance Application – Internal Repair System (Engine Bay)

Product Description:

***Envirobase* High Performance Internal Repair System** is designed to provide a simple and efficient process for repairs involving specific matt interior colours or low gloss versions of the external colour.

Direct application to electrocoat produces a groundcoat colour to accurately reproduce the original finish on internal parts. At the same time it provides a coloured wet on wet layer that can be topcoated to reproduce the original external finish, thereby removing the need for any undercoating.

Envirobase High Performance Internal Repair system has two modes of use. Internal colour formulas matched to dedicated OE internal colours are provided as part of the PPG colour retrieval system.

Alternatively, any waterborne colour can be converted to Internal Repair mode for use in many repairs where internal colours are low gloss versions of external areas.

Best Practice & Application:

Hand-shake T510 of *Envirobase* High Performance waterborne Engine Bay Converter and tinters for a few seconds before use to ensure that they are thoroughly incorporated.

Mixing Ratios:

Dedicated internal colour

Engine Bay colour:	100 parts
D8260 Activator:	15 parts
T494 Thinner:	10 - 20 parts for solid colours, 20 parts for Aluminium and Pearls 10 parts if using double coats

Converting an existing colour

Envirobase colour:	70 parts
T510 WB Engine Bay converter:	30 parts
Stir thoroughly then add:-	
D8260 Activator:	15 parts
T494 Thinner:	15 - 20 parts for solid colours, 20 parts for Aluminium and Pearls 10 parts if using double coats

Priming:

ENVIROBASE® High Performance Application – Internal Repair System (Engine Bay)

Application Process Steps - Dedicated Internal Colour

For an Internal colour taken from the colour system that includes the WB Engine Bay Converter.

- Select the Internal colour using the Engine Bay Colour Directory or Colour Swatch.
- Using the PAINTMANAGER® or PPG LINQ™ colour retrieval system, mix the *Envirobase* Internal Colour via the RFU feature which includes the addition of T510 WB Engine Bay Converter.
- Stir colour thoroughly before activation.
- Any rub through areas to bare metal should first be primed using D8421 (G5), D8424 (G6) or D8426 (G7) Aerosol 1K primers.
- Apply a light coat of colour to internal edges and sealer areas to maximize coverage. Flash off using air blowers or express systems.
- Apply coats of colour to internal areas and any external panels that need a wet on wet surface for topcoat.
- Use double coats (single coats can be applied if preferred) to reach coverage.
- Flash off using an air blower, Quads etc.
- Apply the topcoat to external panels, as necessary, after 15 minutes (or when fully flashed off) and bake. Internal colours can be overcoated with *Envirobase* High Performance and Clearcoat or DELTRON® Progress UHS DG colour.
- Normally this Internal Repair system does not require flatting and should be directly topcoated. If some dirt inclusions occur, then light flatting / denibbing can be carried out after 20 minutes using P1200 or a dry blend and finishing pad.

These products are for professional use only.
For full technical specification refer to TDS: RLD234V.

Priming:

ENVIROBASE® High Performance Application – Internal Repair System (Engine Bay)

Application Process Steps - Converting an Exisiting Colour

For an *Envirobase* colour that needs converting to an Internal colour.

- Select the colour using the *Envirobase* Colour Directory or Colour Swatch.
- Using the PAINTMANAGER® or PPG LINQ™ colour retrieval system, mix the *Envirobase* colour via the RFU feature and stir thoroughly.
- Add D8260 Engine Bay additive and stir thoroughly. Continue to activate and thin the Internal colour, as recommended.
- Any rub through areas to bare metal should first be primed using D8421 (G5), D8424 (G6) or D8426 (G7) Aerosol 1K primers.
- Apply a light coat of Internal colour to internal edges and sealer areas to maximize coverage.
- Flash off using air blowers or express systems.
- Apply coats of colour to internal areas and any external panels that need a wet on wet surface for topcoat.
- Use double coats (single coats can be applied if preferred) to reach coverage.
- Flash off using air blowers or express systems.
- Apply the topcoat to external panels, as necessary, after 15 minutes, (or when fully flashed off), and bake. Internal colours can be over coated with *Envirobase* High Performance and Clearcoat.
- Normally this Internal Repair system does not require flatting and should be directly topcoated. If some dirt inclusions occur, then light flatting / denibbing can be carried out after 20 minutes using P1200 or a dry blend and finishing pad.

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For full technical specification refer to TDS: RLD234V.

Greymatic Identification

To identify the optimum Greymatic by specific colour, please refer to the colour formulation.

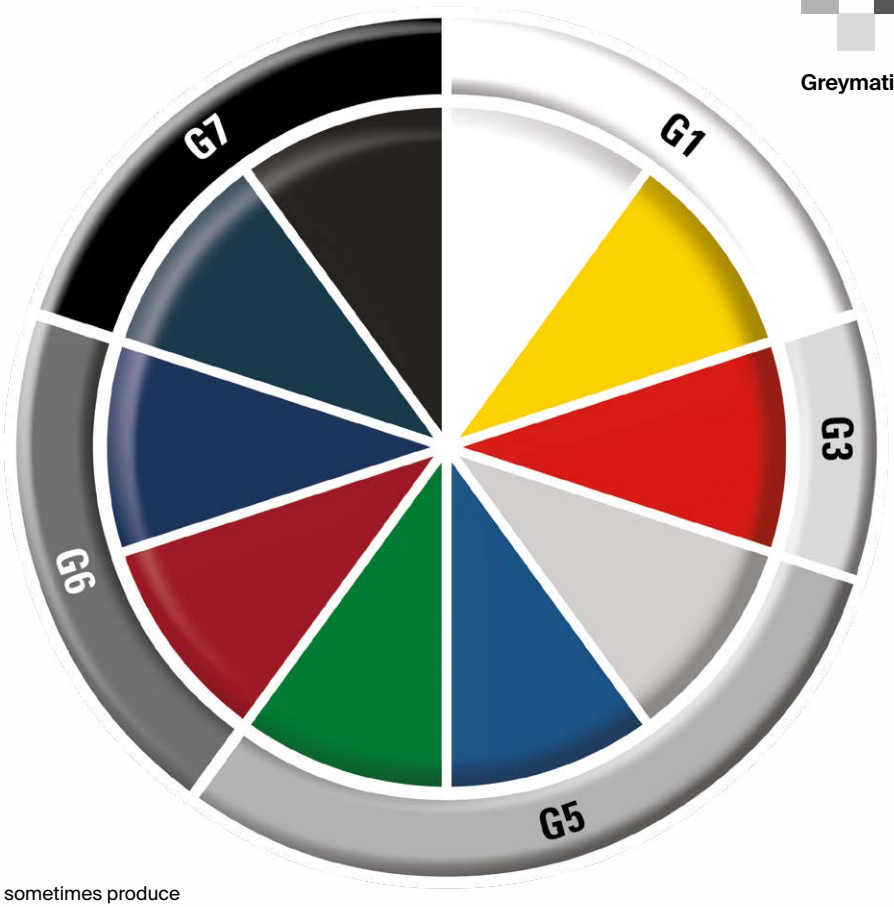
G1
Use under:
Whites
Light Yellows
Light Greens
Light Blues

G3
Use under:
Light Greys
Yellows
Possible alternative for G1 on spot repairs**

G5
Use under:
Medium Greys
Dark Yellows
Greens
Blues
Light/Med Reds

G6
Use under:
Dark Greys
Dark Greens
Dark Blues
Dark Reds
Red Pearls

G7
Use under:
Blacks
Very Dark Greys
Maroon Pearls
Some Dark Red Pearls



Greymatic

**Using G1 when priming spot repair areas could sometimes produce transparency issues. As an alternative it may sometimes be advisable to use G3 in it's place which will help optimise coverage of the primer.

DELTRON® DP7000 Air Dry Primer

	G1	G3	G5	G6	G7
D8561	100%	80%			
D8565		20%	100%	20%	
D8567				80%	100%

Deltron DP5000 2K Primer

	G1	G3	G5	G6	G7
D8521	100%	75%			
D8525		25%	100%	48%	
D8527				52%	100%

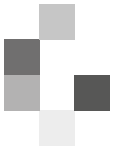
Deltron DP4000 2K Primer

	G1	G3	G5	G6	G7
D8501	100%	75%			
D8505		25%	100%	48%	
D8507				52%	100%

% mix by weight

Priming:

Greymatic Identification Guidance



Greymatic

Perceived opacity is best achieved by using a primer that matches the lightness and darkness of the topcoat colour. The PPG Greymatic system is a range of grey shades designed to allow you to use the correct grey shade for the colour. To support the bodyshop in identifying the correct Greymatic shades for application PPG have developed a Greymatic Identification tool.

The purpose of this tool is to help you reduce the amount of basecoat material needed to achieve perceived coverage. Use of the Greymatic Identification Tool will help you to select the correct primer shade, and avoid situations where the incorrect primer shade is used.

'Suggested' colour type options aligned to a Greymatic shade

G1

Use under:

Whites
Light Yellows
Light Greens
Light Blues

G3

Use under:

Light Greys
Yellows
Possible alternative for G1 on spot repairs**

G5

Use under:

Medium Greys
Dark Yellows
Greens
Blues
Light/Med Reds

G6

Use under:

Dark Greys
Dark Greens
Dark Blues
Dark Reds
Red Pearls

G7

Use under:

Blacks
Very Dark Greys
Maroon Pearls
Some Dark Red Pearls

****Best Practice:**
Using G1 when priming spot repair areas could sometimes produce transparency issues. As an alternative it may sometimes be advisable to use G3 in it's place which will help optimise coverage of the primer.

The recommended Greymatic shade is shown on the formula screen when mixing via PAINTMANAGER® or PPG LINQ™ Colour software.

Priming:

DP5000 High Build Primer D8521 / D8525 / D8527

Greymatic

Product Description:

DP5000 High Build Primer is suitable for a wide range of repair work. Easy to apply and sand, it offers excellent film build and gloss holdout over a wide range of substrates, such as sound original paintwork, bare steel and polyester body fillers.

Greymatic system: combine D8521, D8525 and D8527 primers to create a range of grey shades offering fast, effective topcoat opacity and colour match capabilities, thus reducing topcoat colour consumption, leading to quicker application and process time while maximising production efficiencies and cost savings.

Best Practice:

- Always use the correct Greymatic shade for the colour type
- You must spray using an 'out to in' method: the first coat extended to the outer edge of the repair with subsequent coats sprayed just inside the last.
- Make sure you use the primer immediately after mixing.
- Always mix the primer via the PAINTMANAGER® or PPG LINQ™ Colour software for accurate and efficient volumes.

The Tech Stuff:

Mixing Ratio:	7 Parts Primer : 1 Part Hardener : 1-2 Parts Thinner
Pot Life:	90 mins 20°C
Application:	Three 100% coats. Allow to matt between coats
Gun Set-up:	1.6 Gravity feed (Optimal)
Drying:	20-30 mins @ 60°C / IR 12mins / 3-4 hrs Air dry @ 20°C
Dry Film:	75-130 microns (Optimal)

Range:

D8521 Light Grey
D8525 Grey
D8527 Dark Grey
D8302 UHS Hardener
D8717 Fast Thinner
D8718 Medium Thinner
D8719 Slow Thinner

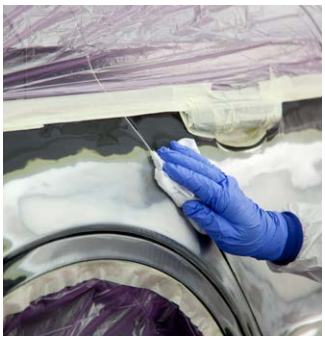
Always ensure paint is at the correct temperature. Ensure that paint is warmer than 15°C before application.

These products are for professional use only.
For full technical specification refer to TDS: RLD301V.

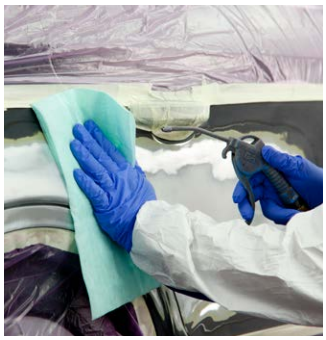
Priming:

DP5000 High Build Primer D8521 / D8525 / D8527

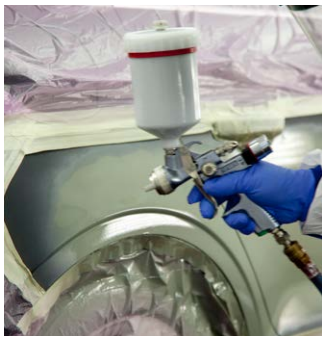
Thorough cleaning with D837 Spirit Wipe.



Remove excess Spirit Wipe with lint free cloth.



Blow off and tack the panel thoroughly.



Apply a 100% coat of D8092 to bare substrate. Or use SPP3006 Adhesive wipes

Apply a 100% first coat to DP5000 to the whole repair area.

Apply a 100% second coat just inside the first.

Apply a 100% third coat just inside the second coat.

If needed a 100% fourth coat can be applied just inside the third coat

After completion of the primer application process allow the booth to clear of overspray. It can now be baked for: 20 mins at 60°C panel temp, IR lamped for 12 mins or air dried for 3-4 hrs at 20°C.

Priming:

DP7000 2K Rapid Primer D8561 / D8565 / D8567

Greymatic

Product Description:

DP7000 Air-dry Primer's outstanding drying properties differentiate this new primer in both Air-dry, IR and bake process. In Air-dry mode, the new DP7000 provides 80-100 microns sandable in 30 mins @20°C under all humidity conditions. This provides a market leading primer surfacer with no reliance on humidity conditions to enhance speed of dry.

DP7000 is easy to apply with excellent sanding properties whilst focusing on the efficiency of the bodyshop. The one-visit application helps in reducing overall process time and the fast air-drying makes this product environmentally sustainable.

Greymatic system: combine D8561, D8565 and D8567 primers to create a range of grey shades offering fast, effective topcoat opacity and colour match capabilities, thus reducing topcoat colour consumption, leading to quicker application and process time while maximising production efficiencies and cost savings.

Range:

D8561 DP7000 Air-dry Primer G1
D8565 DP7000 Air-dry Primer G5
D8567 DP7000 Air-dry Primer G7
D8270 DP7000 Hardener
D8727 DP7000 Standard Thinner
D8728 DP7000 High Temp Thinner

Best Practice:

- Always use the correct Greymatic shade for the colour type
- Application in 1 light coat followed by 2-4 full coats without flash-off
- Make sure you use the primer immediately after mixing and with the correct thinning option dependant on application mode.
- Always mix the primer via the PAINTMANAGER® or PPG LINQ™ Colour software for accurate and efficient volumes.

The Tech Stuff:

Mixing Ratio:	3 Parts Primer : 1 Part Hardener : 0.5 Parts Thinner
Pot Life:	30 mins @ 20°C
Application:	1 light and 2-4 full coat
Gun Set-up:	1.4 - 1.6mm Fluid Tip
Drying:	30 mins @ 20 degrees / IR 1 min flash followed by 5 min @ 50% efficiency / 5-10 min @ 60°C
Dry Film:	80 - 140 microns

These products are for professional use only.
For full technical specification refer to TDS: RLD308V.

Priming:

DP7000 2K Rapid Primer D8561 / D8563 / D8567

Thoroughly clean with D837 Spirit Wipe and remove any excess Spirit Wipe with a lint free cloth. Before spraying thoroughly blow and tack off the panel.

Best Practice:
Apply a 100% coat of D8092 CF Etch to any bare substrate. Or use SPP3006 Adhesion wipes.

Apply a 50% first coat to the outer edges of the whole repair area and flash off for approximately 1 minute or until touch dry.

Apply a 75% second coat followed by another 75% third coat just inside the second as a wet on wet process with no flash off. If required a fourth coat can be applied.

After completing the primer application and all overspray has cleared, the vehicle can be removed from the booth and air dried for **30 minutes @ 20°C**. Infra red lamps can also be used with D8719 Slow Thinner.

Priming:

Roll Priming Mode using DP5000 & DP7000 Primers

DP5000 - designed as a conventional standard process

DP5000	7 parts by vol
D8302	1 part by vol
D8718	1 part by vol
Pot Life:	30 mins @ 20°C

DP7000 - designed as a productivity fast cure process

DP7000	3 parts by vol
D8270	1 part by vol
D8727	0.25 part by vol
Pot Life:	40 mins @ 20°C

Application Best Practice:

The size of the area to be roll primed can be assessed based on the panel shape, the skill level and confidence of the operative.

1. The use of a good quality high density foam roller is essential.
2. Load the roller from an onion board. Remove excess primer from the roller remembering full paint loading is essential.
3. The first coat covers the largest or full repaired area, working an 'out to in' method with all subsequent coats.
4. Apply primer from the centre of the repaired area, rolling outwards using light pressure. Do not overwork the primer.
5. Use the roller with less primer loading to 'flare' the edges of each coat, reducing the build up of primer on the edge.
6. Allow the primer to flow out on the panel; avoid over working, which can leave an uneven surface and reduced build.
7. When one coat becomes matt, it is ready for the next coat. Flash-off is approximately 3-5 minutes.
8. The application process can be shortened by using an IR lamp to speed up the drying times between coats.
9. When an IR lamp is used, flash off takes approx. 1 minute.
   NOTE: The surface has to be cool before next coat is applied.

Number of coats:

Apply 3-4 coats to give a film thickness of 75 - 125 microns (3 - 5 thou.).
3 - 5 min flash-off.

Top Tip:

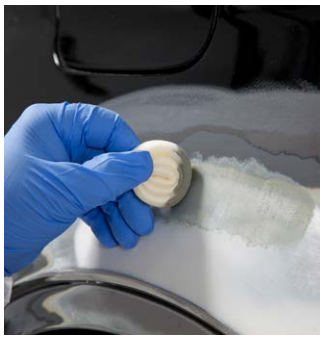
RFU viscosity at 60 seconds gives the best balance between application properties, film build and final appearance.

PPG DP7000 Roll Primer Process Video

Priming:

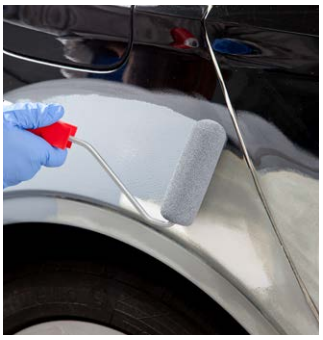
Roll Priming Mode using DP5000 & DP7000 Primers

Dab D8092 Etch Primer or use SPP3006 adhesion wipes onto any bare substrate with the end of a roller.



Alternatively use a piece of rolled up foam masking.

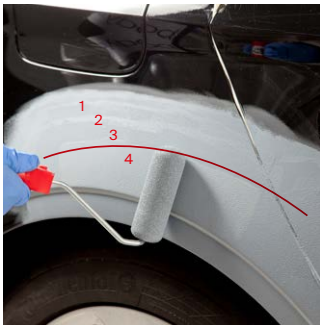
Fully load the roller.



Apply the first coat to to the full extent of the repair.

Apply second coat just inside the first.

Apply third coat just inside the second.



Apply a final coat inside the third.

Top Tip and Best Practice:

Always ‘flare’ the edges of each coat to help soften and reduce film build which will make the sanding process more effective. Ensure the roller is kept well loaded for each coat and that it is not ‘overworked’ as this could reduce the build per coat.

Priming:

SPP3007 UV Primer

Application Process for SPP3007 UV Primer:

The SPP3007 UV Primer is designed for quick and professional repairs, offering ease and efficiency for bodyshops handling spot repairs. This primer is easy to spray and allows sanding just two minutes after drying, making it ideal for small to medium repairs.

Mixing:

- SPP3007 is ready to spray. Mechanically agitate before use.
- Use a black/opaque PVC spray cup to extend the life of the UV paint in the cup.

Application Procedure:

- Apply 2 wet coats.
- Dry film build should be 50-60 microns per coat.
- Do not spray to hiding or exceed more than 2 coats.

Air Pressure and Gun Setup:

- HVLP: 2 bar (0.7 bar at the air cap).
- Compliant: 2 bar at the gun.
- Fluid Tip: 1.0 - 1.2 mm or equivalent.

Flash Time:

- Optional 30 seconds between coats, but no flash before curing.

Cure Process:

- Use Personal Protective Equipment (PPE) to prevent UV radiation damage.
- Cure for 2 minutes using a UV-A LED Light held 10-20 cm away from the panel.
- Continuously move the light over the repair area if larger than 15 cm.
- Ensure UV light source is perpendicular to all panel surfaces for the required time.
- UV primer can also be cured by direct sunlight (10-30 mins depending on UV intensity).

Post-Cure:

- The repair is ready to sand immediately after curing.

Section 6

Basecoat Application - OneVisit™

Basecoat Application - OneVisit™

Panel Preparation & Cleaning

Best Practice:

To ensure the vehicle is sufficiently clean and ready for repair PPG recommend that the vehicle is thoroughly cleaned prior to it entering the workshop.

Removal of general traffic film, dirt and tar spots will help ensure a consistent and a RIGHT FIRST TIME repair can always be achieved.

Recommended Best Practice:
Jet Wash or Steam Clean the vehicle.

Any initial 'In Process' cleaning to the repair should be done using both solvent and water based cleaners at all workshop stages. Both cleaners will ensure any mineral salts and contaminants are removed.
(For cleaning polyester bodyfiller – only use solvent spirit wipe)

The PPG Cleaning range includes:
D837 Spirit Wipe and D8401 Waterborne Low VOC Cleaner to assist with this process.

Both products should be used via a pressure pump dispenser bottle. Excess product is then removed using a premium lint free cloth.

These products are for professional use only.
For full technical specification refer to TDS: RLD63V.

Basecoat Application - OneVisit™

ENVIROBASE® High Performance *OneVisit* Modifier Basecoat T4xx

Product Description:

Applied as a OneVisit basecoat application system, ***Envirobase* High Performance colour** reproduces original solid, metallic, mica or special effect paint finishes, giving excellent covering power and fade out capability.

Best Practice & Application:

- Each tinter should be inverted 2-3 times before pouring. Best Practice: It is recommended not to shake the bottle.
- Should be kept (stored) ideally in an ambient environment between 15-25°C and not dropping below + 4°C for a sustained period of time

Mixing Ratios

Mixing Ratios with *Envirobase* HP *OneVisit* Modifier (2CT colours)			
Volume / Parts	Metallic Colours	High Chroma, Red, Green and Blue Mica Colours	Solid Colours and White Mica/ Metallic*
Envirobase HP	100	100	100
T4900 / T4910	20	15	5
T494 / T495			15

*Colours with high T400 content

Mixing Ratios with *Envirobase* HP *OneVisit* Modifier (3CT colours).			
Step	Volume / Parts	Metallic Colours	Solid Colours
Step 1	*Envirobase* HP	100	100
	T4900 / T4910	20	5
	T494 / T495		15
Step 2	T490 + Mica / Solid	100	100
	T494 / T495	20	20

Gun Set up:

- A preferred 1.2, 1.3 or WSB** gravity feed spray gun set up will give consistent results across the colour and effect spectrum.

Optimal Application: (OneVisit)

- 1.8 bar inlet pressure (Full coat and Control coat)
- Full Trigger (Full wet uniform coat) followed by 1¼ - 1½ turn out (Control coat).

Optimal flash-off performance is attained when used in conjunction with mechanical drying (dehydrating) equipment.

** WSB refers to a specific Sata Spray gun set up

These products are for professional use only.
For full technical specification refer to TDS: RLD213V.

Blend In Process/area:

- 1.5 bar inlet pressure.
- Trigger 1¼ turn out through the blend process - 1¼ turn out (Control coat).
- Use reverse technique.

OneVisit™ Application Process

Preparation

Bare Metal

D837
DELTRON® Spirit Wipe

Ready to Use

D8401
Deltron Waterborne
Low VOC Cleaner

Ready to Use

e-Coat

D837
Deltron Spirit Wipe

Ready to Use

D8401
Deltron Waterborne
Low VOC Cleaner

Ready to Use

Undercoat

D8092
Deltron
Wash Etch Primer
Chromate Free

Mix: 1:1
Activator: D8293
or D833 (Slow)

D8521/D8525/D8527
Deltron DP5000
2K Primer

Can be applied with a roller
Mix: 7:1:1.2 (Spray)
Hardener: D8302
Thinner: D8718 (Medium)
D8719 (Slow)

D8561/D8565/D8567
Deltron DP7000
Air Dry Primer

Spray Application
Mix: 3:1:0.5

Roll Application
Mix: 3:1
Hardener: D8270
Thinner: D8727/28

D8501/D8505/D8507
Deltron DP4000
2K Primer

Mix: 4:1:2 / 2:1:0.5
Hardener: D8302 / D8238
Thinner: D8715
Thinner: D8740
(Plastic Parts)

Dedicated Engine Bay Colours

Mix: 100 Parts Colour
15 Parts D8260 Activator
10-20 Parts T494

Converting Existing Colours

Mix: 70 Parts *Envirobase* Colour
30 Parts T510
Stir thoroughly then add:
15 Parts D8260 Activator
10-20 Parts T494

Select correct Primer shade

- G1
- G3
- G5
- G6
- G7

Colour

T4xx
ENVIROBASE®
High Performance
Basecoat

***OneVisit*
Application Process**

Mixing Ratios with *Envirobase* HP
OneVisit Modifier (3CT colors)

Step	Volume/Parts	Metallic Colors	Solid Colors
Step 1	*Envirobase* HP	100	100
	T4900/T4910	20	5
	T494/T495		15
Step 2	T490 + Mica/Solid	100	100
	T494/T495	20	20

Mixing Ratios with Blending Adjuster

	Volume/Parts
T4904 Blending Adjuster	100
T4900/T4910	20

Clearcoat

D8177
Deltron Progress Rapid
Performance
Clearcoat

Mix: 2:1:06
Hardener: D8307/08
Thinner: D8757/58

D8131
Deltron UHS Clearcoat

Mix: 2:1
Hardener: D8254

D8731 & D8430
Deltron Spot
Blender

Ready to Use

D8115
Deltron Matt Clearcoat

Mix: 5:1:3.5
Hardener: D8302
Thinner: D8718/19

D8117
Deltron Semi-Gloss Clearcoat

Mix: 5:1:3.5
Hardener: D8302
Thinner: D8718/19

Section 7

Basecoat Application - Standard

Basecoat Application - Standard

Panel Preparation & Cleaning

Best Practice:

To ensure the vehicle is sufficiently clean and ready for repair PPG recommend that the vehicle is thoroughly cleaned prior to it entering the workshop.

Removal of general traffic film, dirt and tar spots will help ensure a consistent and a RIGHT FIRST TIME repair can always be achieved.

Recommended Best Practice:
Jet Wash or Steam Clean the vehicle.

Any initial 'In Process' cleaning to the repair should be done using both solvent and water based cleaners at all workshop stages. Both cleaners will ensure any mineral salts and contaminants are removed.
(For cleaning polyester bodyfiller – only use solvent spirit wipe)

The PPG Cleaning range includes:
D837 Spirit Wipe and D8401 Waterborne Low VOC Cleaner to assist with this process.

Both products should be used via a pressure pump dispenser bottle. Excess product is then removed using a premium lint free cloth.

These products are for professional use only.
For full technical specification refer to TDS: RLD63V.

Basecoat Application - Standard

ENVIROBASE® High Performance Basecoat T4xx

Product Description:

Applied as part of a two-stage or multi-stage basecoat paint system,, ***Envirobase* High Performance colour** reproduces original solid, metallic, mica or special effect paint finishes, giving excellent covering power and fade out capability.

Best Practice & Application:

- Each tinter should be inverted 2-3 times before pouring. Best Practice: It is recommended not to shake the bottle.
- Should be kept (stored) ideally in an ambient environment between 15-25°C and not dropping below + 4°C for a sustained period of time

Mixing Ratios

Mixing Ratios with *Envirobase* High Performance Colour	
	By Volume
Envirobase Solid Colours	100 Vols
Thinner T494 / T495	10 Vols
Envirobase Metallic or Solid Colours	100 Vols
Thinner T494 / T495	15-20 Vols

Gun Set up:

- A preferred 1.2, 1.3 or WSB** gravity feed spray gun set up will give consistent results across the colour and effect spectrum.

Spraying Pressure:

- 2 bar inlet pressure for the full coats. 1.2 to 1.5 bar for the 'control' coat.

Optimal Application:

- 1 x 25% (light coat) gun dried followed by 1 x 100% coat and then a 75% coat as a wet on wet process to achieve full coverage
- A 25% control coat is then applied to the dried film to attain an even appearance.
- Controlled 75% gun pass overlaps should be used for a consistent uniform final appearance.

Optimal flash-off performance is attained when used in conjunction with mechanical drying (dehydrating) equipment.

** WSB refers to a specific Sata Spray gun set up

These products are for professional use only.
For full technical specification refer to TDS: RLD213V.

Basecoat Application - Standard

ENVIROBASE® High Performance Basecoat T4xx

Spraygun Setup

The importance and purpose of setting up or ‘balancing’ any spraygun correctly for use with PPG paint products are as follows:

- Ensuring full compliancy with current legislation and to help reduce VOC emissions.
- To achieve a ‘right first time’ consistent and good quality paint finish to each repair.
- Maximising the paint transfer efficiency, improving process time and reducing paint material usage.
- To help the operative achieve maximum control of paint material flow, whilst optimising the spraygun and products performance.

Standard Application Process

Preparation

Bare Metal

D837
DELTRON® Spirit Wipe

Ready to Use

D8401
Deltron Waterborne
Low VOC Cleaner

Ready to Use

e-Coat

D837
Deltron Spirit Wipe

Ready to Use

D8401
Deltron Waterborne
Low VOC Cleaner

Ready to Use

Undercoat

D8092
Deltron
Wash Etch Primer
Chromate Free

Mix: 1:1
Activator: D8293
or D833 (Slow)

D8521/D8525/D8527
Deltron DP5000
2K Primer

Can be applied with a roller
Mix: 7:1:1.2 (Spray)
Hardener: D8302
Thinner: D8718 (Medium)
D8719 (Slow)

D8561/D8565/D8567
Deltron DP7000
Air Dry Primer

Spray Application
Mix: 3:1:0.5

Roll Application
Mix: 3:1
Hardener: D8270
Thinner: D8727/28

D8501/D8505/D8507
Deltron DP4000
2K Primer

Mix: 4:1:2 / 2:1:0.5
Hardener: D8302 / D8238
Thinner: D8715
Thinner: D8740
(Plastic Parts)

Dedicated Engine Bay Colours

Mix: 100 Parts Colour
15 Parts D8260 Activator
10-20 Parts T494

Converting Existing Colours

Mix: 70 Parts *Envirobase* Colour
30 Parts T510
Stir thoroughly then add:
15 Parts D8260 Activator
10-20 Parts T494

Select correct Primer shade

- G1
- G3
- G5
- G6
- G7

Colour

T4xx
ENVIROBASE®
High Performance
Basecoat

Mix:

Performance Additive Process for Silver Metallics (greater than 70% aluminium toner)

T4xx – 100 Parts
T492 – 10 Parts
T494 – 10-20 Parts Min

Performance Additive Process for all other colours

T4xx – 100 Parts
T492 – 10 Parts
T494 – 5 Parts Min

Standard Process for Metallics, Pearls and Special Effects

T4xx – 100 Parts
T494 – 15-25 Parts

Standard Process for Solid Colours

T4xx – 100 Parts
T494 – 10 Parts

Clearcoat

D8177
Deltron Progress Rapid
Performance
Clearcoat

Mix: 2:1:06
Hardener: D8307/08
Thinner: D8757/58

D8131
Deltron UHS Clearcoat

Mix: 2:1
Hardener: D8254

D8731 & D8430
Deltron Spot
Blender

Ready to Use

D8115
Deltron Matt Clearcoat

Mix: 5:1:3.5
Hardener: D8302
Thinner: D8718/19

D8117
Deltron Semi-Gloss Clearcoat

Mix: 5:1:3.5
Hardener: D8302
Thinner: D8718/19

Section 8

UHS Clearcoat

UHS Clearcoat:

D8177 DELTRON® UHS Rapid Performance Clearcoat

Product Description:

D8177 *Deltron* Rapid Performance Clearcoat uses advanced technology to achieve an excellent,glossy, mirror-like finish, both in one visit or with a two-coat application.

Alongside rapid bake and air-dry cycles, this new clearcoat provides significant flexibility,empowering all bodyshops to save time,material and energy - without compromising on performance and ease of use.

It comes as a package with dedicated hardener and thinners for standard and high temperature application.

Best Practice & Application:

- A 'Less is More' approach to its application is recommended.
- A 1.2 fluid tip set up to 2 – 2.5 turns out is considered (optimal).
- The product performs at its best when kept warm: 15-19°C ambient, and a viscosity between 17-19 seconds in a DIN4 cup.
- The pot life is 1 hour at 20°C. Use immediately after activation.
- Ensure you spray at 2-2.2 bar to optimise the product flow, through cure and final appearance.

The Tech Stuff:

Mixing Ratio:	2 Parts D8177, 1 Part D8307/8, 0.6 parts D8757/8
Pot Life:	45 to 60 minutes at 20°C
Viscosity:	RFU 18-19 seconds DIN4 cup at 20°C
Application:	Apply 1 light/medium & 1 full coat.
Flash Off:	1 Visit application: If only 1-2 panels; 1 minute flash off
Gun Set-up:	1.2 mm Fluid Tip
Drying:	5mins @ 60°C / 20mins @ 40°C / 60mins Air-Dry @ 20°C and dust free after 20mins.

Bake times are for quoted metal temperature.
Additional time should be allowed in the bake schedule to allow metal to reach recommended temperature.

Range:

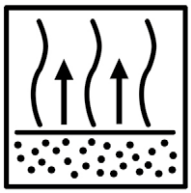
D8177 UHS Rapid Performance Clearcoat **D8307** UHS Hardener
D8308 UHS Hardener
D8757 Accelerator Thinner - Medium
D8758 Accelerator Thinner - Slow

These products are for professional use only.
For full technical specification refer to TDS: RLD400V.

UHS Clearcoat:

D8177 DELTRON® UHS Rapid Performance Clearcoat 2 Single Coat Process:

1st Coat = 75% closed @ 2 bar.



Flash-off for 5 minutes.

Inspect the final finish, allow overspray to clear the booth, then flash off for 5 minutes before initiating the recommended bake cycle.

UHS Clearcoat:

D8430 DELTRON® Spot Blender and D8731 *Deltron* Aerosol Spot Blender

Product Description:

D8430 *Deltron* Spot Blender and **D8731 *Deltron* Aerosol Spot Blender**. When used correctly, these offer an easy and simple fade-out process for all PPG's UHS Clearcoat range.

They are formulated for easy application and have excellent overspray wetting properties, giving an effective, high gloss and quality finish to the fade-out repair.

Best Practice & Application:

- A 'less is more' approach to its application is recommended.
- Thorough preparation of the area to be blended is essential. Use a P2000 blend and finish disc with a lubricant such as D837 Spirit Wipe or Bodyshine liquid.
- A good technique is required when using D8731. Ensure the can is shaken vigorously before each use, and is then inverted and cleared of product after every use.
- An aerosol trigger is recommended to help reduce any 'thumb' interference with the spray pattern and will allow for a more robust technique.
- Must be stored in a warm and dry environment but should not be left in the spray booth.

The Tech Stuff:

- Finish the clearcoat blend to a hard edge, not arcing the gun – this reduces overspray significantly.
- Wet the edge with a light coat of Spot Blender and leave for 15 seconds.
- Wet the edge again with a second light application before commencing the cure process.

For Optimum Performance and Results:

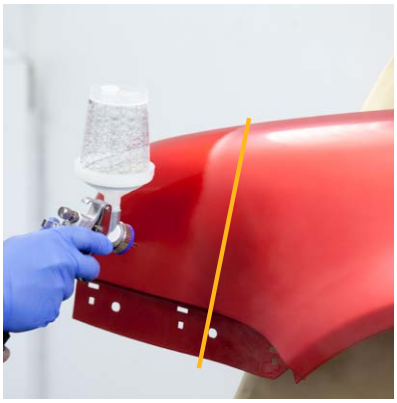
- Use D8731 Aerosol Spot Blender on door shuts, sills, lower bumpers and other smaller areas etc.
- Use D8430 Spot Blender via a spray gun on larger blends and most normal pillar and edge blends.

Top Tip: Polish the blend only when it is fully cured and without creating excessive heat using a good quality compound and mop head. This reduces any risk of burning back or breaking through the blend edge.

These products are for professional use only.
For full technical specification refer to TDS: RLD299V.

UHS Clearcoat:

D8430 DELTRON® Spot Blender and D8731 *Deltron* Aerosol Spot Blender Application



Finish the clearcoat blend to a hard edge, not arcing the gun. This reduces overspray significantly.

D8731 Aerosol Spot Blender is used from a distance of 9-12” and applied in 1-2 light coats using an arcing motion.

D8430 Spot Blender, via a spraygun, is used from a distance of 9-12” and applied in 1-2 light coats using an arcing motion.

Section 10

Preparation & Painting Plastic Parts

New Raw (Un-Primed) Plastic Parts

Product Description:

D8434 DELTRON® Plastic Substrate Cleaner is a detergent based cleaner for removing all types of contaminants (e.g. mould release agents and traffic film) from unpainted 'raw' plastic as part of a step for the preparatory process to ensure excellent adhesion is achieved for subsequent coating application.

D846 *Deltron* Antistatic Agent for Plastics is a specially designed alcoholic blend of solvents formulated to treat plastic surfaces without damaging them and to prevent the build up of static, ensuring a dust free finish.

Best Practice:

When using D846 always test the substrate first as it can remove or soften some OE factory primers. D8401 Waterborne Pre-cleaner will provide a suitable process replacement.

The Tech Stuff:

- Cleaner for Plastics D8434 should be mixed 1:1 with tap water. Application is recommended preferably via a pressurised pump spray or spray applicator bottle
- Apply liberally and use a grey weave pad to abrade the plastic whilst cleaning the surface at the same time.
- Rinse the substrate thoroughly with clean water and allow to dry completely.

To ensure the cleaner has worked spray some clean water onto the cleaned plastic.

- If water beads form upon rinsing, repeat the process to thoroughly remove any contaminant
- Apply D846 to the whole of the plastic part to be painted using a lint free cloth.
- Remove any excess with a clean lint free cloth.

Steam Cleaning

Care should be taken when steam cleaning painted or none painted plastics, ensuring that the nozzle is kept at least 30cm (12") away from the surface to avoid damage.

These products are for professional use only.
For full technical specification refer to TDS: RLD63V.

Un-Primed ‘Raw’ Plastic Cleaning Process

Mix 1:1 with Tap Water.

Thoroughly clean using the solution and a grey weave pad.

Rinse the plastic with clean water and thoroughly dry.

The part is clean if water runs off in rivers.

If the water beads up the plastic will require re-cleaning.

Correctly cleaned plastic.

Finally apply D846 Antistatic agent to the part ready for paint application.

Preparation & Painting Plastic Parts

New Car Parts - Pre-Primed

Preparation

Clean & Abrade

Abrade gently but thoroughly with a grey weave pad or P500/P800 soft pad and wipe with D8401 Waterborne Pre-cleaner

D846 DELTRON® Anti-Static Wipe

Test a small area first as it can soften some OE plastic primers.

Alternately use D8401.

D8501 / D8505 / D8507 Wet On Wet Primer DP4000 Primer using D8740 *Deltron* Plastic Primer Additive

Apply Topcoat

Thorough preparation and cleaning are essential for the successful refinishing of plastic parts. The PPG plastic cleaning and preparation system is designed to produce the best performance from the primer and topcoat systems.

These products are for professional use only.
For full technical specification refer to TDS: RLD282V.

New Car Parts – Popular Plastic Substrates

Preparation for:
PP / TPO / PP-EPDM/ PA / Lexan

Clean & Abrade

D8434 - Clean and lightly abrade with a grey weave pad. Then wash down using clean water.

D846 DELTRON® Anti-Static Wipe

Plastic Primer

D820 *Deltron* Adhesion Promotor
D8420 *Deltron* Aerosol Adhesion Promotor for plastics

D8420 Aerosol should only be utilised on small to medium rub throughs or repaired areas. D820 used via a spray gun offers a wider option on general areas of repair and will ensure enough product is applied for these larger areas.

Apply Hi Build Primer DP5000 / DP7000

Thorough preparation and cleaning are essential for the successful refinishing of plastic parts. The PPG plastic cleaning and preparation system is designed to produce the best performance from the primer and topcoat systems.

These products are for professional use only.
For full technical specification refer to TDS: RLD241V.

New Car Parts – Popular Plastic Substrates

Preparation for:
PUR / ABS / PC-PBT / NORYL / GRP

Clean & Abrade

D8434 - Clean and lightly abrade with a grey weave pad. Then wash down using clean water.

D846 DELTRON® Anti-Static Wipe

Plastic Primer

D820 *Deltron* Adhesion Promotor
D8420 *Deltron* Aerosol Adhesion Promotor
for plastics

DP5000 / DP7000 2K Primers in the appropriate Greymatic shade used in either spray or roll modes.

Apply Topcoat

Thorough preparation and cleaning are essential for the successful refinishing of plastic parts. The PPG plastic cleaning and preparation system is designed to produce the best performance from the primer and topcoat systems.

These products are for professional use only.
For full technical specification refer to TDS: RLD241V.

Preparation & Painting Plastic Parts

Repair Plastics Process

Preparation for:
All plastic types except PUR

Undercoat / Primer

Clean & Abrade

D8434 - Clean and lightly abrade with a grey weave pad. Then wash down using clean water.

D846 DELTRON® Anti-Static Wipe

D820 *Deltron* Adhesion Promotor
D8420 *Deltron* Aerosol Adhesion Promotor
for plastics

Apply Topcoat

Optional Phase:
Apply DP5000/DP7000 2k Primer and flexibilise if required for any deformable plastic parts.

Mixing Ratio via PAINTMANAGER® or PPG LINQ™ Colour software:

DP5000	5.6 vol	DP7000	3 vol
D814	1.4 vol	D8270	1 vol
D8302	1 vol	D8727/28	0.5 vol
Thinner	1 vol		

Thorough preparation and cleaning are essential for the successful refinishing of plastic parts. The PPG plastic cleaning and preparation system is designed to produce the best performance from the primer and topcoat systems.

These products are for professional use only.
For full technical specification refer to TDS: RLD241V..

Car Repair Process for Plastics

New Plastics

Car Parts & Substrate

New car parts supplied in Primer

Bumper
e.g. PP / TPO / PP-EPDM

Wheel trim
e.g. PA / LEXAN

Wing mirror
e.g. ABS / NORYL / PC-PBT

Spoiler
e.g. PUR
Glass Reinforced Substrates
e.g. SMC

Preparation

Clean & Scuff

Abrade gently with a grey scotch pad and wipe with Waterborne Pre-Cleaner (Anti-Static Wipe will remove many OE plastic primers)

D8434
Cleaner for Plastics

Clean and scuff.
Wash off thoroughly with clean water and dry.

Mix: 1:1 Water

Anti-Static Wipe

D846
Anti-Static Agent

Wipe on and wipe off.

Ready for use

Undercoat

Primer Plastic Additive

D8740 Primer Plastic Additive

Replaces the D8715 thinner in DP4000 2K Primer

Plastic Adhesion Promoter

D820 or D8420
Aerosol Adhesion Promoter for Plastics

Ready for use
LEXAN does not require an adhesion promoter

Wet-on-Wet

D8501/5/7
DP4000 2K Primer

Mix: 4:1:2 / 2:1:0.5
Hardener: D8302 / D8238
Thinner: D8740

D8521/5/7
DP5000 2K Primer

Can be applied with a roller
Mix: 7:1:1.2
Hardener: D8302
Thinner: D8718 (Medium)
Thinner: D8719 (Slow)

Topcoat

Colour

D60xx
DELTRON® Progress UHS Direct Gloss

Mix: 2.5:1:0.7
Hardener: D8302
Thinner: D8714/8/9

T4xx
ENVIROBASE® High Performance

OneVisit™ Process:
See Collision Process Chart or TDS RLD490V

Standard Process:
Mix:
100 Parts Colour
10 parts T492
5-25 parts T494

Clearcoat

D8131
Deltron UHS Clearcoat

Mix: 2:1
Hardener: D8254

D8177
Deltron Rapid Performance Clearcoat

Mix: 2:1:0.6
Hardener: D8307/8
Thinner: D8757/8

Thorough preparation and cleaning are essential for the successful refinishing of plastic parts. The PPG plastic cleaning and preparation system is designed to produce the best performance from the primer and topcoat systems. Refer to the *Deltron* Cleaning and Preparation of Plastic Substrates TDS (RLD241V).

Repair Plastics

Car Parts & Substrate

All car parts except 1K PUR
e.g. PP / TPO / PP-EPDM / ABS / NORYL / PC-PBT / SMC / LEXAN / PA

Preparation

Clean & Scuff

D8434
Cleaner for Plastics

Clean and scuff.
Wash off thoroughly with clean water and dry.

Mix: 1:1 Water

Anti-Static Wipe

D846
Anti-Static Wipe

Anti-Static Agent.
Wipe on and wipe off.

Ready for use

Undercoat

Plastic Adhesion Promoter

D820 or D8420
Aerosol Adhesion Promoter for Plastics

Ready for use

High Build Primer

Optional Phase
Apply flexibiliser if required.

D8561/5/7
Deltron DP7000 Air-Dry Primer

Spray Application
Mix: 3:1:0.5

Roll Application
Mix: 3:1
Hardener: D8270
Thinner: D8727/28

Topcoat

Colour

T4xx *Envirobase* High Performance

OneVisit™ Process: Refer to TDS
Standard Process:
Mix:
100 Parts Colour
10 parts T492
5-25 parts T494

D60xx *Deltron* Progress UHS Direct Gloss

Mix: 2.5:1:0.7
Hardener: D8302
Thinner: D8714/8/9

Clearcoat

D8131 *Deltron* UHS Clearcoat

Mix: 2:1
Hardener: D8254

D8177 *Deltron* Rapid Performance Clearcoat

Mix: 2:1:0.6
Hardener: D8307
Thinner: D8758

Section 11

Specialist Colour Processes

Specialist Colour Processes:
EQB

Envirobase HP Waterborne Basecoat 3CT Colour Toners

The T4851 Envirobase High Performance is a particularly brilliant and deep orange colour toner, which has extremely clear light reflections and a particularly high depth effect.

This striking colour tone effect is created by a 3-layer paint process using special pigments and toners.

The T4800 Clear Mid-coat is a transparent toner to support the mid-layer. T4800 is a product similar to T490, but clearer/water-white.

*T4800 is not a blender that can be used as a wet bed during the blend process

Range:

T4851 Transparent Organic Orange
T4800 Clear Mid-coat

Preparation of Substrate

- Degrease all surfaces to be painted with appropriate PPG waterborne substrate cleaner before wet sanding with P800 grade paper or dry sanding with P400-500 grade paper.
- Wash off residues and dry thoroughly before re-cleaning with appropriate waterborne PPG pre cleaner see - Technical Data Sheet Deltron Cleaners RLD63V.
- The use of a tack rag is recommended.
- Apply over original sanded and clean 2K finishes, or a range of PPG primers - refer to primer TDS for specific recommendations. The use of Greymatic primers is recommended for optimum results.
- Wash off residues and dry thoroughly before re-cleaning with an appropriate waterborne pre-cleaner see - Technical Data Sheet.

Pre-Application

- Hand-shake bottles of Envirobase HP tinter and T4900/T4910 for a few seconds before use. Do not shake vigorously.
- Mixed Envirobase RFU colour should be thoroughly hand-stirred before application. If not used immediately it should be hand-stirred again before use.
- Use nylon paint filters specially designed for use with waterborne paint materials.
- A 125-micron mesh is recommended.

Renault Orange Valencia EQB Process Video

Specialist Colour Processes:

EQB - Process

1. Repair and Preparation of Substrate

- 1.1 Prepare the damaged body parts with the appropriate PPG Refinish products. Please observe the information in the Technical Data Sheets of the respective product systems.

- Use Greymatic according to the colour shade. Greymatic G5 is required for this colour.

2. Groundcoat and Preparation of Substrate

- 2.1 When preparing the substrate as recommended below, suitable colour panels should be prepared alongside for use when checking the colour/ effect of the basecoat.
- To produce the colour panels, use the full panel application process described below.
- In order to define how many coats of step two are needed to achieve the best possible colour match, it is recommended to produce several spray-out cards.
- 2.2 For the current available colour formulations, a G5 ground coat colour is used.
- The G5 shade gives the best guide as to when full coverage is achieved.

ENVIROBASE® HP - Set Up & Processes

Mixing Ratios with *Envirobase* HP Standard (3CT colours).			
Step	**Volume / Parts**	**Metallic Colours**	**Solid Colours**
Step 1	*Envirobase* HP	100	100
	T494/T495	20	10-20
Step 2	T4800 + Mica / Solid	100	100
	T494 / T495	30	30

Optional Mix Ratios using hardener/D8260 in Step 1 RFU:
Metallic/Solid Colours: 100:10:5:5 (ENVHP+T492+T494/T495+D8260)

Mixing Ratios with *Envirobase* HP *OneVisit* Modifier (3CT colours)			
Step	**Volume / Parts**	**Metallic Colours**	**Solid Colours**
Step 1	*Envirobase* HP	100	100
	T4900 / T4910	20	5
	T494 / T495		15
Step 2	T490 + Mica / Solid	100	100
	T494 / T495	30	30

Optional Mix Ratios using hardener/D8260 in Step 1 RFU:
Metallic Colours: 100:20:5:5 (ENVHP+T4900/T4910+T494/T495+D8260)
Solid Colours: 100:10:15:5 (ENVHP+ T4900/T4910+T494/T495+D8260)

Specialist Colour Processes:

EQB - Process

Spray Gun Setup:

Conventional / RP STD Temp: 1,2mm
Conventional / RP High Temp: 1,3mm
HVLP STD Temp: 1,3mm
HVLP High Temp: 1,4mm

Spray Pressure:

ENVHP STD: 2.0 bar – Light control coat: 1.2.1.5 bar
ENVHP OVM: 1.8 bar

Number of Coats:

ENVHP STD: Express or Single coat (See TDS: RLD213V)
ENVHP OVM: 1 Visit (See TDS: RLD490V)

Flash-off Time:

Fast dry or comparable flash-off systems.
The basecoat must be completely flash-off matt.
Alternatively 40° for 8 min.

Mixing Ratios with Blending Adjuster:

When preparing the substrate as recommended below, colour check panels should be prepared for use when checking the colour/effect of the *Envirobase* High Performance basecoat as OEM colour variation can differ significantly for this colour.

Volume / Parts	Volume / Parts
T490 Blending Adjuster	100
T494 / T495	20
T4904 Blending Adjuster	100
T4900 / T4910	20

Viscosity will vary depending on the colour/toner combinations and mix ratio. (If needed viscosity can be adjusted accordingly using T494 or T495)
Potlife RFU: 1 month.
Stir well before use.

Note:

Please check the colour before application. The layer thickness and number of spray coats of the effect / second layer significantly affect the colour match to the standard paint.

It is not recommended to apply more than 3 coats of effect/second coat. Details on the processing of the colour for coating complete vehicle parts as well as the blending process are described below.

Specialist Colour Processes:

EQB - Process

ENVIROBASE® HP - Application Processes

Application of the basic tone (step one) in *Envirobase* High Performance (full panel application)

Number of Coats:

ENVHP STD: Express(Cascade) or Single coat (See TDS: RLD213V)
ENVHP OVM: 1 Visit (See TDS: RLD490V)

Flash-off Time::

Fast dry or comparable flash-off systems.
The basecoat must be completely flash-off matt.
Alternatively 40° for 8 min.

Step 1: Final appearance (Renault EQB)

Application of the second layer (step two) in *Envirobase* High Performance (full panel application)

First coat step two: After Flash-off.

Step 2: Final basecoat appearance (wet)

Specialist Colour Processes:

EQB - Process

Clearcoat Application:

Any conventionally drying PPG UHS clearcoat can be used for the final coating. Please observe the information in the Technical Data Sheets of the respective clearcoat.

Final appearance T4851

3-Coat Colour – Blend Process

Colour Blending Process:

Preparation of the substrate in Greymatic G5. Mix and process the primer materials according to the above or the technical data sheet.

Specialist Colour Processes:

EQB - Process

Blend Process Step 1:

1. Wet bed step 1:

Apply the T4904 Blending Adjuster RFU in the area to be blended. The Blending Adjuster need to be applied as a wet layer to enable the pigments/ RFU colour to get the correct lay-down and metallic orientation (purple ring marked in photo).

2. Apply 1 coat one thin coat of Step 1 RFU colour in the repair area, followed by reverse blend in process to opacity. Avoid heavy layers. Blend the fading-out area as smoothly as possible using the reverse technique.

NOTE Step 1 RFU Colour must be focused as limited as possible into the adjacent panel

3. End Step 1 RFU colour process with a light control coat in the blend area. (If the blend looks smooth, a control coat is not needed.)

Application of the second layer (step two) in ENVIROBASE® High Performance (blend)

3CT Step 2:

Apply the T4904 Blending Adjuster RFU on the adjacent panel or only in the area to be blended. The Blending Adjuster has to be applied as a wet layer to enable the pigments/RFU colour to get the correct lay-down and metallic orientation.

Apply 1 coat thin coat of Step 2 RFU colour in the repair area extending the blend area over Step 1, hereafter, followed by the reverse blend in process to correct appearance. Avoid heavy layers. Blend the fading-out area as smoothly as possible using the reverse technique.

End the process with a light control coat in the blend area.

Step 2: Final appearance prior clearcoat process

Note:

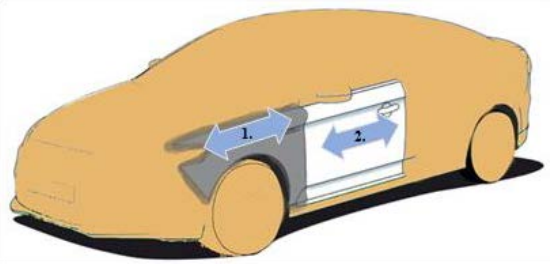
Try to let the layers flow out over a wide area, otherwise there is a risk that this will become streaky/colourful, or visible at certain angles.

Specialist Colour Processes:

EQB - Process

Animated Overview:

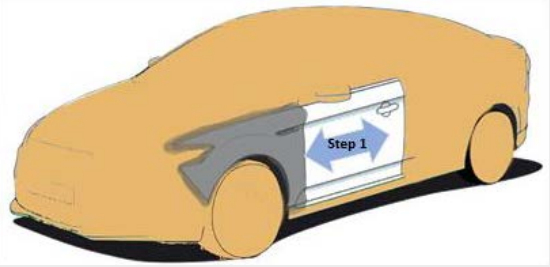
1. **Repaired or new panel**
2. **Adjacent panel**



Blending Adjuster

1. Apply the blend bed adjuster as a wet coat on the adjacent panel or in only in blend/fade-out area

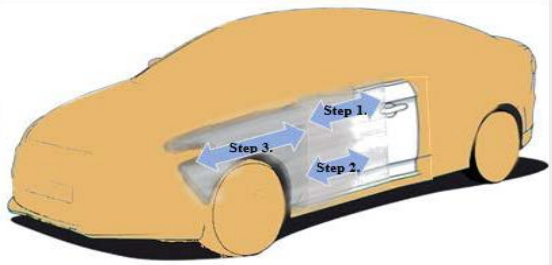
   (The Blending Adjuster will allow the correct pigment lay down in the blend area).



WBBC Colour RFU

Step 1 - Apply a light coat into the blending area.

Step 2 - Apply STD blend process into the blending area. Blend/fading-out as smooth as possible. End the blend process with a light control coat on blend area.



Clearcoat Application:

Any conventionally drying PPG UHS clearcoat can be used for the final coating.

Please observe the information in the Technical Data Sheets of the respective clearcoat.

Specialist Colour Processes:

EQB - Process

Repair and Recoating

Overcoating:

ENVIROBASE® HP ready for use mix can be overcoated with a PPG clearcoat after flash off till mat.

De-nib:

It is possible to de-nib *Envirobase* HP OneVisit™ Modifier, after flash off, with fine sanding paper – P1000-1500 (dry paper) using air blowing and a tack rag to remove sanding dust and followed by a spot repair (see FADING-OUT section) prior to the clearcoat application.

Equipment Cleaning

- Clean all mixing equipment immediately after use, preferably using a dedicated waterborne equipment cleaning machine.
- Use tap water, with a final rinse using deionized water or an alcohol-based cleaner such as D846.
- Ensure all equipment is completely dry before storage or use.

Storage & Handling

- ENVHP tinters, mixed colour & OneVisit Modifier should be stored in a cool, dry place away from sources of heat. During storage and transportation temperatures must be maintained at a minimum of +5°C and a maximum of +35°C. Avoid exposure to frost or freezing conditions.

- ENVHP should be mixed in clean, dry containers and equipment. Do not use mixing vessels or spray equipment that contains solvent residues. Mixing vessels should ideally be plastic - if metallic they should have an internal anti-corrosion coating.

VOC Information:

The EU limit value for this product (product category: IIB.d) in ready-to-use form is max. 420g/litre of VOC. The VOC content of this product in ready-to-use form is max. 420g/litre.

Depending on the chosen mode of use, the actual ready-to-use VOC of this product may be lower than that specified by the EU Directive code.

Specialist Colour Processes:

Mazda 46G Machine Grey

Product Description:

Mazda 46G Machine Grey is a special effect colour and requires a specific application process.

Repair and preparation of substrate and using a black groundcoat

- The damaged body work of the vehicle should be repaired using the PPG recommended repair and undercoating system for the substrate of the body panels being repaired. (Aluminium, Steel, Plastic etc.)
- Sealing the repair with G7 Greymatic primer shade as a first step is recommended followed by the use of T409 ENVIROBASE® High Performance Deep Black tinter as the groundcoat colour over repaired areas.

Best Practice & Application:

When preparing the substrate as recommended below, colour check panels should be prepared for use when checking the colour/effect of the *Envirobase* High Performance basecoat as OEM colour variation can differ significantly for this colour.

- For the Mazda 46G Machine Grey *Envirobase* High Performance colour process, T409 Deep Black tinter thinned @ 20% is to be applied prior to the topcoat colour. This also needs to be applied to the G7 colour panels when being prepared for the colour check process.
- 46G *Envirobase* High Performance mixed colour thinned @ 20%, full coverage must be achieved.
- If only part of a body panel is repaired and primed, DP4000 Primer should be applied over the sanded/primed repair areas first.
- This should be followed by using D8430 / D8731 Spot Blender, applied and blended on the G7 edges.
- This should be followed by the T409 Deep Black tinter groundcoat applied over complete primed areas.
- Where blending of the basecoat will occur as part of the repair, the area of the panel from the basecoat blend to the edge of the panel should be finished with a P1000 film disc used with Bodyshine liquid or waterborne cleaner preferably on a 125mm orbital sander.

For the complete detailed process information please refer to the product technical data sheet.

These products are for professional use only.
For full technical specification refer to TDS: RLD500V.

Specialist Colour Processes:

Alubeam 047 Mercedes

Alubeam 047

Alubeam 047 for Mercedes is a special-effects grey tint that gives the vehicle a 'liquid metal' appearance.

Preparation:

1. Mix Alubeam 047 for Mercedes (via PAINTMANAGER® XI or LINQ Color) using Liquid Metal 2 - T4705 ENVIROBASE® HP and T4XX Envirobase HP basecoat.

2. Dilute to 50% with T494 (2/1).

3. SATA HVLP 4000 spray gun, nozzle 1, pressure 1.2 bar max 1.8, flow 0.75 at 1 revolution or IWATA LPH 300 gun, LV4 cap, 1 nozzle, pressure 1.5 bar, flow 1.5 turns.

APPLICATION IS MADE IN LIGHT COATS (to obtain a satin finish):

1. Apply a 1 light coat and pre-dry to a matt shade (with an air blower).

2. Apply a light 2nd coat and pre-dry to a matt shade (using an air blower).

3. If, on inspection, the metallic finish appears to be even, with no stains at this stage, proceed to the next step. If not, repeat the previous step.

4. If necessary, apply a light double/triple coat, reducing pressure and flow, then pre-dry to a matt shade (using an air blower).

5. This final base shade should be applied to a very dry surface, even if the base shade has not been "wetted".

6. Allow to soak for 20 - 30 minutes before apply Clearcoat.

7. To match the basecoat colour, apply the first double-coat crosswise over the primed area, then stretch each subsequent coat over the match area using a classic flood match technique to achieve a consistent match with the original colour. As with a full sheet, this final joint should be applied to a thoroughly dry surface.

Specialist Colour Processes:

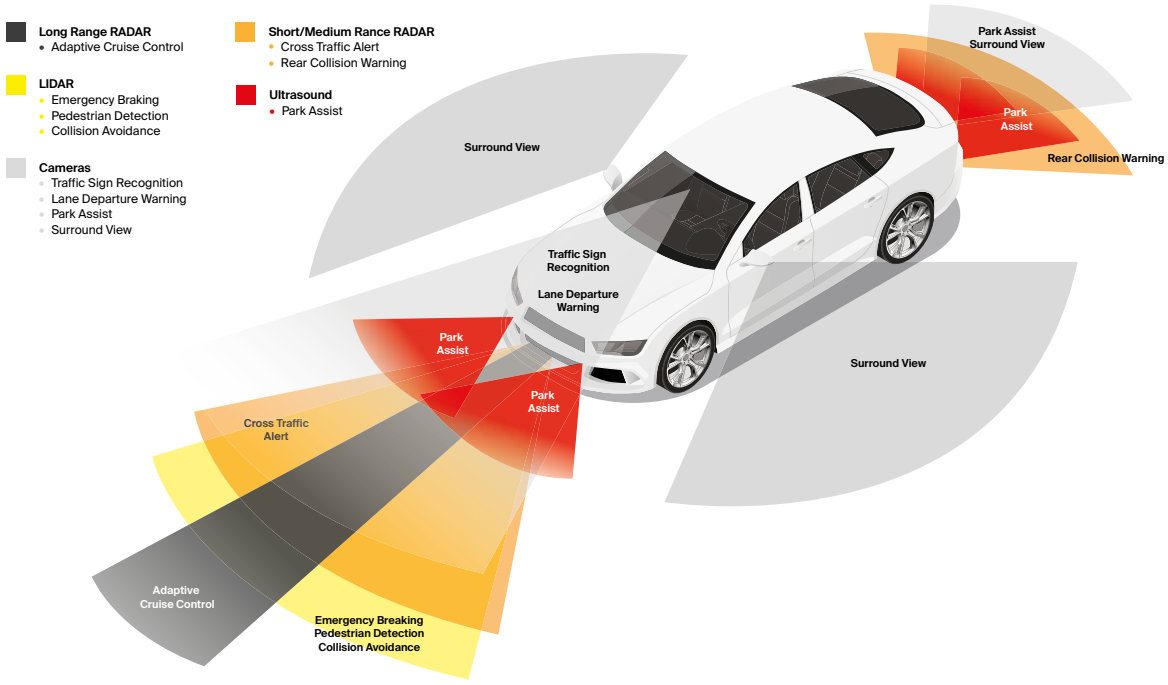
RADAR

Advanced driver assistance systems:

Vehicle manufacturers around the world are increasingly incorporating advanced driver assistance systems (ADAS) into their products, including RADAR, ultrasound, cameras and LiDAR.

The various ADAS systems offer adaptive/traffic-dependent cruise control, parking assistance, lane departure warning, traffic sign recognition, forward collision warning, cross traffic warning, emergency braking and collision avoidance.

By 2025, it is expected that 85% of new passenger cars and light commercial vehicles will be equipped with at least one type of ADAS.



ADAS and coatings:

ADAS devices are typically located behind the painted surfaces of cars and light trucks, so there can be an interaction between the devices, the panels (metal or plastic), and the coatings.

RADAR equipment:

RADAR devices are increasingly being used in new cars and light trucks at long-range, adaptive cruise control (also known as traffic-dependent cruise control) and warning of cross-traffic and rear-end collisions are being used at short-range.

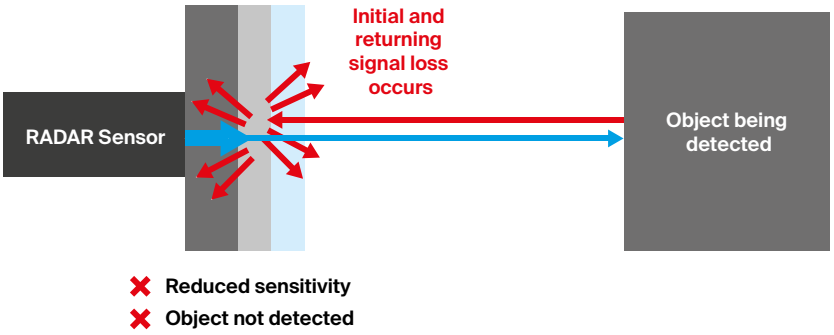
Specialist Colour Processes:

RADAR

Coatings and RADAR:

RADAR devices are typically located behind the bumpers of cars and light trucks. The RADAR signals penetrate the bumpers and the coatings as they are transmitted into the environment, and the reflected signals re-penetrate the coatings and the bumpers before being received by the RADAR equipment.

Under certain circumstances, there may be a loss of transmission of RADAR signals passing through painted substrates (plastic bumpers). If the loss of RADAR transmission through the painted plastic bumper exceeds a certain threshold/layer thickness, the RADAR may become impaired and may not function as intended.

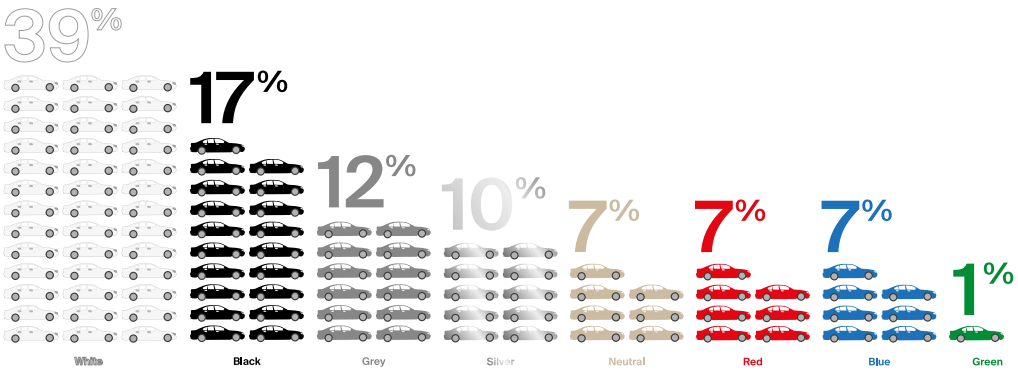


Vehicle manufacturers are increasingly setting limit values for RADAR transmission.

RADAR transmission loss:

RADAR transmission loss through painted bumpers does not affect all colours and is mostly associated with metallic effect paints. The aluminium pigments used to create metallic paint effects interfere with the transmission of RADAR signals.

According to PPG's Global Automotive Color Trend information, approximately 25% of all new passenger cars and light trucks are painted metallic colours (see silver and grey below).



Specialist Colour Processes:

RADAR

Repair and overhaul of RADAR-equipped vehicles:

To determine if a vehicle is equipped with RADAR, please refer to the vehicle manufacturer‘s equipment/equipment manual. In addition, your collision repair estimate system can provide information about the presence of RADAR devices on the vehicle being repaired.

RADAR-capable colour formulations:

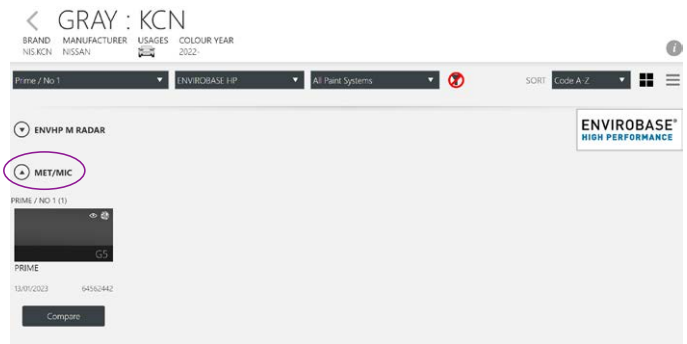
During the colour toning process, PPG’s Refinish colour labs now measure vehicle colour formulas for RADAR transmittance. Most colours can pass RADAR signals with little or no loss and the standard colour formula can be used.

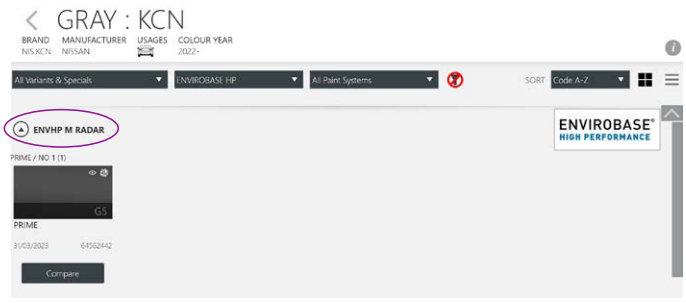
For the few colours where the measured RADAR transmission loss is above the threshold set by the vehicle manufacturer, PPG offers a special, additional “RADAR Enabled”.

Colour Formula:

When searching for a shade using the vehicle manufacturer’s colour code using PAINTMANAGER® XI or PPG LINQ™ Colour software, the results screen will indicate if a RADAR-enabled match formula is available. If a RADAR-enabled colour formula is available, it will also be displayed when using a colour chip or RAPIDMATCH® search.

When searching for a colour, the available paint systems will be displayed in the *PaintManager* XI or *PPG LINQ* Colour software (in this case MET/MIC is the default paint system).





Specialist Colour Processes:

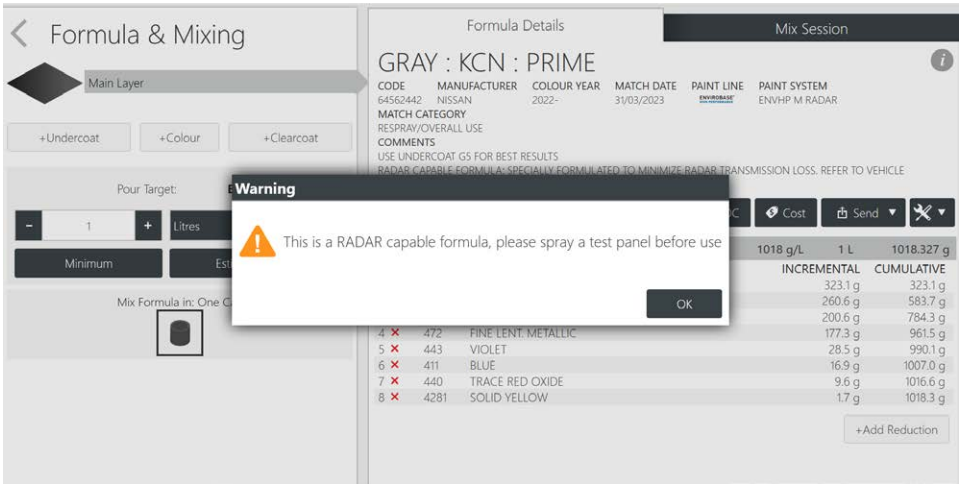
RADAR

RADAR-enabled colour matching:

For those few colours that have a measured RADAR transmission loss above the limit set by the vehicle manufacturer, PPG offers a special “RADAR Ready” paint system and paint formula. This is usually done by replacing some or all of the aluminium mixing paints with existing, alternative mixing paints, such as Pearls.

There may be some colour differences between the standard colour formula and the RADAR-enabled formula.

This is because the standard colour formula prioritises colour alignment, while RADAR-enabled matching also needs to consider RADAR transmission loss. It is recommended to first create a spray pattern card to check the colour (see below).



In addition, the “Comments” section will include the following statement related to this technical bulletin.

RADAR Enabled Formula: Specially formulated to minimize RADAR transmission loss. Observe the vehicle manufacturer’s repair guidelines and the PPG technical data sheet.

Specialist Colour Processes:

RADAR

Using a RADAR-enabled colour formula:

It is important to use the RADAR-enabled paint formula when painting a bumper that has RADAR equipment located behind the bumper. This ensures that the RADAR continues to function as intended by the vehicle manufacturer.

If the repair includes a bumper and additional parts such as fenders and/or hood, the RADAR-enabled paint formula can be used for the bumper and other parts.

If the vehicle to be repaired is RADAR equipped but the damaged area does not include the bumper (behind which the RADAR is located), it is not necessary to use the RADAR-enabled paint formula.

Thus, a mixture of one colour can be the most efficient way to repair the vehicle. i.e the bumper with adjoining areas to use the RADAR colour formula and transition to the general formula outside of the bumper / fade-in.

It is recommended to spray a test area first to check the colour.

Additional Information:

Always be sure to follow the manufacturer's guidelines for repairing vehicles with RADAR.

It is also important to follow the manufacturer's guidelines for testing the correct operation of RADAR and/or other ADAS before returning the repaired vehicle to service.

Legal notice

When refinishing RADAR-equipped vehicles, two paint formulas may be available for the paint. The standard formula may have a more accurate colour match but could affect the performance of the RADAR. The RADAR-enabled colour formula is specially formulated not to interfere with the functioning of RADAR, but the colour match may not be as precise.

Please check whether the vehicle to be repaired is equipped with RADAR and observe the vehicle manufacturer's repair guidelines. In case the vehicle is equipped with RADAR, please ensure that the vehicle owner is aware of the two formulas available. PPG makes no guarantee or responsibility for the selection of the formula and assumes no liability for it.

Specialist Colour Processes:

3-Stage Pearl Application Process

Mixing Ratios with *Envirobase* HP *OneVisit* Modifier (3CT colours).			
Step	**Volume / Parts**	**Metallic Colours**	**Solid Colours**
Step 1	*Envirobase* HP	100	100
	T4900 / T4910	20	5
	T494 / T495		15
Step 2	T4800 or T490 + Mica / Solid	100	100
	T494 / T495	20	20

Optional Mix Ratios using hardener/D8260 in RFU: (2CT and 3CT)	
	Volume / Parts
Metallic Colours	100:20:5:5 (ENVHP+T4900/T4910+T494/T495+D8260)
Solid Colours	100:10:15:5 (ENVHP+ T4900/T4910+T494/T495+D8260)

Mixing Ratios with Blending	
	Volume / Parts
T4904 Blending Adjuster	100
T4900 / T4910	20

Application Process 3CT

Step 1: Preparation for Light Metallic Colors

Blending Adjuster Application (only needed for light metallic colours):

- Apply the T4904 Blending Adjuster RFU in the area to be blended.
- Ensure the Blending Adjuster is applied as a wet layer to enable the pigments/RFU color to achieve the correct lay-down and metallic orientation.

Step 2: 3CT Step 1

Initial Color Application:

- Apply one thin coat of Step 1 RFU color in the repair area.
- Follow with a reverse blend-in process to achieve opacity. Avoid heavy layers.
- Blend the fading-out area as smoothly as possible using the reverse technique.

Note: Focus the Step 1 RFU color as limited as possible into the adjacent panel.

Control Coat:

- End the Step 1 RFU color process with a light control coat in the blend area.
- If the blend looks smooth, a control coat is not needed.

Specialist Colour Processes:

3-Stage Pearl Application Process

Step 3: 3CT Step 2

Blending Adjuster Application:

- Apply the T4904 Blending Adjuster RFU on the adjacent panel or only in the area to be blended.
- Ensure the Blending Adjuster is applied as a wet layer to enable the pigments/RFU color to achieve the correct lay-down and metallic orientation.

Second Color Application:

- Apply one thin coat of Step 2 RFU color in the repair area, extending the blend area over Step 1.
- Follow with a reverse blend-in process to achieve the correct appearance. Avoid heavy layers.
- Blend the fading-out area as smoothly as possible using the reverse technique.

Control Coat:

- End the process with a light control coat in the blend area.

Step 4: Full Panel Application

Final Application:

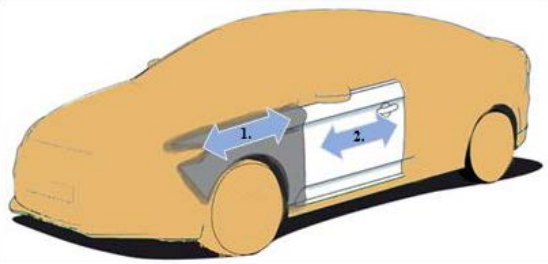
- Apply the full panel application process on the new/repaired panel.

Specialist Colour Processes:

3-Stage Pearl Application Process

Animated Overview:

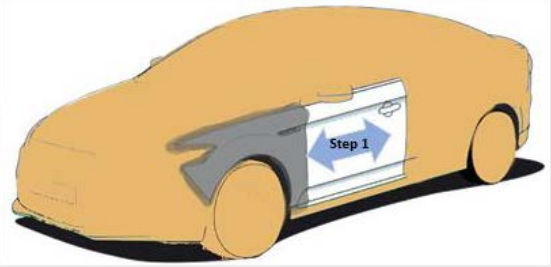
1. **Repaired or new panel**
2. **Adjacent panel**



Blending Adjuster

1. Apply the blend bed adjuster as a wet coat on the adjacent panel or in only in blend/fade-out area.

   (The Blending Adjuster will allow the correct pigment lay down in the blend area).

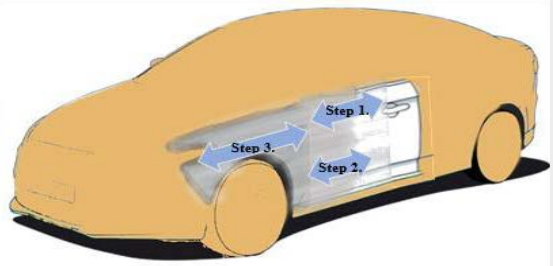


WBBC Colour RFU

Step 1 - Apply a light coat into the blending area.

Step 2 - Apply STD blend process into the blending area. Blend/fading-out as smooth as possible. End the blend process with a light control coat on blend area.

Step 3 - Apply WBBC colour on repaired panel to opacity.



Specialist Colour Processes:

Matt Textured and Semi-Gloss Finishes

The matt textured clearcoat system consists of two versatile 2K acrylic clearcoats and a texture additive. It has been designed to reproduce a range of low gloss levels and textures, for specialized repairs to initially finished vehicles or vehicle areas, with a low gloss textured clearcoat over a single or multi-stage colour basecoat system (e.g. Peugeot full-body matte textured system).

The matt textured mix can also be used on rigid plastics without the need for special additives.

D844 and D843 GRS textured additive blends can be used with D8302 HS hardener.

Range:

- D8115 Matt Clearcoat
- D8117 Satin Clearcoat
- D8135 UHS Rapid Clearcoat
- D8302 UHS Hardener
- D843 / D844 Texture Additives
- D8718 / D8719 Low VOC Thinner

Due to the technical nature of this type of colour, the application process can vary and may change and evolve as experience and understanding are gained in the field.

For standard application methods, please refer to the product data sheet Standard thinner D8718 should only be used on small surfaces/components (e.g. mirror covers, wheel arches, etc.).

Gloss levels and texture obtained with this process can vary according to film thickness and application. Low film thickness and dry application will give lower gloss and more texture. A high film thickness and wet application will give a higher gloss level and hide some of the texture.

Care must be taken to avoid excessively high clear film thicknesses, as the final colour may be affected. In this situation, the repair will require further sanding and coating with a topcoat and Clearcoat.

Dirt cannot be removed from the final matt textured finish.

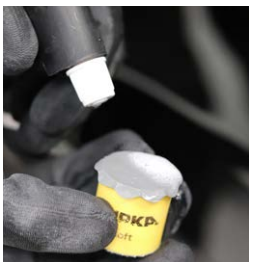
Section 12

Polishing

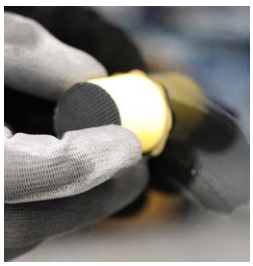
Polishing:

Stage 1 - Inclusion Removal and Preparation

Clean the panel before commencing denibbing.



Small particle inclusion removal:
Use the denib block and small abrasive disc.
Use Bodyshine to help lubricate the abrasive for consistent scratch profile.
Work in gentle linear movements.



Check to ensure inclusions have all been successfully removed.

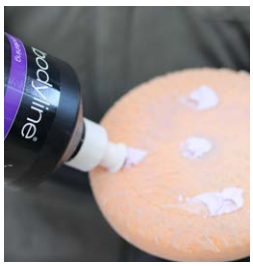
Larger more general particle inclusion removal:
Use a P1200 or P1500 Film disc preferably on a 125mm DA sander followed by a P2000 Blend & Finishing Pad, which should be lubricated with Bodyshine or Spirit Wipe. This will aid the cut and prolong the life of the disc.

The Blend & Finish disc helps reduce the scratch profile left by the P1200 or P1500 disc, and will impart some degree of gloss into the area helping reduce the machine polishing process time.

Polishing:

Stage 2 - Machine Polishing

Apply a small ‘finger nail’ amount of polish to the area.



Apply polish to the whole mop head to ‘condition’ the sponge.
This helps reduce initial heat build up and aggressive scratching.

Use medium pressure and consistent strokes across the area.
Start machine with the pad touching the panel and keep the head moving to break down the polish.

Continue to polish until you are happy that all scratches have been removed. The polish will have broken down to a finer film. Leave some residue polish on the panel and install the black polishing head. Work this to help bring the panel gloss level up to an acceptable lustre.
Polish panels in sections for thorough coverage.
Use either Bodyshine or solvent panel wipe as the lubricant to check for scratches.

Final Check: Clean with a microfiber cloth and some lubricant to ensure all scratches have been fully removed.
Use either Bodyshine or D837 Solvent Panel Wipe as a lubricant to check for any missed fine scratches.

Polishing:

Paint – After Care of New Paintwork

When you trust your vehicle to a PPG designated repair bodyshop you can be sure that the work undertaken is carried out by a fully trained technician.

Paint materials of the highest quality will have been used to ensure an excellent colour match is achieved combined with superb product quality and durability.

To keep the new paintwork in excellent condition, there are a number of recommended steps to take: -

- Do not apply any decals/stickers to the paintwork for 3-5 days after painting.
- Avoid commercial car washes for the first 30 days.
- Do not wax or polish for the first 30 days.
- Never wipe with a dry or harsh cloth. A clean microfibre cloth is advised.
- Wash in a shaded area, never in direct sunlight.
- When washing, loosen the grit first by using a hosepipe or jet wash (taking care not to get too close with a jet wash) so as not to scratch the finish.
- Start on the roof of the vehicle and work down to minimise any scratching from grit on the car.
- Wash with a proprietary car shampoo and rinse with cool water. Dry with a leather or synthetic chamois.
- Any deposits of tree sap, bird droppings or automotive fluids (including petrol) need to be washed off immediately with cool water. Bird droppings can be very aggressive.
- Regular washing and waxing will keep your new paintwork in top condition.
- Avoid parking in particularly harsh environments - near sources of heavy smoke, close to railway lines, sources of industrial fallout or very close proximity to the sea.

Polishing:
Decals

Recommended process for applying decals and plastic folio on fresh paintwork.:

The recommendation can be different from case to case. The reason is linked to the total film build and paint system used.

When applying decals on fresh paintwork, the following guidelines should be followed to prevent bubbles appearing within the decal at a later stage and to reduce the risk of poor adhesion.

After decal removal, there will always be a need for a polishing process. The most important aspect is the right bake time and for whichever paint system is used, the bake time and temperature should be the same as advised on the PPG Technical Data Sheets.

Also, it has to be taken into consideration that a total UHS film build normally takes a minimum of 7 days at 20°C before it becomes 100% hardened.

A general recommendation for decal application is as follows:

- The drying process for all paint layers (suggested - oven drying).
- Final topcoat drying – 60 minutes at 60°C object temperature.
- Plastic folio can only be applied over a newly painted substrate if it's been more than 7 days since application. The vehicle must sit in dry conditions and at room temperature (indoors at 20°C).

The decal supplier's recommendations for application and use should be followed.

Contact

If you have any questions, please contact PPG Customer Services.
Tel: +44 (0) 1449 771775 or Email: ukenquiries@ppg.com

Core Product Overview

Product Description		Hardeners	Thinners	Mix Ratio	Technical Data Sheet
D8407	DELTRON® Waterborne Flatting Paste	n/a	n/a	Ready for Use	RLD243V
D8401	*Deltron* Waterborne Pre-Cleaner	n/a	n/a	Ready for Use	RLD63V
D837	*Deltron* Spirit Wipe	n/a	n/a	Ready for Use	RLD63V
D846	*Deltron* Anti Static Agent for Plastics	n/a	n/a	Ready for Use	RLD63V
D8434	*Deltron* Plastic Substrate Cleaner	n/a	n/a	1 : 1	RLD241V
D8092	*Deltron* Chromate Free Wash Etch Primer	D8293	n/a	1 : 1	RLD261V
D820	*Deltron* Plastics Primer	n/a	n/a	Ready for Use	RLD165V
D8416 / D8421 / D8424 / D8426	*Deltron* 1K Aerosol Primer	n/a	n/a	Ready for Use	RLD180V
D8501 / D8505 / D8507	*Deltron* DP4000 2K Primer	D8302 / D8238	D8715 / D8740 (Plastic Parts)	4 : 1 : 2 / 2 : 1 : 0.5	RLD282V
D8521 / D8525 / D8527	*Deltron* DP5000 2K Primer	D8302	D8718 / D8719	7 : 1 : 1-2	RLD301V
D8561 / D8565 / D8567	*Deltron* DP7000 Air Dry Primer	D8270	D8727 / D8728	3 : 1 : 0.5 (spray) 3 : 1 (roll)	RLD311V
D8080	GRS UV-Cured Primer Surfacer	n/a	n/a	Ready for Use	RLD164V
T510	ENVIROBASE® High Performance Waterborne Engine Bay Converter	D8260	T494	70 parts colour 15 parts D8260 15-25 parts T494	RLD234V
T4xx (Standard App. Process)	*Envirobase* High Performance Basecoat	n/a	T494	1 part colour : 10-30%	RLD213V
T4xx (OneVisit™ App. Process)	*Envirobase* High Performance Basecoat	n/a	T4900/T4910	1 part colour : 5-20%	RLD490V
D8131	*Deltron* UHS Clearcoat	D8254	n/a	2 : 1	RLD402V
D8177	*Deltron* Progress Rapid Performance Clearcoat	D8307 / D8308	D8757 / D8758	2 : 1 : 0.6	RLD403V
D8122	*Deltron* Ceramiclear	D8302	D8714 / D8718 / D8719	3 : 1 : 0.5	RLD285V
D8115 / D8117	*Deltron* Matt & Semi-Gloss Clearcoat	D8302	D8718 / D8719	5 : 1 : 3.5	RLD265V
D8430	*Deltron* Spot Blender	n/a	n/a	Ready for Use	RLD299V
D8731	*Deltron* Spot Blender Aerosol	n/a	n/a	Ready for Use	RLD299V