# Product Data Sheet

**April 2010**

**INTERNATIONAL MASTER**
**FOR PROFESSIONAL USE ONLY**

# I1540V

## 2K HS Plus
## P471-Single Layer Solid Colour System

| *Product* | *Description* |
|---|---|
| P471- | 2K HS Plus Solid Colour Mixing Basics |
| P472- | 2K HS Plus Solid Colour Mixing Basics |
| P210-870 | HS Plus Hardener - Express |
| P210-872 | HS Plus Hardener - Fast |
| P210-875 | HS Plus Hardener - Medium |
| P210-877 | HS Plus Hardener – Slow/High Temperature |
| P852-1893 | 2K HS Plus Additive thinner - Medium |
| P852-1894 | 2K HS Plus Additive thinner – Slow and IR |
| P565-554 | 2K Matting Agent |
| P565-7210 / -7220 | Fine / Coarse Texturing Bases |
| P100-2020 | Flexible Additive |

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## Product Description

The **Nexa Autocolor** 2K HS Plus Single Stage Solid Colour System provides all the benefits of high solids technology in delivering a hard, durable finish with superb gloss. Coupled with its ease of application, it is suitable for all types of repair.

By appropriate choice of hardener, the 2K HS Plus Solid Colour System offers a full range of processing options from a 10 minutes at 60°C metal temperature bake system, to enable the quick processing of small repairs, to a standard 30 minutes at 60°C metal temperature bake system ideal for all sizes of repair.

For compliance, the 2K HS Plus Solid Colour System has been designed for application with HVLP or Compliant spray guns. It can be used in two modes, standard 2 coat application and "one visit" application, where 1 light/medium coat is immediately followed by a full coat with no flash-off between coats. "One visit" reduces process times and can give significant material savings.

The P471-line 2K HS Plus Solid Colour System is completely lead free and when used according to the recommendations set out in this datasheet, will have a maximum ready for use VOC of 420 g/litre.

## Substrates/Preparation

P471-line solid colours should only be applied over:

- **Nexa Autocolor** 2-pack compliant filler / surfacer hand-flatted with P600 or finer grade wet or dry paper, or machine sanded with P320 grade or finer, prior to topcoat application.
- **Nexa Autocolor** 2-pack Wet-on-wet primer
- Prepared existing paintwork in sound condition. Existing paintwork should first be abraded (e.g. using Scotch-Brite™ Ultrafine Grey with P562-100 or P562-106 and cleaned with the appropriate **Nexa Autocolor** pre-cleaner prior to application of P471-line colours.

**Note:** On new panels coated in works primer/electrocoat a **Nexa Autocolor** 2-pack primer must be applied.

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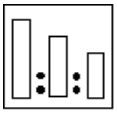
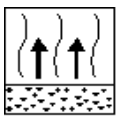
# Standard & Slow Process

| | Standard System | Slow System - High Application Temperature |
|---|---|---|
|  | P471- 2 parts<br>P210-875 1 part<br>P852-1893/-1894 0.6 – 0.7 parts<br><br>0.7 parts thinner is recommended for optimum flow and final appearance on horizontal areas. | P471- 2 parts<br>P210-877 1 part<br>P852-1893/-1894 0.6 – 0.7 parts<br><br>0.7 parts thinner is recommended for optimum flow and final appearance on horizontal areas. |
|  | 20-25 secs DIN4 at 20°C<br>(25-32 secs BSB4)<br><br>**Pot-Life at 20°C**:<br>1.5-2 hours | 20-25 secs DIN4 at 20°C<br>(25-32 secs BSB4)<br><br>**Pot-Life at 20°C**<br>1.5-2 hours |
|  | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Pressure : 0.7 bar/10 psi max (@ air cap) | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Pressure : 0.7 bar/10 psi max (@ air cap) |
|  | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Inlet Pressure : Refer to spraygun manufacturers instructions, normally 2 bar/30 psi (inlet) | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Inlet Pressure : Refer to spraygun manufacturers instructions, normally 2 bar/30 psi (inlet) |
|  | **Conventional 2 coat Process**<br>Apply 2 single coats to give 50-75 microns (2-3 thou) dry film thickness<br>Allow 5 mins flash-off between coats.<br><br>**Express Single Visit Process**<br>Apply 1 light/medium coat followed by a full coat to give 50 microns (2 thou) dry film thickness<br>The first coat should be applied to all repair panels before the second coat is applied.<br>For less than 3 panels, allow 2-3 minutes flash between spray coats. For more than 3 panels, no flash off is required. | |
|  | No flash-off required before baking | No flash-off required before baking |
|  | **Bake at metal temperature of :**<br>50°C 60 minutes<br>60°C 30 minutes<br>70°C 15 minutes<br><br>Into-service : When cool<br><br>Recoatable : After into-service time | **Bake at metal temperature of :**<br>50°C 70 minutes<br>60°C 35 minutes<br>70°C 20 minutes<br><br>Into-service : When cool<br><br>Recoatable : After into-service time |

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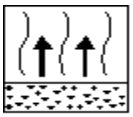
# Fast & Express Process

| | Fast System | Express System |
|---|---|---|
|  | P471- 2 parts<br>P210-872 1 part<br>P852-1893/-1894 0.6 – 0.7 parts<br><br>0.7 parts thinner is recommended for optimum flow and final appearance on horizontal areas. | P471- 2 parts<br>P210-870 1 part<br>P852-1893/-1894 0.6 – 0.7 parts<br><br>0.7 parts thinner is recommended for optimum flow and final appearance on horizontal areas. |
|  | 20-25 secs DIN4 at 20°C<br>25-32 secs BSB4)<br>**Pot-Life at 20°C** 40 -60 minutes | 20-25 secs DIN4 at 20°C<br>(25-32 secs BSB4)<br>**Pot-Life at 20°C** 15 - 20 minutes |
| | The HS Plus colour should be activated and thinned just prior to application. With Fast/Express Systems, application should be completed as soon as possible after activation/thinning. | |
|  | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Pressure : 0.7 bar/10 psi max (@ air cap) | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Pressure : 0.7 bar/10 psi max (@ air cap) |
|  | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Inlet Pressure : Refer to spraygun manufacturers instructions, normally 2 bar/30 psi (inlet) | **Fluid Tip**<br>Gravity Fed : 1.2-1.4 mm<br>Suction Fed : 1.4-1.6 mm<br>Inlet Pressure : Refer to spraygun manufacturers instructions, normally 2 bar/30 psi (inlet) |
|  | **Conventional 2 coat Process**<br>Apply 2 single coats to give 50-75 microns (2-3 thou) dry film thickness<br>Allow 5 mins flash-off between coats.<br><br>**Express Single Visit Process**<br>Apply 1 light/medium coat followed by a full coat to give 50 microns (2 thou) dry film thickness<br>The first coat should be applied to all repair panels before the second coat is applied.<br>For less than 3 panels, allow 2-3 minutes flash between spray coats. For more than 3 panels, no flash off is required. | |
|  | No flash-off required before baking<br>IR drying - allow 5 minute flash-off | No flash-off required before baking |
|  | **Bake at metal temperature of :**<br>50°C 40 minutes<br>60°C 20 minutes<br>70°C 10 minutes<br>Into-service : When cool<br>Recoatable : After into-service time<br><br>**Air-dry (20°C) :**<br>Handleable : 6 hours<br>Into-service : 16 hours | **Bake at metal temperature of :**<br>50°C 20 minutes<br>60°C 10 minutes<br><br>Into-service : When cool<br>Recoatable : After into-service time<br><br>**Air-dry (20°C)**<br>Handleable : 4 hours<br>Into-service : 12 hours |
|  | **Infra-red drying** (depending on colour and equipment.)<br>Short wave :4-5 mins full power<br>Medium wave 5-7 mins full power | |

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# General Process Notes

## COLOUR IDENTIFICATION AND CHECKING

As with all Refinish paint systems, a colour check should be carried out before painting the vehicle.

## 2K HS PLUS SOLID COLOUR SYSTEM COLOUR MIXING

P471-line 2K HS Plus Solid Colour System colours are mixed from 2K HS Plus solid colour P471/2-line mixing basics. This mix should be thoroughly stirred for at least 2 minutes before activation to achieve colour-match.
In order to ensure colour accuracy, it is essential that new cans of P471/2-line 2K HS Plus solid colour mixing basics are thoroughly hand-stirred when opened followed by 10 minutes stirring on a mixing machine. Thereafter, mixing basics should be machine stirred twice a day for a minimum of 10 minutes each time.

## FADE-OUT PROCESS

P471-line 2K HS Plus solid colours may be faded-out using the **Aerosol Fade Out Thinner P850-1621 or Express Blender P273-1105**. Please refer to the Fade-out / Blending Processes Technical Data Sheet M1000V for details of the technique to achieve a successful repair.

## CHOICE OF HARDENER AND ADDITIVE THINNER

P210-877 - Ideal for processing large jobs at very high application temperatures (>34ºC). Gives a 35 minutes at 60ºC metal temperature bake system.
P210-875 - Gives a standard 30 minutes at 60ºC metal temperature bake system suitable for all types of job.
P210-872 - Ideal for faster processing of medium sized repairs (e.g. up to a front end) giving a 20 minutes at 60ºC metal temperature bake system, and for air-dry work.
P210-870 - Allows fast processing of small sized jobs (e.g. spot/panel repair), with a 10 minutes at 60ºC metal temperature bake time, and appropriate air-dry work.

The choice of additive thinner should be made according to application temperature, air movement and size of job. The following temperature ranges should be used for guidance only:

| Thinner: | Temperature: |
|---|---|
| P852-1893 | up to 30ºC |
| P852-1894 | above 30ºC |

In general, use a slower additive thinner in fast air movement booths and for large jobs. Use a faster additive thinner in slow air movement booths and for small jobs.

## PAINT TEMPERATURE

As with other paint systems, optimum spray application is achieved if the paint is allowed to reach room temperature (20ºC) before use. This is particularly important for high solids systems. It is strongly recommended that cold paint is warmed to a *minimum* of 15ºC before application.
Below this temperature paint application performance may be adversely affected.

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# General Process Notes

## INFRA-RED DRYING

Drying times are dependent upon colour and equipment. Refer to manufacturer's instructions for set-up details.
The recommended hardener / additive thinner combination for IR drying is P210-872 / P852-1894

## RECOATABILITY

P471-line 2K HS Plus Solid Colour System is fully recoatable after the recommended "into-service" times.

## PAINTING PLASTICS

For matted, flexible and textured finishes, P471-line 2K HS Plus solid colours may be converted and made ready for use using the following volume table:

| Substrate | Appearance | P471- | P565-554 | P565-7210 | P565-7220 | P100-2020 | HS Hardener | Thinner |
|---|---|---|---|---|---|---|---|---|
| **Rigid** | Gloss | 2 vol. | | | | | 1 vol. | 0.6>0.7 vol. |
| | Semi-gloss | 2 vol. | 2 vol. | | | | 1 vol. | 1 vol. |
| | Matt | 1.5 vol. | 2.5 vol. | | | | 1 vol. | 1 vol. |
| | Fine Textured | 2 vol. | 1 vol. | 3 vol. | | | 1 vol. | 2 vol. |
| | Coarse Textured | 2 vol. | 1 vol. | | 1.5 vol. | | 1 vol. | 1 vol. |
| | | | | | | | | |
| **Flexible** | Gloss | 2 vol. | | | | 0.5 vol. | 1 vol. | 0.4 vol. |
| | Semi-gloss | 2 vol. | 2 vol. | | | 0.5 vol. | 1 vol. | 0.6 vol. |
| | Matt | 1.5 vol. | 2.5 vol. | | | 0.5 vol. | 1 vol. | 0.6 vol. |
| | Fine Textured | 2 vol. | 1 vol. | 3 vol. | | 0.5 vol. | 1 vol. | 2 vol. |
| | Coarse Textured | 2 vol. | 1 vol. | | 1 vol. | 0.5 vol. | 1 vol. | 1 vol. |

## RECTIFICATION AND POLISHING

Polishing is not normally required as the P471-line 2K HS Plus Solid Colour System has a full gloss finish straight from the gun. However, if dirt is a problem, denib with P1500 or finer, then polish by machine using a quality polish such as SPP Polishing System (refer to SPP TDS).
Polishing P471-line 2K HS Plus Solid Colour System is easiest between 1 and 24 hours after "into service" drying times.

## OTHER POINTS TO NOTE

1. When using 2-pack products it is recommended to clean the gun thoroughly immediately after use.

2. All recent single-layer metallic colours will be found as basecoat matches in P965-line Aquabase™ basecoat or Aquabase Plus P989-line.

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# General Process Notes

## P471 Line 2K HS Plus Weight Mixing Chart

The weight of the hardener and thinner required by certain volumes of mixed colour to produce ready-for-use paint is detailed below. The weights correspond to the mixing ratio: 2 parts P471 Line colour: 1 part P210-870/2/5/7: and the option of 0.6 OR 0.7 PARTS P852-189X.

**'TARE'** the scale after mixing or measuring out the colour. The weights of hardener and thinner are **CUMULATIVE –** DO NOT TARE THE SCALE BETWEEN ADDITIONS.

| **Volume of P471-Line colour mix** | **Final ready-for-use volume** | | **Weight of P210-870/2/5 Hardener** | Weight of P852-1893/4 Thinner | |
|---|---|---|---|---|---|
| **Litres** | **Litres (@ 2/1/0.6 ratio)** | | **Grams** | Grams to 0.6 parts | Grams to 0.7 parts |
| 0.10 | 0.18 | | 53.3 | 79.1 | 83.4 |
| 0.20 | 0.36 | T | 106.6 | 158.3 | 166.9 |
| 0.25 | 0.45 | A | 133.2 | 197.8 | 208.6 |
| 0.30 | 0.54 | R | 159.9 | 237.4 | 250.3 |
| 0.40 | 0.72 | E | 213.2 | 316.5 | 333.7 |
| 0.50 | 0.90 | | 266.5 | 395.7 | 417.2 |
| 0.60 | 1.08 | S | 319.8 | 474.8 | 500.6 |
| 0.70 | 1.26 | C | 373.1 | 553.9 | 584.0 |
| 0.75 | 1.35 | A | 399.7 | 593.5 | 625.8 |
| 0.80 | 1.44 | L | 426.4 | 633.0 | 667.5 |
| 0.90 | 1.62 | E | 479.7 | 712.2 | 750.9 |
| 1.00 | 1.80 | | 533.0 | 791.3 | 834.4 |
| 1.50 | 2.70 | | 799.5 | 1187.0 | 1251.5 |

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# General Process Notes
# Best Practices with UHS Products

## Paint storage conditions

Keep ready for use paint in good conditions to ensure correct viscosity.

RFU temperature above a minimum of 15˚C, and ideally over 18˚C.
This includes paint, hardeners and thinners.

## Mixing and making ready for use

Activate accurately, and by weight where ever possible.

Where mixing must be by volume, only use a round and parallel sided mixing container together with the correct mixing stick. If using a measuring container marked in percentages, you must be sure that the percentages give the correct quantities.

Make sure that Hardeners and Thinners are mixed in well. High solids or high viscosity products can take a little longer to mix in, so a good practice is to stir Hardener in first, then add thinner before stirring again.

Use mixed product as quickly as possible.

Choose the correct Hardener for the required bake cycle.

Keep to the recommended levels of additives.
Do not exceed the recommended level of additives such as Flexibilisers.

## Application technique, process and equipment choices

Use correct spraygun set ups, and set up the spraygun correctly.

Use a “Single Visit” application wherever possible, following the advice given in the application section.

Check that the spraybooth is operating effectively. If necessary make an oven check to be sure that metal temperature is reached, especially on low down repair areas.

Nexa Autocolor recommendations are based on time at metal temperature, so this should be allowed for in the bake cycle that is set for the job.

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**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.

**NOTE**:
Combinations of this product with P565-554, P100-2020, P565-7210 or P565-7220 will produce a paint film with special properties as defined by the EU Directive code.
**In these specific combinations:** The EU limit value for this product (product category: IIB.e) in ready to use form is max. 840g/litre of VOC. The VOC content of this product in ready to use form is max. 840g/litre

**These products are for professional use only**, and are not to be used for purposes other than those specified. The information on this TDS is based on present scientific and technical knowledge, and it is the responsibility of the user to take all necessary steps in order to ensure the suitability of the product for the intended purpose.
For Heath and Safety information please refer to the material Safety Data Sheet, also available at:

**www.nexaautocolor.com**

## For further information please contact:

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