GRAPHITE HD

Paint Systems for CV Finishing

Perfection made simple

R-M

GRAPHITE HD SYSTEM

Paint Systems for CV Finishing

according to EU Decopaint Directive 2004/42/IIB

Jan. 2014

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Perfection made simple

Contents

A	**General information**
B	**CV painting processes**
C	**Important information**
D	**Tables**
E	**Product data sheets**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Contens

A General information

1. Product list

2. Processing pictograms

3. Pre-treatment

3.1 Basic cleaning
3.2 Chemical pre-treatment
3.3 Mechanical pre-treatment
3.3.1 Steel and aluminium
3.3.2 Galvanised steel
3.3.3 Plastics
3.3.4 Sanding equipment

4. Pre-treatment processes

4.1 Steel, stainless steel
4.2 Aluminium
4.3 Galvanised steel
4.4 Plastics
4.5 Coated substrates

Contens

B CV painting processes

1. Which painting process for which vehicle?

1. **P 1** Chassis painting with CHASSIS SURFACER
   P 1 Chassis painting with CHASISMIX (70:30)
   P 1 Chassis painting with CHASISMIX (50:50) DTM
   P 2 Boxes, bulk loading vehicles
   P 3 Aluminium vehicles
   P 3.1 Beverage delivery trucks (aluminium)
   P 3.2 Beverage delivery trucks (aluminium) Chr.free
   P 4 Buses, fire-fighting vehicles
   P 5 Boxes, buses
   P 6 Cab refurbishing
   P 6.1 Cab colour change
   P 6.2 Chassis colour change
   P 7 Powder-coated profiles/boxes
   P 8 Multi-colour painting, GRAPHITE HD
   P 9 Signwriting
   P 10 Painting of Plastics

2. **CV RAPID**
   P 1 GRAPHITE HD CHASSIS SURFACER
   P 2 GRAPHITE HD PRIMER FILLER MP
   P 3 GRAPHITE HD WASH FILLER
   P 4 GRAPHITE HD PRIMER CF &
   GHD SURFACER WHITE

Contens

C Important information

1. Basic conditions for paint application

2. Spraying methods

2.0 Note on transfer efficiency
2.1 Airless
2.2 Airmix
2.3 Air atomisation using membrane pumps/pressure pots
2.3.1 HVLP spraygun (pressure pot)
2.3.2 HVLP compliant spraygun (pressure pot)
2.4 Electrostatically supported spraying

3. Refinishing mistakes and defective finishes

3.0 General information
3.1 Basic rules
3.2 Blistering
3.3 Bleeding
3.4 Spotting
3.5 Delamination
3.6 Pinholes
3.7 Cratering
3.8 Wrinkling/Lifting
3.9 Stone chipping
3.10 Under-film corrosion

4. CV paint finish maintenance

5. Tips for working with paint materials

a) in very high temperatures
b) in high humidity

6. Health and safety precautions

a) Health protection during paint application
b) Guidance note on the use of products containing isocyanat based on EU directives

Contens

D Tables

1. Which products for which substrates?
2. Tinting guide for GRAPHITE HD solid colours
3. GRAPHITE HD T ... mixing bases
4. Main products and resin bases
5. Temperature table for GRAPHITE HD AND CLEAR
6. Gloss table for GHD Matting Paste
7. Painting of Plastics

Contens

E Product data sheet

1. Technical product and application data

1. Product list

2. Processing pictograms

3. Pre-treatment

3.1 Basic cleaning
3.2 Chemical pre-treatment
3.3 Mechanical pre-treatment
3.3.1 Steel and aluminium
3.3.2 Galvanised steel
3.3.3 Plastics
3.3.4 Sanding equipment

4. Pre-treatment processes

4.1 Steel, stainless steel
4.2 Aluminium
4.3 Galvanised steel
4.4 Plastics
4.5 Coated substrates

Product list

A 1

Cleaning agents

PRE KLEANO 700	PK 700	SV20-0240
PRE KLEANO 1000	PK 1000	SV66-020F
PRE KLEANO 2000	PK 2000	SV66-040F

Body fillers

STOP MULTI 100:3 with PUTTY HARDENER	SP66-128F
STOP FILLER II 1.4 kg mixed with STOP FILLER HARDENER	AS28-7017

Undercoat materials

GRAPHITE HD PRIMER CF, chromate-free 100:50 GRAPHITE HD ACTIVATOR, SLOW and 10% GRAPHITE HD THINNER-	AS50-1938
GRAPHITE HD WASH FILLER, chromated 100:100 with GRAPHITE HD ACTIVATOR, SLOW	AS50-1962
GRAPHITE HD ETCH PRIMER FILLER CF, chromate-free 100:50 GRAPHITE HD ACTIVATOR for PRIMER FILLER CF and 20% GRAPHITE HD THINNER-	AS50-7938
GRAPHITE HD CHASSIS SURFACER 100:20:20 with H 360 or H 310	AS56-7223
GRAPHITE HD PRIMER FILLER MP 100:25:25 with H 360 or H 310 and GRAPHITE HD THINNER-	AS56-7202
GRAPHITE HD SURFACER WHITE 100:50:10 with H 380 and GRAPHITE HD THINNER-	AS56-0208
TRANSPARENT SEALER CP 100:50 with H360, H310 and 30 % GRAPHITE HD THINNER-	AS56-0011
GRAPHITE HD EPOXY, chromated 100:25:25 with GRAPHITE HD EPOXY HARDENER and GRAPHITE HD THINNER-	AS43-7961
GRAPHITE HD EPOXY CF, chromate-free 100:25:25 with GRAPHITE HD EPOXY HARDENER and GRAPHITE HD THINNER-	AS43-7962

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

«TIDatum»

Perfection made simple

Product list

A 1

CV topcoats

GRAPHITE HD 100:25:25 with H 350 / 300 GRAPHITE HD TOPCOAT HARDENER and GRAPHITE HD THINNER-		AT04-
GRAPHITE HD + GHD MATTING PASTE 100:25:25 with H 350 / 300 GRAPHITE HD TOPCOAT HARDENER and GRAPHITE HD THINNER-		AT04- / AZ19-0193
GRAPHITE HD CV 12 direct-gloss, metallic, white aluminium 100:25:25 with H 350 / 300 GRAPHITE HD TOPCOAT HARDENER and GRAPHITE HD THINNER- GV 100		AU04-9006
GRAPHITE HD MIXING CLEAR	CV 35 M	AV04-0350
GRAPHITE HD AIRLESS MIXING CLEAR	CV 38 M	AV04-0380

Clear

GRAPHITE HD CLEAR 300:100:100 with H 350 / 300 and GRAPHITE HD THINNER-	AV04-0100

Additives

GRAPHITE HD ADDITIVE SF	AZ19-0199
GRAPHITE HD DECO A	AZ15-0101
GRAPHITE HD MATTING PASTE	AZ19-0191
GRAPHITE HD TEXTURING AGENT	AZ19-0193
GRAPHITE HD CV PRIMER TINTING PASTE	AZ17-9108
GRAPHITE HD CHASSISMIX	AT92-7100
FLEXPRO	AZ58-0001

Product list

A 1

Hardeners for body fillers

STOP FILLER HARDENER for STOP FILLER II		SC40-023F
PUTTY HARDENER for STOP MULTI		SC40-324F

Hardeners for undercoats, epoxy primer fillers and etch primers

GRAPHITE HD ACTIVATOR, SLOW for GRAPHITE HD PRIMER CF, GRAPHITE HD WASH FILLER		SC10-0323
GRPHITE HD ACTIVATOR for GHD ETCH PRIMER FILLER CF		SC10-0350
GRAPHITE HD EPOXY HARDENER		SC60-0618
GRAPHITE HD HARDENER, FAST for TRANSPARENT SEALER CP, GRAPHIT HD CHASSIS SURFACER GRAPHITE HD PRIMER FILLER MP,	H 310	SC20-0108
GRAPHITE HD HARDENER, STANDARD for TRANSPARENT SEALER CP, GRAPHIT HD CHASSIS SURFACER, GRAPHITE HD PRIMER FILLER MP ,	H 360	SC22-0106
GRAPHITE HD SURFACER HARDENER for GRAPHITE HD SURFACER WHITE	H 380	SC20-0238

Hardeners for Topcoats

GRAPHITE HD TOPCOAT HARDENER, FAST for GRAPHITE HD GRAPHITE HD CLEAR	H 300	SC20-300F
GRAPHITE HD TOPCOAT HARDENER, STANDARD for GRAPHITE HD GRAPHITE HD CLEAR	H 350	SC20-350F

Thinners

GRAPHITE HD THINNER FAST	GV 100	SV41-061F
GRAPHITE HD THINNER STANDARD	GV 200	SV41-062F
GRAPHITE HD THINNER SLOW	GV 300	SV41-063F
GRAPHITE HD THINNER VERY SLOW	GV 400	SV41-064F

Processing pictograms

A 2

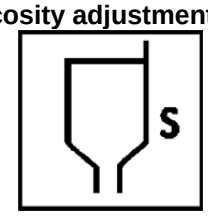
Pre-treatment

Cleaning

Product data sheet

See data sheet

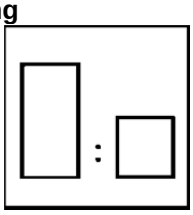
Viscosity adjustment



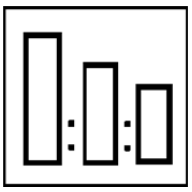
Application viscosity

Water-thinnable

Mixing

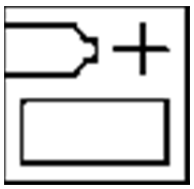


Mixing ratio 2 components



Mixing ratio 3 components

Mixing stick



Hardener addition

Application

Gravity-feed spraygun

Suction-feed spraygun

UB spraygun

Number of spraycoats

Body filling

Brushing

Roller coating

Airless

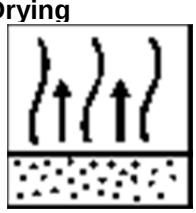
Aerosol can

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

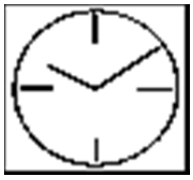
Processing pictograms

A 2

Drying



Flash-off



Drying time

Infrared drying

Miscellaneous

Stirring

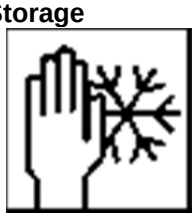
Stirring in mixing machine

Compare colours

Blending in

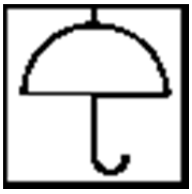
Limited hiding power

Storage



Protect from frost

Store in a cool place



Keep in a dry place

Replace lid properly

Shelf life

Further processing

Manual sanding, wet

Manual sanding, dry

Random orbital sander, wet

Random orbital sander, dry

Oscillating sander, wet

Oscillating sander, dry

Polishing

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Perfection made simple

3.1 Basic cleaning

Producing a high-quality finish begins with proper pre-treatment of the substrate. Basic cleaning is the first step: all dirt must be thoroughly removed. Sometimes you will have to use special additives to dissolve protective wax.
In all cases, however, the last rinsing operation must be carried out using clear water, preferably use a high-pressure steam jet cleaner.

Pre-treatment. There are two different pre-treatment methods.

3.2 Chemical pre-treatment

This kind of pre-treatment agents is applied with a high-pressure steam-jet. There are two different types of alkaline pre-treatment agents: Cleaning and phosphating agents (to be applied in one working step)

Iron and zinc phosphating:
In this case, the pre-treatment agents are applied in two stages: 1. Step 1: Phosphating, step 2: Rinsing. Here it is most important to follow the manufacturer's instructions.
Chemical pre-treatment is used mainly on aluminium and steel.
The pre-treatment agent is sprayed on starting at the bottom of the vehicle and finishing at the top to ensure that the acidic pre-treatment agent can act evenly on the surface.
Within 15 minutes the acid will attack the metal surface to remove any substances from the substrate that might impair adhesion. The products of this attack, acid and dissolved contaminants, will produce water-soluble foam which **must not be left to dry** before it is thoroughly washed off. The safest and quickest method is by means of a hot-water high-pressure steam-jet.
This pre-treatment method gives a substrate with fine pores that is thinly covered with phosphate, ensuring excellent adhesion of R-M primer fillers.

3.3 Mechanical pre-treatment

3.3.1 Steel and aluminium

Mechanical manual pre-treatment requires great effort on aluminium and steel. For steel parts such as chassis, grit blasting with grit sized 0.2 to 0.5 mm is the most efficient method of pre-treatment.
For shot blasting aluminium you must use only abrasive material that is iron-free, for instance glass beads. The surface roughness should not exceed 50 µm.
If neither grit blasting nor chemical pre-treatment can be used, the only remaining alternative is degreasing with PRE KLEANO 1000, manual sanding and derusting. This is not only more time-consuming than shot-blasting but also much more tedious, and rather risky, too, for negligence easily sets in with this type of pre-treatment.
Every single weld-seam corner or bead must be degreased and sanded intensively. The use of rotating steel brushes is consequently recommended for these difficult areas. Another important function accrues to the cleaning thinner.
It must dissolve and remove water-soluble salts, grease, oil, oxides, metal filings and other contaminants. The best way to get a clean surface will be the combination of PK 1000 first and cleaning again with PK 2000

3.3.2 Galvanised steel

There are 3 different methods of zinc-plating steel, a fact that must be taken into account for the pre-treatment (cf. 5.3). 5.3)

3.3.3 Plastics

The last category under this heading is plastic.
In the CV sector the most commonly used types of plastics are glass-fibre reinforced polyesters made by different processes.

A pore-free variety is sheet moulding compounds (SMC). They are made from polyester sheets filled with glass-fibre that are moulded at high pressure and elevated temperature. They can be exposed to temperatures of up to 160°C.

Another variety is manually laminated GRP panels moulded without high pressure. They are porous and heat-sensitive.
The air bubbles trapped inside during the manufacturing process burst when the material is heated to more than 50°C. Consequently it makes sense not to force-dry this type of panels in the oven, or to heat them prior to painting for 30 minutes at 60°C panel temperature.

Special care must be taken when finishing PU or PP/EPDM plastics. Both materials must be pre-cleaned thoroughly with PK 700. Then carefully sand them with P 600 paper and re-clean with Silicone Remover. Heating for 60 minutes at 50°C will prevent loss of adhesion due to sweating of mould release agents. After heating, re-clean the panels with PK 700.
Before applying the paint system, you must spray on an adhesion promoter, and the primer filler and topcoat that follow must be properly plasticized.

Badly weathered or cracked paintwork must be sanded down to a sound surface.

Note:

Painting PP/EPDM plastics is not without risk:
PP/EPDM plastics are blends of polypropylene (PP), which cannot be painted, and ethylene-propylene-diene mixed polymers (EPDM), which can be painted. When the PP share dominates, the plastic material is considered to be unpaintable.

Panel manufacturers are unable to guarantee consistent composition of the material.
As a result, BASF cannot accept any liability in cases of loss of adhesion on PP/EPDM panels.

3.3.4 Sanding equipment

The abrasive grit consists of aluminium oxide or silicon carbide. Papers manufactured according to the FEPA standard are available with grit ranging from P 16 to P 1200.
Sanding papers are coated electrostatically. This ensures an even distribution of the abrasive material with the points upwards, and such paper is much more effective.
P-coded papers are available with a variety of backings; the letters A to E identify the thickness of the backing material.

Backing materials

Paper

A paper	approx. 70 g/m^2, very thin
B paper	approx. 100 g/m^2, thin
C paper	approx. 120 g/m^2, medium
D paper	approx. 150 g/m^2, thick
E paper	approx. 220 g/m^2, very thick

Cloth

J cloth is flexible

X cloth is rigid

Fibre

0.6 mm to 0.8 mm thick

Comparison of grit size between paper types used in the past and P papers:

Ordinary paper:	180/220	240	280	320	360	400	600
P paper:	180/220/240	280/320	360/400	500	600	800/1000	120

A 4.1

Steel
Stainless Steel

Blast-cleaning	**Cleaning:**	Basic cleaning with steam jet cleaner
	Finish:	Blasting to a clouded surface according to DIN 55928, Part 4
	Surface roughness:	50 µm
	Degree of cleanness:	Sa 2 ½
	Re-cleaning:	Blow off dust
Mechanical	**Cleaning:**	**Degreasing with PK 1000**
	Sanding:	Scuff sand by machine with P150.
	Cleaning:	Re-cleaning with PK 2000
	Degree of cleanness:	St 3 according to DIN 55928, Part 4. A light rag must not turn dark with sanding dust.
Note	**Stainless steel requires very intensive scuff sanding.**	

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Aluminium
soft, medium, hard

Mechanical	**Cleaning:**	Degreasing with PK 1000
	Sanding:	Scuff sand surface with P150 paper.
	Aluminium profiles:	Scuff sand joints, beads and rivets using a rotating brush made of stainless steel or brass.
	Cleaning:	Blow sanding dust off the surface to be painted. Separately blow out joints and beads, and clean again using a Korflex brush. **Wipe down intensively with PK 2000**. A light rag must not turn dark with sanding dust.
Chemical	**Product:**	For example, Primalu 410, Eskaphor AB820 or other suitable materials, follow manufacturer's instructions.
	Important:	Do not allow to surface-dry, and wash down with steam-jet equipment without additives.
Note	**On anodised aluminium surfaces, it is in most cases impossible to achieve permanent adhesion.**	
Note	**Painting of aluminium and temperature changes** Condensation forms when the temperature of the ambient air differs from the temperature of the vehicle or panel to be painted (dew point). In practice, this means that the temperature of vehicles left in cold air overnight and brought into the heated spray booth for painting will be below this dew point. As a result, a film of condensation that is invisible to the naked eye will form on the aluminium. This film will later result in loss of adhesion. The only way to avoid this condensation is to condition the vehicles for about 16 h at ambient temperature and no more than 75% relative humidity; the same result can be achieved by 2 hours force-drying at 50°C.	

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Galvanised Steel

Electrolytically galvanised steel, approx. 5 µm*	**Appearance:**	Light grey, uniform surface (**can be sanded** using a sanding pad)
	Cleaning:	Degreasing with PK 1000, clean again with PK 2000
Sendzimir galvanised steel, approx. 15 µm	**Appearance:**	Silver grey, spotted spangle (**can be sanded** using a sanding pad)
	Cleaning:	Degreasing with PK 1000, clean again with PK 2000
Hot-dip galvanised steel, approx. 25 µm	**Appearance:**	Glossy, very textured spangle
	Cleaning:	With grey sanding pad and 3% ammonia solution (household ammonia) + 1 drop of wetting agent. Wash down again with hot water (denib the spangle if required).
Pre-treatment **(spray-galvanised substrates)**	**Appearance:**	Glossy, porous zinc texture
	Cleaning:	With a high-pressure jet cleaner and 3% ammonia solution (household ammonia) + 1 drop of wetting agent. Wash down again with hot water (denib the zinc structure if required). Dry clean surfaces for 30 min. at 50°C.

* Today, it is possible to produce galvanised substrates with a film thickness between 5 and 25 µm. This galvanised film cannot be removed from the steel substrate with the help of a sanding pad.
The galvanised film is very porous, which makes it very difficult to degrease the surface. Only an alkaline cleaning procedure using a steam jet cleaner is suitable to prepare the surface for the subsequent application of primers or primer fillers.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Plastics

GRP/SMC (glass-fibre reinforced polyester/ sheet moulding compounds)	**Cleaning:**	Wash off mould release agents with PK 1000
	Sanding:	Scuff sand with P180 - P240 paper.
	Cleaning:	Clean again with PK 2000
PP-EPDM **PU-RIM** **PA** **PC/PBT** **PC/PBTP**	**Cleaning:**	With PK 1000
	Sanding:	Scuff sand with P 600 paper or grey sanding pad.
	Cleaning:	Clean again with PK 1000 .
Note	**Polypropylene (PP) and polyethylene (PE) <u>are only limited suitable for painting.</u>**	
Note	**Teroson plastics repair system** For further information, call the Henkel Teroson GmbH Germany hotline on: 06221-704295. Customer Service outside Germany: C. Waag-Günbel Phone: ++49/6221-704534 Fax: ++49/6221-705265 Once the plastic part is repaired, continue with CV process 8.	

Coated substrates

Powder-coated	**Cleaning:**	Wash down with PK 1000
	Sanding:	To a mat surface using a sanding pad.
	Cleaning:	Re-clean with PK 2000
Coil-coated	**Cleaning:**	Wash down with PK 1000
	Sanding:	To a mat surface using a sanding pad.
	Cleaning:	Clean again with PK 2000
OEM finish	**Cleaning:**	Basic cleaning with steam jet cleaner
	Sanding:	Wash down with sanding pad and PK 1000 (to remove remaining wax)

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

B

1. Which painting process for which vehicle?

1.	**P 1**	Chassis painting with CHASSIS SURFACER
	P 1.1	Chassis painting with CHASISMIX (70:30)
	P 1.2	Chassis painting with CHASISMIX (50:50) DTM
	P 2	Boxes, bulk loading vehicles
	P 3	Aluminium vehicles
	P 3.1	Beverage delivery trucks (aluminium)
	P 3.2	Beverage delivery trucks (aluminium) Chr.free
	P 4	Buses, fire-fighting vehicles
	P 5	Boxes, buses
	P 6	Cab refurbishing
	P 6.1	Cab colour change
	P 6.2	Chassis colour change
	P 7	Powder-coated profiles/boxes
	P 8	Multi-colour painting, GRAPHITE HD
	P 9	Signwriting
	P 10	Painting of Plastics
2.	**CV RAPID**	
	P 1	GRAPHITE HD CHASSIS SURFACER
	P 2	GRAPHITE HD PRIMER FILLER MP
	P 3	GRAPHITE HD WASH FILLER
	P 4	GRAPHITE HD PRIMER CF &

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Which painting process for which vehicle?

B 1

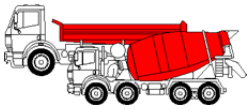
Chassis, Construction industry vehicles, Dumpers

P 1

Steel/aluminium chassis – new construction

P 1

Steel dumpers/tippers/construction industry vehicles



P 1.1 and 1.2

Steel/aluminium chassis – new construction

Boxes, Bulk loading vehicles

P 2

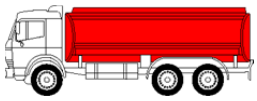
Boxes, bulk loading vehicles

Or: P 3.1, 6

Vehicles made of aluminium

P 3

Aluminium bulk loading vehicles/tankers



or: P 2, 3.1, 6

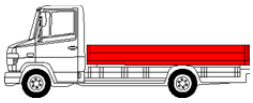
P 3

Aluminium boxes

or: P 2, 3.1, 6

P 3

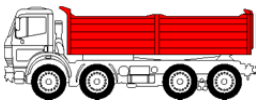
Aluminium platform trucks



Or: P 3.1, 6

P 3

Which painting process for which vehicle?



Or: P 2, 3.1, 6

P 3

Boxes made of coil-coated material + aluminium frames

Or: P 2, 3.1, 6

P 3.1 and 3.2

Aluminium beverage delivery trucks

Or: P 3

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

«TIDatum»

Perfection made simple

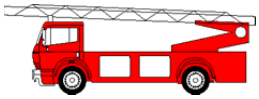
Which painting process for which vehicle?

B 1

Bus, Fire-Fighting Vehicles

P 4

Fire-fighting vehicles



Or: P 3.1, 6

P 4

New buses

Or: -

P 4

Boxes made of GRP/SMC/plywood + aluminium frames

Or: P 2, 3.1

Boxes, Bus

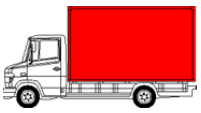
P 5

Bus repair

Or: P 2, 6.1

P 5

Boxes, bus repair



Or: -

Cab Refurbishing & Color Change

P 6

Cab refurbishing

Or: P 2, 3.1, 6

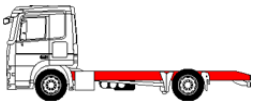
P 6.1

Cab colour change

Or: -

P 6.2

Chassis colour change

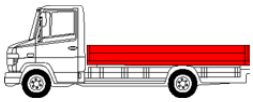


Or: -

Powder Coated parts

P 7

Powder-coated profiles/boxes



Or: -

8 Multi colour painting

P 8

Multi-colour painting, GRAPHITE HD, solids

9 Signwriting

P 9

Signwriting

10 Plastics

P 10

Plastics painting GRAPHITE HD FLEXPRO

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Perfection made simple

P 1

Chassis painting

GRAPHITE HD CHASSIS SURFACER

Steel (chassis), aluminium, chromate-free

Pre-treatment	**Abrasive blast-cleaning**		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Pre-prime aluminium chassis with	**GRAPHITE HD PRIMER CF** activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 300	**100:50 + 10%** mixing stick	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
	Alternative product: GHD WASH FILLER or GHD EPOXI (see product data sheet)		
CHASSIS SURFACER	**GRAPHITE HD CHASSIS SURFACER** hardener : H 360 reducer : GV 300	**100:20:20** mixing stick	Equipment : Airless (pressure pot)* Spray coats : **finish with 1 coat** Film thickness: **60 - 70 µm** Flash-off : at least 60 min. at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 22°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel tmp

* = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

P 1.1

Chassis painting

CHD CHASSISMIX (70:30)

Steel (chassis), aluminium, chromate-free

Pre-treatment	**Abrasive blast-cleaning**	
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150	
Pre-prime aluminium chassis with	**GRAPHITE HD PRIMER CF** activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 300 **100:50 + 10%** mixing stick	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
	Alternative product: GRAPHITE HD EPOXI (see product data sheet)	
Chassis surfacer	**CHASSISMIX GHD TOPCOAT** **70:30** hardener : H 350 reducer. : GV 300 **7 : 1 + 15-25%**	Equipment : pressure pot* Spray coats : **1-2 no flash off required** Film thickness: **40 - 60 µm** Flash-off : 60 min. at 20°C or 30 min. at 60°C panel tmp
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **100:25:25** mixing stick **> 22°C : GV 300**	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel tmp

* = See product data sheet for other equipment.

Remark: To cover the roughness of the sand blasted areas at least 60µm of the CHASSIS SURFACER has to be applied

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

P 1.2

Chassis painting DTM

CHD CHASSISMIX (50:50)

Steel (chassis), aluminium, chromate-free

Pre-treatment	**Abrasive blast-cleaning**	
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150	
Pre-prime aluminium chassis with	**GRAPHITE HD PRIMER CF** activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 300 **100:50 + 10%** mixing stick	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
	Alternative product: GRAPHITE HD EPOXI (see product data sheet)	
DTM TOPCOAT	**CHASSISMIX GHD TOPCOAT** **50:30** hardener : H 350 reducer. : GV 300 **7 : 1 + 10-15%**	Equipment : pressure pot* Spray coats : **1-2 no flash off required** Film thickness: **80 - 100 µm** Flash-off : overnight air drying or 30 min. at 60°C panel tmp

* = See product data sheet for other equipment.

Remark To cover the roughness of the sand blasted areas at least 80µm of the DTM top coat has to be applied

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Boxes, bulk loading vehicles

GRAPHITE HD PRIMER CF + GRAPHITE HD SURFACER WHITE

Aluminium (chromate-free process)

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler	**GRAPHITE HD PRIMER CF** activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 200	**100:50 + 10%** mixing stick	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
Surfacer	**GRAPHITE HD SURFACER WHITE** hardener : H 380 reducer : GV 400	**100:50:10** mixing stick	Equipment : pressure pot* Spray coats : **1 ½** Film thickness: **50 - 60 µm** Flash-off : at least 60 min. at 20°C Drying : 45 min. at 60°C Sanding : dry with P 320
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 25°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel tmp
Undercoat materials not classified as "dangerous"	The technical performance characteristics can only be achieved if the conditions for **pre-treatment**, **film thickness** and **drying** as outlined in the product data sheets are strictly complied with.		

* = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Aluminium vehicles

GRAPHITE HD WASH FILLER (PVB)

(Hang-on parts made of steel or galvanised steel)

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler	**GRAPHITE HD WASH FILLER** activator : GRAPHITE HD ACTIVATOR, SLOW	**100 : 100** mixing stick	Equipment : pressure pot* Spray coats : **2** Film thickness: **25 - 30 µm** Flash-off : at least 30 min. at 20°C max. 8 h at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 22°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C

* = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

P 3.1

Beverage delivery trucks (aluminium)

GRAPHITE HD EPOXY

Steel, galv. steel, stainless (Inox) steel, aluminium, powder-/coil-coated surfaces, plywood, GRP, SMC

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler	**GRAPHITE HD EPOXY** hardener : GRAPHITE HD EPOXY HARDENER reducer : GV 300	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **2** Film thickness: **50 - 60 µm** Drying : 30 min. at 60°C
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 25°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel temperature
Note	Use separate feed lines for GRAPHITE HD EPOXY and GRAPHITE HD.		

*= See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Aluminium vehicles

GRAPHITE HD ETCH PRIMER FILLER CF (PVB), chromatefree

(Hang-on parts made of steel or galvanised steel)

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler	**GRAPHITE HD ETCH PRIMER FILLER CF** activator : ACTIVATOR FOR ETCH PRIMER FILLER CF reducer: GV 300	**100 : 50 : 20** mixing stick	Equipment : pressure pot* Spray coats : **2,5 - 3** Film thickness: > **30 µm** Flash-off : at least 30 min. at 20°C max. 8 h at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 22°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C

* = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Buses, fire-fighting vehicles

GRAPHITE HD EPOXY + GRAPHITE HD SURFACER

Steel, galv. steel, stainless (Inox) steel, aluminium, powder-/coil-coated surfaces, plywood, GRP, SMC

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Primer filler	**GRAPHITE HD EPOXY** hardener : GRAPHITE HD EPOXY HARDENER reducer : GV 300	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **2** Film thickness: **50 - 60 µm** Drying : 60 min. at 60°C or overnight at 20°C
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Note	**Seal sand-throughs with GRAPHITE HD EPOXY.**		
Surfacer	**GRAPHITE HD SURFACER WHITE** hardener : H 380 reducer : GV 400	**100:50:10** mixing stick	Equipment : pressure pot* Spray coats : **1 ½** Film thickness: **50 - 60 µm** Flash-off : at least 60 min. at 20°C Drying : 45 min. at 60°C Sanding : dry with P 320
Note	**Seal sand-throughs with 1 coat of GRAPHITE HD PRIMER CF mixed 100:50+10 % with GRAPHITE HD ACTIVATOR, SLOW and GV 200; flash off for 15 min. at 20°C.**		
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 22°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel tmp
Note	Use separate feed lines for GRAPHITE HD EPOXY, GRAPHITE HD and GRAPHITE HD SURFACER WHITE.		

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Which painting process for which vehicle?

B 1

Boxes, buses

GRAPHITE HD PRIMER FILLER MP (PU)

Steel, galv. steel, stainless (Inox) steel, powder-/coil-coated surfaces, plywood, GRP, SMC, Aluminium

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler for aluminium only	**GRAPHITE HD PRIMER CF,** chrom.-free activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 200	**100:50 + 10%** mixing stick	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
Primer filler	**GRAPHITE HD PRIMER FILLER MP** hardener : H 360 reducer : GV 400	**100:25:25** 18 s DIN 4	Equipment : pressure pot* Spray coats : **2** Film thickness: **50 - 60 µm** Flash-off : at least 60 min. at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 22°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel tmp

* = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Cab refurbishing

GRAPHITE HD PRIMER FILLER MP (PU)

Steel, galv. steel, stainless (Inox) steel, powder-/coil-coated surfaces, plywood, GRP, SMC, aluminium

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler for aluminium only	**GRAPHITE HD PRIMER CF,** chrom.-free activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 200	**100:50 + 10%** mixing stick	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
Primer filler	**GRAPHITE HD PRIMER FILLER MP** hardener : H 360 reducer : GV 300	**100:25:25**	Equipment : pressure pot* Spray coats : **2** Film thickness: **50 - 60 µm** Flash-off : at least 60 min. at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 22°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel tmp
Undercoat materials not classified as "dangerous"	The technical performance characteristics can only be achieved if the conditions for **pre-treatment**, **film thickness** and **drying** as outlined in the product data sheets are strictly complied with.		

- = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

P 6.1

Cab colour change

Cab colour change using TRANSPARENT SEALER CP (or GRAPHITE HD SURFACER WHITE)

Old paintwork

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Solid-colour finish			
Adhesion promoter	**TRANSPARENT SEALER CP** hardener : H310 reducer : GV100	**100:50 + 30%**	Equipment : gravity-feed spraygun* Spray coats : **1** Film thickness : **approx. 20 – 25 µm** Flash-off : at least 15 min. at 20°C max. 2 h
	Alternative products:GRAPHITE HD SURFACER WHITE (see product data sheet)		
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **> 22°C : GV 300**	**100:25:25** mixing stick	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : overnight air drying or 30 min. at 60°C panel tmp

- = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

P 10

Plastics painting *

Plastics painting with FLEXPRO**

Pre-treatment **Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)

1) Plastic: ABS, GRP, SMC

Surfacer

GHD SURFACER WHITE
hardener : H 380
reducer : GV 300
100:50:10
mixing stick

Equipment : gravity-feed spraygun
Spray coats : 1 ½
Film thickness: 40 - 60 µm
Drying : 30 min. at 60°C panel tmp
or 1 h 20°C

2) Plastic: PA, PC, PP-EPDM, PP T16 / T20, TPE (PP / PE only limited)

Adhesion promoter

GHD SURFACER WHITE
hardener : H 380
reducer :
FLEXPRO**
100:50:10
mixing stick

Equipment : gravity-feed spraygun
Spray coats : 1
Film thickness : 20 - 30 µm
Drying : 30 min. at 60°C panel tmp
or 1 h 20°C

Afterwards on 1 or 2)

Topcoat

GRAPHITE HD
hardener : H 350
reducer : GV 200
> 22°C : GV 300
100:25:25
mixing stick

Equipment : pressure pot*
Spray coats : **1.5**
Film thickness: **40 - 60 µm**
Drying : overnight air drying
or
30 min. at 60°C panel tmp

* Due to different raw material supplier the quality of the different plastics can be differ from time to time.
The adhesion should be check before painting

**** FLEXPRO has to be pre-diluted in the ratio 70 : 30 (FLEXPRO / GV 100, GV200 .)**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Powder-coated profiles/boxes

Powder-coated aluminium profiles

Powder-coated

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Adhesion promoter	**GRAPHITE HD SURFACER WHITE** hardener : H 380 reducer : GV 400 **100:50:10** Alternative product: TRANSPARENT SEALER CP (see product data sheet)	Equipment : Spray coats : Film thickness: Flash-off :	gravity-feed spraygun* **1** **approx. 20 µm** at least 30 min. at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 350 reducer : GV 200 **100:25:25** mixing stick **> 22°C : GV 300**	Equipment : Spray coats : Film thickness: Drying :	pressure pot* **1.5** **40 - 60 µm** overnight air drying or 30 min. at 60°C panel tmp

* = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

P 8

Multi-colour painting

Multi-colour painting with GRAPHITE HD and GRAPHITE HD DECO A

Substrates	**With adhesion promoter:** **Without adhesion promoter:**	Sanded, well-cured old paintwork, all clearcoat finishes. Dried undercoats (30 min. at 60°C or up to 16 h air-drying); when dried longer than this, the surfacer must be sanded with P 600.	
Adhesion promoter	**TRANSPARENT SEALER CP** hardener : H310 reducer : GV100	**100:50 + 30%**	Equipment : gravity-feed spraygun* Spray coats : **1** Film thickness : **approx. 20 – 25 µm** Flash-off : at least 15 min. at 20°C max. 2 h
	Alternative product: GRAPHITE HD SURFACER		
Topcoat	**GRAPHITE HD *** hardener : H 350/300 additive : GRAPHITE HD DECO A	**100:25:25**	Equipment : gravity-feed spraygun* Spray coats : **1.5 or 2** Film thickness : **40 – 60 µm** Tape resistant : after 2 h at 20°C

* After air drying of 16h you have to use an adhesion promoter

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Signwriting

Signwriting with GRAPHITE HD and GRAPHITE HD DECO A

GRAPHITE HD	**Without adhesion promoter :**	**On finishes air-dried for up to 24 hours at 20°C or 16 h after oven drying**
	With adhesion promoter :	**On finishes air-dried for more than 24 hours.**
Factory finishes, old paintwork, metallic BC/CC finishes	**With adhesion promoter :**	**Clean with PK 700; apply signwriting film, clean writing area with sanding pad and GV 200.**

Adhesion promoter

TRANSPARENT SEALER CP — **100:50 + 30%**
hardener : H310
reducer : GV100

Equipment : gravity-feed spraygun*
Spray coats : **1**
Film thickness : **approx. 20 – 25 µm**
Flash-off : at least 15 min. at 20°C max. 2 h

Alternative product: GRAPHITE HD SURFACER WHITE

Topcoat

GRAPHITE HD-
hardener : H 350
additive :
100:25:25 mixing stick

GRAPHITE HD DECO A

Equipment : pressure pot*
Spray coats : **1.5**
Film thickness : **40 - 60 µm**
Drying : 2 h at 20 °C or 30 min. at 60°C

Signwriting on truck tarpaulins, e.g. PVC

We recommend the following suppliers & products:

Marabu-Werke
71732 Tamm, Germany
Phone: +49 (0) 71 41 – 69 1-0
Fax: +49 (0) 71 41 - 69 12 14

e.g. Maraplast D

Farbenfabrik Pröll GmbH
Postfach 4 29
91781 Weißenburg i. Bay., Germany
Phone: +49 (0) 91 41 – 9 06-0
Fax: +49 (0) 91 41 - 9 06 49

e.g. Thermo-Jet

* = See product data sheet for other equipment.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

«TIDatum»

Perfection made simple

P 10

Plastics painting *

Plastics painting with FLEXPRO**

Pre-treatment **Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)

1) Plastic: ABS, GRP, SMC

Surfacer

GHD SURFACER WHITE
hardener : H 380
reducer : GV 300
100:50:10
mixing stick

Equipment : gravity-feed spraygun
Spray coats : 1 ½
Film thickness: 40 - 60 µm
Drying : 30 min. at 60°C panel tmp
or 1 h 20°C

2) Plastic: PA, PC, PP-EPDM, PP T16 / T20, TPE (PP / PE only limited)

Adhesion promoter

GHD SURFACER WHITE
hardener : H 380
reducer :
FLEXPRO**
100:50:10
mixing stick

Equipment : gravity-feed spraygun
Spray coats : 1
Film thickness : 20 - 30 µm
Drying : 30 min. at 60°C panel tmp
or 1 h 20°C

Afterwards on 1 or 2)

Topcoat

GRAPHITE HD
hardener : H 350
reducer : GV 200
> 22°C : GV 300
100:25:25
mixing stick

Equipment : pressure pot*
Spray coats : **1.5**
Film thickness: **40 - 60 µm**
Drying : overnight air drying
or
30 min. at 60°C panel tmp

* Due to different raw material supplier the quality of the different plastics can be differ from time to time.
The adhesion should be check before painting

**** FLEXPRO has to be pre-diluted in the ratio 70 : 30 (FLEXPRO / GV 100, GV200 .)**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

CV Painting process

RAPID 1

Chassis painting

GRAPHITE HD CHASSIS SURFACER

Steel (chassis), aluminium, chromate-free

Pre-treatment	**Abrasive blast-cleaning**		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Pre-prime aluminium chassis with	**GRAPHITE HD PRIMER CF** activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 100	**100:50 + 10%** by volume	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
	Alternative product: GHD WASH FILLER or GHD EPOXI (see product data sheet)		
CHASSIS SURFACER	**GRAPHITE HD CHASSIS SURFACER** hardener : H 360 additive : DECO A reducer : GV 100	**100:20:12,5:12,5** by volume k	Equipment : Airless (pressure pot)* Spray coats : **finish with 1 coat** Film thickness: **60 - 70 µm** Flash-off : 30 min. at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 300 additive : DECO A	**100:25:25** by volume	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : air drying

* = See product data sheet for other equipment

Remark **The area that has to be painted should not be bigger than 3m².**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

CV Painting process

RAPID 2

Boxes, buses

GRAPHITE HD PRIMER FILLER MP (PU)

Steel, galv. steel, stainless (Inox) steel, powder-/coil-coated surfaces, plywood, GRP, SMC

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler	**GRAPHITE HD PRIMER FILLER MP** hardener : H 360 Additive : DECO A reducer : GV 100	**100:25:12,5:12,5** by volume	Equipment : pressure pot* Spray coats : **2** Film thickness: **50 - 60 µm** Flash-off : 30 min. at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 300 additive : DECO A	**100:25:25** by volume	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : air drying

* = See product data sheet for other equipment

Remark **The area that has to be painted should not be bigger than 3m².**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

CV Painting process

RAPID 3

Aluminium vehicles

GRAPHITE HD WASH FILLER (PVB)

(Hang-on parts made of steel or galvanised steel)

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler	**GRAPHITE HD WASH FILLER** activator : GRAPHITE HD ACTIVATOR, SLOW	**100 : 100** by volume	Equipment : pressure pot* Spray coats : **2** Film thickness: **25 - 30 µm** Flash-off : 30 min. at 20°C max. 8 h at 20°C
Topcoat	**GRAPHITE HD-** hardener : H 300 additive : DECO A	**100:25:25** by volume	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : air drying

* = See product data sheet for other equipment

Remark **The area that has to be painted should not be bigger than 3m².**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Boxes, bulk loading vehicles CV RAPID 4

6. GRAPHITE HD PRIMER CF + GRAPHITE HD SURFACER

Aluminium (chromate-free process)

Pre-treatment	**Cleaning - Sanding - Cleaning** (see chapter on pre-treatment)		
Body filling	**STOP MULTI** + PUTTY HARDENER 100 : 3 Sanding with P 80/P 150		
Primer filler	**GRAPHITE HD PRIMER CF** activator : GRAPHITE HD ACTIVATOR, SLOW reducer : GV 100	**100:50 + 10%** by volume	Equipment : gravity-feed spraygun* Spray coats : **1 cross coat** Film thickness: **15 - 20 µm** Flash-off : 15 min. at 20°C
Surfacer	**GRAPHITE HD SURFACER WHITE** hardener : H 380 additive : DECO A reducer : GV 100	**100:50:5:5** by volume	Equipment : pressure pot* Spray coats : **1 ½** Film thickness: **50 - 60 µm** Flash-off : 30 min. at 20°C or Drying : 30 min. at 60°C Sanding : dry with P 320
Topcoat	**GRAPHITE HD-** hardener : H 300 additive : DECO A	**100:25:25** by volume	Equipment : pressure pot* Spray coats : **1.5** Film thickness: **40 - 60 µm** Drying : air drying
Undercoat materials not classified as "dangerous"	The technical performance characteristics can only be achieved if the conditions for **pre-treatment**, **film thickness** and **drying** as outlined in the product data sheets are strictly complied with.		

* = See product data sheet for other equipment.

Remark **The area that has to be painted should not be bigger than 3m².**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Content

C Important information

1. Basic conditions for paint application

2. Spraying methods

2.0 Note on transfer efficiency
2.1 Airless
2.2 Airmix
2.3 Air atomisation using membrane pumps/pressure pots
2.3.1 HVLP spraygun (pressure pot)
2.3.2 HVLP compliant spraygun (pressure pot)
2.4 Electrostatically supported spraying

3. Refinishing mistakes and defective finishes

3.0 General information
3.1 Basic rules
3.2 Blistering
3.3 Bleeding
3.4 Spotting
3.5 Delamination
3.6 Pinholes
3.7 Cratering
3.8 Wrinkling/Lifting
3.9 Stone chipping
3.10 Under-film corrosion

4. CV paint finish maintenance

5. Tips for working with paint materials

a) in very high temperatures
b) in high humidity

6. Health and safety precautions

a) Health protection during paint application
b) Guidance note on the use of products containing isocyanat based on EU directives

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Basic conditions for paint application

C 1

The painting result depends on various factors.

1. The spraybooth

The condition of the spray booth (combi booth) has a decisive effect on the painting result. The air needed must be supplied through appropriate filters and distributed evenly in the booth.
If the flow of air is too strong, the air vortexes produced will hold overspray for too long. Dried overspray will contaminate the finish applied.
If the air speed is too high, i.e. clearly beyond 0.2 m/s, or if the flow is unbalanced due to defects in air ducts, the following paintwork defects might occur:

a) loss of gloss
b) wrinkling
c) microscopic pinholes

Such defects result when the finish applied dries too fast on the surface. Spraybooths do not require a high air supply level because slight overpressure (5 mm water column or 5 pascal (Pa) is enough to prevent unfiltered air from streaming into the booth (through windows and/or doors).

2. Spraying temperature

The optimum application temperature for undercoat materials and topcoats is 18 to 20°C at a relative air humidity of 50 to 75%.
Lower temperatures will slow down the drying process. In temperatures below + 15°C, drying will take twice as long as indicated in this manual. Lower temperatures will in addition have an adverse effect on the lattice structure that is built up in 2K products by chemical cross-linking.
Furthermore, the resistance to solvents and chemicals will be reduced.
In relatively high temperatures (above + 25°C), hardeners and thinners marked "slow" must be used to prevent pinholing and poor flow and overspray absorption.

3. Spraying pressure (bar)

The spraying air used must always be free from oil and water. Appropriate equipment, i.e. oil and water separators, is available from spraygun manufacturers.
A shop in which 3 spray painters work with a basic spraying pressure of 4 to 4.5 bar will need an air volume of approx. 1200 l/min.

To obtain an air supply level of approx. 1,200 l/min., compressed air pipes (main and circulation lines) should have a minimum diameter of 1 inch for lengths of up to 50 m and 1.5 inches for lengths of up to 150 m.
Compressed air pipes with a smaller diameter will not be able to produce a pressure of 4 to 4.5 bar. This, on the other hand, will lead to poor flow and slow down the painting process.

4. Interior spraybooth walls

The interior walls of spraybooths must be smooth to prevent dust from settling on them. Options are walls plastered with mortar and smoothed with a solvent-resistant PU coating, coated metal panelling or tiled stone walls.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

2.0 Note on transfer efficiency

Spraying paints using different spraying methods is daily routine work. The reduction of organic solvents and the desire to minimise waste have an increasingly strong effect on the selection of coating processes. In this context, transfer efficiency is an important factor to help reach a decision.

Transfer efficiency
The figures listed below are average levels, with the transfer efficiency depending on the spraying method used and the surface quality and size of the object being sprayed.

- Conventional high-pressure spraying: 35 – 50%
- Airless spraying : 50 – 65%
- Electrostatic spraying
  - with compressed air : 60 – 85 %
  - without compressed air : 80 – 95%
- CED, EC : 90 – 98%
- Dipping : 80 – 90 %

C 2

2.1 Airless

Airless spraying means that the paint material is pressed through a nozzle at pressure levels above 200 bar.
No compressed air is needed to atomise and/or convey the paint droplets.
Airless sprayguns come complete with a nozzle insert that swirls the paint prior to atomisation. The atomiser nozzle itself is designed as a slit nozzle and adjusts the width of the spray jet.
Once the paint material has left the nozzle, it is torn apart and moves on towards the object being painted at unchanged high speed.
In general, the distance between spraygun and object being painted is approx. 30 cm. The spray jet is clearly defined. It is not possible to adjust the flow at the gun.
Pneumatic piston pumps have become generally accepted for airless spraying. In special cases, electrically driven equipment is used.

Advantages and drawbacks of airless spraying

Advantages:

- high film thickness achieved with one spraycoat
- allows very fast working
- very low exposure to spray mist
- little overspray

Drawbacks:

- very clearly defined spray jet resulting in overlapping problems
- flow cannot be adjusted during spraying
- short useful life of nozzles
- equipment difficult to handle
- relatively coarse paint atomisation (finish has its own texture)
- textured finish (orange peel)

Atomisation is strongly influenced by paint viscosity, nozzle diameter, spraying angle and material pressure at the nozzle outlet. The majority of paint shops use piston pumps with transmission ratios ranging from 1:28 to 1:32.

Conclusion: Suitable for CV finishing only in special cases (chassis, container boxes).

2.2. Airmix: airless combined with pneumatic atomisation

Airmix units are hydraulic atomisers which work in such a way that the paint mist passes not only the atomiser nozzle, but also an air stream that has a pressure of up to 2 bar.
This produces a less clearly defined spray jet and finer paint droplets. On the whole, this method requires a lower material pressure (approx. 60 bar) than airless spraying. It produces more overspray than airless, but clearly less overspray than pneumatic spraying. The piston pumps work at ratios ranging from 1:12 to 1:16.

2.3 Air atomisation using membrane pumps/pressure pots

Pneumatic spraying with membrane pumps is easier than using pressure pot units as far as handling is concerned. The material is conveyed by means of a membrane pump. The operation of this pump requires a minimum air pressure of 2 bar.
One end of the material supply hose is immersed in the paint container. The material pressure required is 0.5 to 2.5 bar, depending on the diameter of the nozzle used. Normal paint jobs, for example on chassis, can be done with a normal membrane pump.
High-quality finish jobs will require a double membrane pump and, in addition, a material fine pressure regulator to compensate the pump lifts.
One unit is sufficient to supply 2 guns.

Advantages:

- easy material supply
- easy monitoring of material consumption
- quick cleaning thanks to bypass

Drawbacks:

- paint supplied in batches due to pump lifts
- in the case of normal membrane pumps

2.3.1 HVLP spraygun (pressure pot) - Low pressure technology

HVLP = high volume at low pressure
For spray painters, this means that they have to change their spraying technique.

1. shorter distance: approx. 20 cm
2. larger overlaps
3. lower noise during spraying

Here the atomising pressure, which used to be 3 to 5 bar, is reduced to 0.7 bar at the nozzle. This means first of all larger paint droplets and a different spray pattern.
Clearly less overspray is produced, and the transfer efficiency is increased by 50% compared to conventional sprayguns. The use of this spraying method can save up to 20% material.

2.3.2 HVLP compliant spraygun (pressure pot) - High pressure technology

Compliant sprayguns combine the advantages of conventional high-pressure sprayguns, allowing a high application speed, and of HVLP sprayguns with high efficiency. When using compliant sprayguns, the inlet pressure must be reduced to 2 – 2.5 bar. The minimum transfer efficiency is 65%.

2.4. Electrostatically supported spraying

In principle, electrostatically supported spraying systems are designed in the same way as conventional spraying systems. In addition, there is a high-voltage electrode in the paint channel. This electrode is up to 10 mm longer than the nozzle and loads the paint material electrostatically. An electric field is built up between the object being painted and the gun, and this field determines the direction in which the paint particles will move.
For this spraying method, the object to be painted must absolutely be earthed to make it act as a positive pole that will attract the negatively charged paint particles.

It must be considered that there may be recessed areas and structures with angles into which electrostatically charged paint particles are not able to penetrate (Faraday cage).

To obtain acceptable finishing results in such areas, the electrostatics function must be switched off. The switch needed to do so should be on the gun.
Always use relatively slow reducers for electrostatic spraying.
Electrostatic airless spraying is particularly suitable for painting chassis and similar objects.

Advantages:

- reduced paint consumption, efficient working
- reliable edge cover thanks to good throwing power
- shorter spraying times

Drawbacks:

- granular surface
- cavities difficult to spray
- spray-painter must get used to a new spraying technique
- too thick coats on edges
- additional safety regulations

C 3

3.0 General information

Despite the great care taken in the development, production and testing of CT finishing products, their resistance has natural limits which are determined by application conditions and external factors.
To make full use of the properties of RM's tried and tested high-quality coating products, these must be applied carefully and correctly. Experience has shown that the resistance of a finish to weather and other influences increases with the number of coats applied.
In practice, however, the number of individual coats is limited by the need for efficiency.
Our systems take into account both aspects.

Defective finishes due to faults in application:

- Coats are omitted although recommended.
- Recommended film thicknesses are not observed.
- Use of products not adapted to each other.
- The prescribed reducers are not used.
- The specified drying and/or flash-off times are not observed.

3.1 Basic rules

To avoid paintwork defects that will become visible only later, working processes and conditions should be checked continuously.

- The surface to be painted must be clean, dry and free from grease.
- The specified flash-off and drying times must be observed.
- Sanding residues, especially salt residues, should be avoided or removed. The water used for sanding must be changed frequently. Sanded surfaces must absolutely be washed again with clean water and wiped dry.
- Moisture remaining from sanding must fully evaporate (allow 2 hours at 20°C or longer in lower temperatures).
- Sweat from hands on the surface to be painted or individual coats must absolutely be avoided.
- The spraying air must be dry. Empty the water and oil separator daily.
- The temperature in the workshop should not be below +15°C, the relative air humidity not above 75%.
- Temperature of vehicles to be finished must be adjusted to ambient temperature.
  (Place them in the spraybooth overnight.)

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

3.2 Blistering

Definition:

In wet weather, paint finishes will absorb small quantities of water vapour, which will evaporate again in dry weather (osmosis).
Humidity blisters can occur in different shapes, sizes, patterns and numbers between the individual coats of the finish, but also between the paint system and the substrate. The paint film is undamaged. In dry weather, the blisters will disappear again, especially when exposed to warmth, for example sunshine or wind.

Causes:

- The surfaces to be painted, i.e., filler patches, bare metal and so on, have not been cleaned sufficiently. Dirty sanding water or sweat from hands can leave water-binding salts on the substrate. In unfavourable cases, wiping traces can produce small blisters aligned like pearls on a string in the topcoat. This type of blisters occurs especially in cases in which fresh refinishes are exposed to high humidity.

- The protecting paint finish was damaged mechanically and humidity has crept under the finish from the damage.

- Wet sanding of polyester products without sufficient flash-off times before the basecoat or topcoat was applied.
- Temperature of (especially aluminium) vehicles below dew point (below spray room temperature). Result: invisible condensation on substrates that will later lead to the delamination of the whole paint system.

How to avoid:

- Wash the surfaces to be painted with clean water using a hot-water high-pressure jet cleaner. Then wipe them with PRE KLEANO 700 or PRE KLEANO 900.

- Apply products observing the prescribed film thicknesses and allow sufficient drying times.

- Do not wet sand polyester products.

- Bring vehicles to spray room temperature (place them in the spray room/application area overnight or blow in air with a temperature of 50 – 60°C for 2 hours).

Repairs:

Remove the paint system by intense sanding down to the coat from which the blisters originated. Refinish the sanded areas using the recommended priming and finishing products.

3.3 Bleeding

Definition:

Bleeding leads to the discoloration of the topcoat, often producing a redder or yellower colour shade.

Causes:

- Soluble pigments (colorants) from the original finish are dissolved by the solvent contained in the refinishing materials used and change the colour of the surface.
- Bleeding can also occur when excessive peroxide from polyester body fillers is dissolved by the solvents contained in the paint subsequently applied. In this case, the peroxide reacts with the pigments and produces a yellowish brownish stain mark of the size of the body filler patch below. Bleeding occurs most frequently in blue, green and metallic finishes.
- Bitumen or tar residues have not been completely removed from the old paintwork.

How to avoid:

The best way to avoid bleeding is to spray finishes that tend to bleed with a sealer (e.g., Epoxy Primer Filler) and to use no more than the prescribed quantity of peroxide when mixing it with polyester body fillers.

Repairs:

In cases where only slight bleeding occurs, seal the whole panel being refinished with Epoxy Primer Filler.

3.4 Spotting

Definition:

Etching or discoloration of the finish caused by aggressive substances, e.g., industrial waste gas, resins, petrol or chemicals, which at worst destroy the finish.

Causes:

- Tar can cause discoloration when substances contained in it penetrate the surface of the finish and settle as dirty brown black spots.
- Industrial waste gas and chemicals penetrate into the finish and change the colour of the topcoat. This type of discoloration is caused by a chemical reaction (for example of acids) with the pigments contained in the topcoat.
- Natural substances such as resins, insect bodies and bird droppings can attack paint finishes. Depending on how long they act on the finish, they can cause etching to such an extent that the paint system will be decomposed and thus destroyed in the affected area.

How to avoid:

To avoid spotting, vehicles should be washed at rather short intervals and polished with protecting agents from time to time. Foreign substances such as bird droppings, lubricants and fuel must be removed regularly to avoid etching.

Repairs:

Minor staining defects can often be removed by simple polishing with R-MFine polishing compound and sealing with a polishing product. If there are larger stains, however, the damaged coat must be sanded off, and the sanded area has to be completely refinished.

3.5 Delamination

Definition:

Delamination can manifest itself in two different ways: there can either be a lack of adhesion between the substrate and the whole paint system or a lack of intercoat adhesion (between the individual coats).

Causes:

Delamination can occur when

- substances which can cause delamination were left on the substrate when it was painted (e.g., silicone, oil, grease, wax, rust, sanding residues);
- an unsuitable primer was applied to the substrate;
- the substrate was sanded insufficiently or not at all;
- undercoat materials or basecoat were applied too dry or too thin (paint film does not cover substrate completely);
- the flash-off time was too short or the paint film applied was too thick (especially as regards the basecoat in metallic basecoat/clearcoat systems);
- the substrate was moist because the dew point was exceeded.
  The dew point is the temperature at which the water vapour contained in the air reaches the state of saturation and begins to condense. This happens especially with extreme temperature changes and/or in spring and autumn.

This is why the objects to be painted absolutely have to reach room temperature before any paint product is applied. Special care must be taken when the substrates to be painted are made of aluminium.

How to avoid:

To avoid delamination, you should choose the right primer for difficult substrates (e.g., aluminium and plastics), apply sufficiently thick primer coats and observe the manufacturers' instructions for these operations.
Never spray too dry and, when applying thick coats, allow sufficient flash-off times for the individual coats.
The objects to be painted must have the same temperature as the room in which they will be painted (+18-20°C).

Repairs:

Completely remove all loose coats by sanding and apply a new finish.

3.6 Pinholes

Definition:

Pinholes are small blisters with a microscopic hole in the centre.

Causes:

Pinholes can have different causes:

- Film thickness too high.
- Use of an unsuitable (too fast) reducer.
- Intermediate flash-off times too short.
- Panel temperature too high (to accelerate drying process).
- Flash-off too long for two-pack paints to be dried in higher temperatures.
- When IR lamps are used, the panel temperature becomes too high when the distance between lamps and painted object is too small. Minimum distance: 60 cm.

How to avoid:

To avoid pinholes, you should select the reducer (fast, normal, slow) in accordance with the spraying temperature and keep to the recommended film thicknesses. Furthermore, the specified flash-off times, drying temperatures and the distances between curing panels and painted objects should be observed.

Repairs:

When there are only minor surface defects, you can scuff sand the topcoat with P 1200 paper and polish the sanded areas with R-MFine Polishing Paste and an additional polishing product.

When there are more severe surface defects, the pinholes must be sanded out and a new finish must be applied to the affected areas.

3.7 Cratering

Definition:

Craters are small circular hollows or dents with protruding edges found in the topcoat or in intermediate coats.

Causes:

- Oil, grease, wax or silicone polish residues were not completely removed from the surface to be painted.
- Contaminants transferred by the air, e.g., overspray of a different type of paint.
- Oils or water from the compressed air used.
- Silicones from aerosols (cockpit spray).
- Foreign substances from industrial plants in the neighbourhood.
- Silicones from sealing compounds or glue.
- Residues from mould release agents (on plastic parts), slip additives and/or solder pastes, bitumen and oil from insulation material.

How to avoid:

Cratering can only be avoided by thoroughly cleaning the surfaces to be painted with PK 700 or PK 2000 Cleaner, for example. When jobs with products containing silicone (polish, sealing compounds) are to be carried out at the same time, this should be done in a separate room.

Repairs:

Craters can only be removed by sanding off the affected coats. The sanded areas must then be refinished after repeated thorough cleaning

3.8 Wrinkling/Lifting

Definition:

Wrinkling/lifting means that an uneven furrow-like pattern appears on the surface of the paint film when it is curing. This indicates that the upper coat dries faster than the coat under it. This happens only with synthetic paints.

The term 'wrinkling' is used when the pattern appears in the synthetic paint film.

The term 'lifting' is used when the furrow-like pattern is caused by the overcoated synthetic paint coat.

Causes:

- Synthetic paint applied too thick.
- The synthetic paint was mixed with too much accelerator.
- Unfavourable drying conditions (e.g., very high ambient temperature).
- The synthetic paint coat had not hardened through when it was overcoated.

How to avoid:

Observe the prescribed film thickness, add no more than the recommended quantity of accelerator and create favourable drying conditions with proper fresh air supply at the right temperature.
When lifting is caused by the original finish, the finish should be sealed before being overcoated. See chapter B, Chassis colour change, for detailed working instructions.

Repairs:

Minor wrinkling: allow the affected surface to dry completely, then sand it off to a well-cured coat and apply a new finish. More severe wrinkling: remove the whole paint coat and apply a new finish.

3.9 Stone chipping

Definition:

Stone chipping is the term used for irregular sharp-edged damage resulting from the impact of small stones, chippings or similar materials on the finish.

Causes:

Chippings are flung on the vehicle with varying energy. Depending on the force of the impact, the chippings will damage the topcoat or even the whole paint system. At the points of damage, humidity will creep under the finish and lead to corrosion creepback and flaking.

How to avoid:

Stone chipping is a paintwork defect that cannot be avoided.
However, the use of CHASSIS CARE BLACK Stone chip and underbody protection in repair jobs will reduce the depth of the damage and prevent damage down to the metal.

Repairs:

Isolated small points of damage in the topcoat can be repaired with a touch-up stick. In the case of larger or more severe damage, the affected areas must be sanded down to the substrate and refinished.
Stone chipping combined with corrosion will also require complete refinishing

3.10 Under-film corrosion

Under-film corrosion is a paintwork defect that produces irregular swelling (pointed blisters) in the finish.
When such swellings are opened or burst, rust becomes visible that is brownish on steel and white on aluminium and galvanised steel substrates.

Causes:

- Humidity penetrated down to the metal through cracks or at mechanically damaged points (e.g., stone chipping) in the finish.
- Rust was not completely removed before refinishing. Penetrating humidity caused new corrosion in the refinished area.
- The metal surface was contaminated, for example with hygroscopic salts contained in hand sweat.
- Such salts can cause corrosion and water blisters when they get in contact with air humidity that penetrated the finish.

How to avoid:

- Thoroughly clean old paintwork.
- Be sure to remove all corrosion completely.
- Repair stone chipping and other mechanical damage to the finish immediately.

Repairs:

Remove the damaged finish down to the metal substrate by sanding or shot-blasting. Be sure to reach bare metal before you start refinishing

CV paint finish maintenance

C 4

Without care, the beauty and elegance of a paint finish will fade away. Maintaining the finish is thus an essential element in the maintenance of commercial vehicles and helps preserve their value.

Paint finishes are exposed to

- temperature changes (warm/cold)
- humidity, water
- animal excrements, chemicals
- acid or alkaline cleaning agents
- sand, dirt or sediments that have an abrasive effect when driven by the wind

Washing

In the first **two months** after application, new paint finishes should be washed only with plenty of water and never with water containing cleaning agents.

When **high-pressure cleaners** or **steam spray jet cleaners** are used, the distance between the spray nozzle and the vehicle should be at least 30 cm.

Vehicles that are to be cleaned in washing lines with rotating brushes should always be sprayed with water before being washed.

New finishes should be marked with an adhesive label that provides short washing instructions.
These measures will help you preserve the value of the paint finish.

The fact that water forms pearl-like drops on the finish shows that there is a protecting film on it. This film will of course be decomposed faster on paint finishes exposed to the stresses listed above and when washing agents are used.

When you notice that water no longer forms pearl-like drops on the paint finish, you have to wax the vehicle to renew the protective film.

When vehicles are driven into a heated washing plant in winter, condensation will form between the paint finish and metal substrates due to the **rapid change from cold to warm**.

This will have a temporary adverse effect on adhesion. Depending on the temperature difference, this state can last for up to 6 hours. During this interval, the use of cleaning tools can impair the adhesion of the paint finish to the substrate. This can only be avoided by warming the vehicle to the temperature of the air surrounding it. This also applies to subsequent signwriting on painted vehicles. Experience has shown that an interval of at least 10 hours should be allowed to condition vehicles for washing

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Tips for working with paint materials

C 5

5a) in very high temperatures

as well as in extremely low temperatures, special instructions must be observed for the application of CV paint materials.
In temperatures above +30°C, unthinned paint materials are considerably less viscous than in normal application temperatures (18 to 20°C).
In such cases, many spray painters add much less reducer. This, however, is generally a mistake. Even in very high temperatures, at least as much reducer as in normal temperatures must be added. What is more, the spray viscosity should be reduced even further to prevent the application of too thick coats.
A lack of solvent and/or quicker solvent evaporation will impair the flow and reduce the pinholing resistance of the paint being applied.
In high temperatures, mist coats will dry on the surface considerably faster and then produce a textured topcoat surface. In this context, primers cause even more problems.
When applied as a mist coat, they do not form coherent films, which, however, are needed to ensure the durability of the finish.

In temperatures exceeding 25°C:

Adjust the spray viscosity by adding the quantity of reducer needed in temperatures from 18 to 20°C.
Use a reducer that will evaporate slowly, i.e., one that is marked 'slow'. If necessary, use a larger spray nozzle.

5b) in high humidity

High relative air humidity (80% or more) can cause problems in application because paint materials, especially water-borne products, will dry slower and be less resistant to sagging.

When you notice condensation on the vehicle to be finished or in the booth, the spraying area must be aired and heated. The relative air humidity should be between 50 and 75%. In addition, the vehicle must have the same temperature as the surrounding air to prevent condensation.
Paintwork defects that appear later may be due to the fact that the air humidity level was high when the affected vehicle was painted.

Possible paintwork defects:

Tarnishing or matting of the topcoat. In extreme cases cratering or wetting defects.

Defects that can appear later:

Loss of adhesion after some weeks, possibly also rather large blisters (especially on aluminium substrates).

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Health and safety precautions

C 6

Hazardous substances labelling

The German Ordinance on Hazardous Substances (GefStoffV), together with the associated German Technical Rules for Hazardous Substances (TRGS) and German Technical Rules for Flammable Liquids (TRbF) provide users with comprehensive information and instructions on the safe handling of chemical substances. Hazardous substances can have different hazard characteristics

The ordinances include labelling regulations and hazard symbols. At present, the labelling format for hazardous substances is being changed, and so this document only provides examples of various new and old hazard symbols.

Old		New	
R26 Very toxic by inhalation. R27 Very toxic in contact with skin. R28 Very toxic if swallowed.		H330 Fatal if inhaled. H310 Fatal in contact with skin. H300 Fatal if swallowed.	
R34 Causes burns. R35 Causes severe burns.		H314 Causes severe skin burns and eye damage.	
R36 Irritating to eyes.		H319 Causes serious eye irritation.	
R41 Risk of serious damage to eyes.		H318 Causes serious eye damage.	
R65 Harmful: may cause lung damage if swallowed.		H304 May be fatal if swallowed and enters airways.	

Further information on the new labelling format conforming to GHS (Globally Harmonised System) can be found on the internet.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

6d) Guidance note on the use of products containing isocyanate based on EU directives

The protective methods described here apply in particular to the application of paints and dyes containing isocyanates and must be implemented in addition to the standard safety precautions (risk assessment, operating instruction, training etc.) for handling hazardous substances. They represent only a selection of possible safety measures. In the course of the risk assessment, other important safety precautions may be identified.

Coating materials containing isocyanate may cause irritation and sensitisation of the mucous membranes and, in particular, the respiratory system. The inhalation of vapours or overspray involves the risk of sensitisation. The use of products containing isocyanate requires the strict observance of all measures applicable to coating materials that contain solvents.

In particular, overspray and vapours must not be inhaled. Persons who are suffering from an allergy, asthma or are susceptible to diseases of the respiratory tracts must not be employed on the application of coating materials containing isocyanate.

It is necessary to provide for sufficient ventilation and to wear breathing masks. Please also refer to:

"Health precautions when applying paints" in section A, General information. The material safety data sheets must also be observed

First aid

Injuries to the eyes caused by splashes.

Rinse eyes thoroughly for several minutes with lukewarm water. Lift eyelids as far as possible.
Ask the injured person to move his or her eyes in all directions during this treatment. See an eye specialist and tell him or her which chemical substance (containing isocyanate) caused the injury and what measures were taken.

Skin

Immediately and carefully remove splashes on the skin with plenty of soap and water. Then, if necessary, use a suitable cleansing cream. Immediately remove clothes covered with splashes.

Respiratory tracts

Fresh air. If breathing stops, immediately try mouth-to-mouth resuscitation and use an oxygen apparatus, if available. Make sure the treatment takes place in a warm and calm area and consult a doctor.

Transport and storage

Do not expose containers with hardener to direct sunlight and keep them closed and in a dry place.
The storage temperature should not exceed 40°C.

With respect to transport follow the instructions of the Ordinance of Hazardous Substances applicable to the means of transport used

Tables

D

1. **Which products for which substrates?**
2. **Tinting guide for GRAPHITE HD solid colours**
3. **GRAPHITE HD T ... mixing bases**
4. **Main products and resin bases**
5. **Temperature table for GRAPHITE HD AND CLEAR**
6. **Gloss table for GHD Matting Paste**
7. **Painting of Plastics**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

	Resin base	Steel	Galv. steel*	Stainless steel	Aluminium	Anodised alum.	GRP/SMC	PP-EPDM	RM CV-Primer	RM CV-Primerfiller / Filler	Powder	Coil-Coating	Plywood	Wood	Factory finish	Old paintwork
Polyester body fillers																
STOP MULTI	UPE	●●	●●	○	●●		●			●	●	●	●	●	●	●
STOP FILLER II	UPE	●			○		●●			●	●	●	●	●●	●●	●●
Primers																
GRAPHITE HD PRIMER CF	PVB	●	●		●										●	●
Primer fillers																
GRAPHITE HD WASH FILLER	PVB	●	●		●●	○						●			●	●
GRAPHITE HD ETCH PRIMER FILLER CF	PVB	●	●	●	●●		●				○	○	●		●	●
GRAPHITE HD CHASSIS SURFACER	PU	●●	●				●●		●●		●	●	●●	●●	●	●●
GRAPHITE HD PRIMER FILLER MP	PU	●●	●●	●●			●●		●●		●●	●●	●●	●●	●	●
GRAPHITE HD EPOXY	EP	●●	●●	●●	●●	○	●●				●●	●●	●●	●●	●	●
GRAPHITE HD EPOXY CF	EP	●	●	●			●●				●●	●●	●●	●●	●	●
GHD CHASSISMIX (Mixing ratio 70 / 30)	PU								●							
Surfacers																
GRAPHITE HD SURFACER WHITE	PU						●●	●	●●	●●	●●	●●	●●	●●	●●	●●
Adhesion promoters																
TRANSPARENT SEALER CP	PU						○		●●	●●	●●	●●	○	●●	●●	●●
GHD SURFACER WHITE / Flexpro	PU						●●	●●			●●	●●	●●	●●	●●	●●
DTM Top coat																
GHD CHASSISMIX (Mixing ratio 50 / 50)	PU	●●	●●				●		●	●	●	●			●	●

●● = very well suited ● = well suited ○ = suited in some cases

Key to abbreviations:

EP = epoxy/polyamine
EP E = epoxy ester
CP = copolymer
PE = polyester
PU = polyurethane/isocyanate
PU AC = polyurethane acrylate/isocyanate
PVB = polyvinyl butyral/phosphoric acid

* - The adhesion on hot dipped galvanized steel has to be checked before

For detailed information pay attention to the Technical Information of the corresponding product.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

1.2014

Perfection made simple

Tinting guide for GRAPHITE HD

D 2

Tinting direction	Colour group									
	white	grey	yellow	beige	orange	red	bordeaux	brown	green	blue
lighter	CV 90	CV 90	CV 90	CV 90	CV 90	CV 90	CV 90	CV 90	CV 90	CV 90
dirtier	CV 20	CV 20	CV 20	CV 20	CV 20	CV 20	CV 20	CV 20	CV 20	CV 20
darker	CV 20	CV 20	CV 20	CV 20	CV 74	CV 82*	CV 88	CV 20	CV 54	CV 44 CV 46
bluer	CV 44 CV 46	CV 44 CV 46	-	-	-	-	-	-	CV 54	CV 54
greener	CV 54	CV 54	CV 54	CV 54	-	-	-	-	CV 54	CV 54
yellower	CV 67	CV 67	CV 62*	CV 67	CV 62*	CV 62*	CV 67	CV 67	CV 62*	-
orange	CV 66	CV 66	CV 74	CV 74	CV 74	CV 70	CV 70	CV 70	-	-
redder	CV 77	CV 77	CV 74	CV 77	CV 82*	CV 82*	CV 82*	CV 77	-	CV 85
more violet	CV 85	CV 85	-	CV 85	-	CV 85	CV 88	CV 85	-	CV 30

Use only the mixing bases contained in the relevant mixing formula.
*) Do not use in low concentration!

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

«TIDatum»

Perfection made simple

GRAPHITE HD CV mixing bases

D 3

Mixing base no.	Product code	Name	
		German	English
CV 20	AT04-9520	blauschwarz	bluish black
CV 25	AT04-9525	gelbschwarz	yellowish black
CV 26	AT04-9526	schwarz	black
CV 30	AT04-4030	lila	lilac
CV 40	AT04-5040	blau	blue
CV 44	AT04-5044	dunkelblau	dark blue
CV 46	AT04-5046	mittelblau	medium blue
CV 54	AT04-6054	flaschengrün	bottle green
CV 61	AT04-1061	gelb	yellow
CV 62	AT04-1062	zitrusgelb	lemon yellow
CV 63	AT04-1063	chromgelb I	chrome yellow I
CV 65	AT04-1065	chromgelb II	chrome yellow II
CV 66	AT04-1066	signalrot	signal yellow
CV 67	AT04-1067	oxidgelb	oxide yellow
CV 70	AT04-2070	rotorange	red orange
CV 74	AT04-2074	hellorange	light orange
CV 77	AT04-2077	oxidrot	oxide red
CV 82	AT04-4082	rot	red
CV 85	AT04-4085	weinrot	wine red
CV 86	AT04-4086	dunkelrot	dark red
CV 88	AT04-4088	bordeaux	bordeaux
CV 90	AT04-0090	weiß	white
CV 35 M	AV04-0350	GRAPHITE HD MIXING CLEAR	
CV 38 M	AV04-0380	GRAPHITE HD AIRLESS MIXING CLEAR	
H 350	SC20-350F	GRAPHITE HD TOPCOAT HARDENER, STANDARD	
H 300	SC20-300F	GRAPHITE HD TOPCOAT HARDENER, FAST	

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Main products and resin bases

D 4

Product	Resin base	Abbreviation
STOP MULTI	unsaturated polyester	UPE
STOP FILLER II	unsaturated polyester	UPE
GRAPHITE HD PRIMER CF	polyvinylbutyral	PVB
GRAPHITE HD WASH FILLER	polyvinylbutyral	PVB
GRAPHITE HD ETCH PRIMER FILLER CF	polyvinylbutyral	PVB
GRAPHITE HD PRIMER FILLER MP	polyurethane	PU
GRAPHITE HD SURFACER	polyurethane	PU
TRANSPARENT SEALER CP	polyurethane	PU
GRAPHITE HD EPOXY	epoxy	EP
GRAPHITE HD EPOXY CF	epoxy	EP
GRAPHITE HD	polyurethane acrylate	PU AC
GRAPHITE HD CLEAR	modified polyacrylate	PAC

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Temperature chart

D 5

Temperature chart for GRAPHITE HD PRODUCT PORTFOLIO

This table shows reference material combinations based on market experience.
However, customer-specific parameters (e.g. spraybooth, objects to be painted or atomizing technique) may require different hardener/reducer combinations.

		< 15°C	above 15°C	above 20°C	above 25°C	above 30°C
GHD PRIMER CF	Hardener	GHD ACTIVATOR SLOW	GHD ACTIVATOR SLOW	GHD ACTIVATOR SLOW	GHD ACTIVATOR SLOW	GHD ACTIVATOR SLOW
	Thinner	GV 100	GV 300	GV 300	GV 400	GV 400
GHD WASH FILLER	Hardener	ACTIVATOR SLOW	ACTIVATOR SLOW	ACTIVATOR SLOW	ACTIVATOR SLOW	ACTIVATOR SLOW
	Thinner					
GHD ETCH PRIMER FILLER CF	Hardener	ACTIVATOR FOR PRIMER FILLER CF	ACTIVATOR FOR PRIMER FILLER CF	ACTIVATOR FOR PRIMER FILLER CF	ACTIVATOR FOR PRIMER FILLER CF	ACTIVATOR FOR PRIMER FILLER CF
	Thinner	GV 100	GV 300	GV 300	GV 400	GV 400
GHD EPOXI	Hardener	Not suitable	GHD EP HARDENER	GHD EP HARDENER	GHD EP HARDENER	GHD EP HARDENER
	Thinner		GV 300	GV 300	GV 300	GV 400
GHD EPOXI CF	Hardener	Not suitable	GHD EP HARDENER	GHD EP HARDENER	GHD EP HARDENER	GHD EP HARDENER
	Thinner		GV 300	GV 300	GV 300	GV 400
GHD CHASSIS SURFACER	Hardener	H 310	H 360	H 360	H 360	H 360
	Thinner	GV 200 CV	GV 300	GV 400	GV 400	GV 400
GHD PRIMER FILLER MP	Hardener	H 310	H 360	H 360	H 360	H 360
	Thinner	GV 300	GV 400	GV 400	GV 400	GV 400
GHD SURFACER WHITE	Hardener	H 380	H 380	H 380	H 380	H 380
	Thinner	GV 200 CV	GV 300	GV 400	GV 400	GV 400
GHD Chassismix	Hardener	H 310	H 360	H 360	H 360	H 360
	Thinner	GV 200 CV	GV 300	GV 300	GV 400	GV 400
GRAPHITE HD	Hardener	H 300	H 350	H 350	H 350	922-40
	Thinner	GV 100	GV 200 CV	GV 300	GV 400	GV 400
GRAPHITE HD CV 12	Hardener	H 300	H 300	H 300	H 300	H 350
	Thinner	GV 100	GV 100	GV 100	GV 300	GV 300
GRAPHITE HD CLEAR	Hardener	H 300	H 300	H 300	H 350	H 350
	Thinner	GV 200 CV	GV 300	GV 400	GV 400	GV 400

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

General remarks on mat topcoats

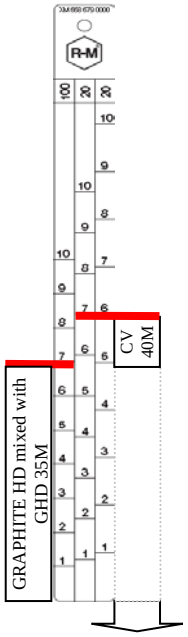
The gloss level of a mat topcoat is influenced by:

- filmbuild
- color
- hardener
- reducer
- painting process
- flash off between coats
- drying
  - air drying
  - oven drying
  - flash off before oven drying

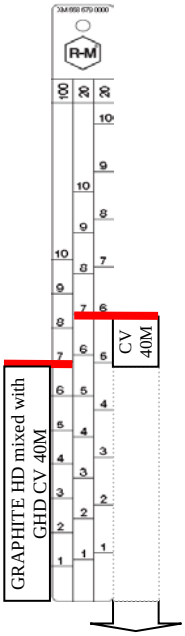
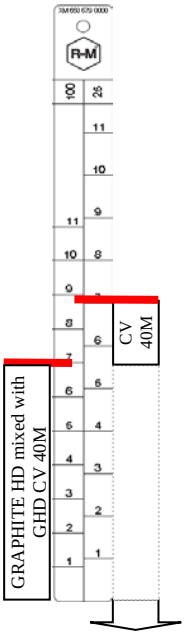
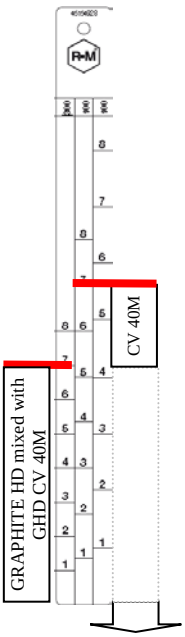
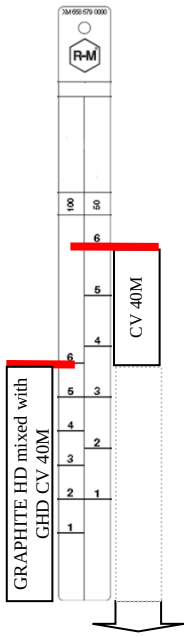
Important remarks

- Before the usage of GHD MATTING MIXING CLEAR; CV 40M, the product has to be stirred very well. That is also important if the mixing shelf was not in use for a longer time
- Use agitator to stir in till homogenously
- Mixing ratio with hardener and reducer:
  100 : 20 : 20

Use in ready mix, max. 100:20



Gloss level	>85 E 60°∢ high gloss	75-85 E 60°∢ glossy

MIXING CLEAR replaced by GHD CV 40M	MIXING CLEAR replaced + CV 40M / 100:20	MIXING CLEAR replaced + CV 40M / 100:25	MIXING CLEAR replaced + CV 40M / 100:33	MIXING CLEAR replaced + CV 40M / 100:50
				
70-85 E 60°∢ glossy	50-65 E 60°∢ semi gloss	35-50 E 60°∢ satin glossy	25-40 E 60°∢ satin matt	10-25 E 60°∢ matt

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Painting of plastics

D 7

		GHD SURFACER WHITE MV:: 100 : 50 : 10 H 380 / GV 400	GHD SURFACER WHITE MV:: 100 : 50 : 10 H 380 / **Flexpro* (pre deluted)***
SMC	**Sheet moulding compound**	●●	●●
GRP	**Glasfiber Reinfoced Plastic**	●●	●●
ABS	**Acryl-Butadien-Styrol-Copolymer**	●●	●●
PA	**Polyamid**		●●
PC	**Polykarbonat**		●●
PP / EPDM	**Polypropylen / Ethylen Propylen Dien Mixpolymerisat**		●●
PP / T16 / T20			●●
TPE	**Thermoplastic Elastomere**		●●
PP	**Polypropylen**		○
PE	**Polyethylen**		○

***FLEXPRO has to be pre diluted in the ratio 70 : 30 (Flexpro / GV 100, GV200 ….)**

●● = very well suited ● = well suited ○ = suited in some cases

In Detail: See Painting Process **P 10** “Painting of Plastics”

In general:
Due to different raw material supplier the quality of the plastics can be different from time to time. Therefore the adhesion should be checked before painting.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

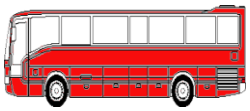
PRODUCT DATA SHEET

DIAMONT

T

Application

sign writing, busses, cabs (refurbishing), cabs (color change), boxes, busses (repair)



Description:

- suitable for large areas / surfaces
- good leveling
- excellent UV resistance
- good hiding power
- fast drying

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	
Old paint work	

Remarks:

The complete color range for CV-application is covered

The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process

Spreading rate ≈ 115 m^2 / l / 1µm

Solid content ≈ 25 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

DIAMONT

T

Mixing ratio	100:50 by volume	
Hardener		
Reducer	GV200 CV, normal	15 - 20°C
	GV200 CV, normal	**20 - 25°C**
	GV300, slow	25 - 30°C
Spray viscosity DIN 4 / 20°C	18-22 s. DIN 4	

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5		2,5
Material pressure	**bar**	--	-	-		0,8 - 1,5
Nozzle size	**mm**	1,4	1,5	1,7		1,0 - 1,1
Voltage	**kV**	-	-	-		-
Elect. Resistance	**Ω**	-	-	-		-
Number of spraycoats		2 + 1/2	2 + 1/2	2 + 1/2		2 + 1/2
Flash off	**min.**	until matt	until matt	until matt		until matt
Filmbuild	**µm**	15-20				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**	10 min	8 h	10 min	30 min		
Panel temperat.	**60°C**						

Remarks **!**

Prespray one light spraycoat, leave to flash-off until mat. Then finish with one wet coat, leave to flash-off until mat.
Apply ½ spraycoat (minimum distance to the panel: 50 cm) to match the effect.

PRODUCT DATA SHEET

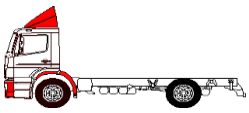
FLEXPRO

(Adhesion promotor plastic)

Z

Application

plastic painting



Description:

- good adhesion to various plastics
- high efficiency

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	●●
RM CV-Primer	
RM CV-Primer-Filler / Filler	
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	●
Old paint work	●

Remarks: Find addition information in the technical data sheet of GHD SURFACER WHITE

The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process **P 10**

Spreading rate ≈ 408 m^2 / l / 1µm **Solid content** ≈ 11 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

FLEXPRO

(Adhesion promotor plastic)

Z

Pre-mix mix FLEXPRO (70 parts) with GV200 (30 Parts)

Mixing ratio by volume

Hardener

Reducer

Spray viscosity DIN 4 / 20°C

Application		Compliant-garvity feed cup	HVLP-Spray gun	Suction cup	Airless/ Airmix (ESTA)	Pressure pot/ Dble membr. Pump
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2	2,5
Material pressure	**bar**	--	-	-	120-150	0,8-1,5
Nozzle size	**mm**	1,4-1,6	1,5-1,7	1,7	0,28-0,33	1,0-1,1
Voltage	**kV**	-	-	-	60 - 70	-
Elect. Resistance	**Ω**	-	-	-	600 - 800	-
Number of spraycoats		1-2	1-2	1-2	1	1-2
Flash off	**min.**	without	without	without	without	without
Filmbuild	**µm**	20-30 *				

Drying

		over-coatable		tack free	tapeable	ready to assamble	sandable
		Min.	Max.				
Panel temperat.	**20°C**	60 min	72 h				
Panel temperat.	**60°C**	30 min					

Remarks

*ABS, GRP, SMC: GHD SURFACER WHITE with H380 and GV 300/400 (100:50:10);
PA, PC, PP-EPDM, GHD SURFACER WHITE with H380 and FLEXPRO (100:50:10);
PP, PE: (adhesion can not be guaranteed) GHD SURFACER WHITE with H380 and FLEXPRO (100:50:10);
**Higher dry film thickness possible (50-60 µm)
Attention: Due to different raw material supplier the quality of the different plastics can be differ from time to time. The adhesion should be check before painting.
See D-Part Tables Painting of Plastic and/or Painting Process P10 for further details

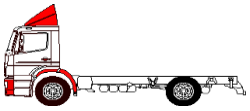
PRODUCT DATA SHEET

GRAPHITE HD ADDITIVE SF

Z

Application

plastic painting



Description:

- good leveling
- high flexible
- easy to mix

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process

Spreading rate

Solid content 74 %

Pre-mix 100:25 (100 parts paint and 25part ADDITIVE SF) use mixing stick.
For other mixtures see corrosponding TDS.

Mixing ratio

Hardener

Reducer

Spray viscosity DIN 4 / 20°C

Remarks !

Useable in CV products GHD CHASSIS SURFACER, PRIMER FILLER MP, SURFACER WHITE and RM line GHD TOPCOAT.
Products require longer drying times when containing Softface additive

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

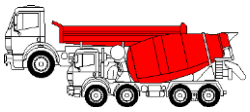
PRODUCT DATA SHEET

GRAPHITE HD CHASSIS SURFACER

beige-grey

Application

chassis painting (steel / aluminum), container, construction machinery (steel), steel and galvanized steel spare parts



Description:

- suitable on all RM CV primer
- suitable for large areas / surfaces
- chromate free with good corrosion protection
- good coverage of shot blasted profile
- brilliant top coat appearance
- outstanding application characteristics
- tintable

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●●
Galv. Steel	●
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	●●
PP-EPDM	
RM CV-Primer	●●
RM CV-Primer-Filler / Filler	
Powder	●
Coil-Coating	●
Plywood	●●
Wood	●●
OEM Paint work	●
Old paint work	●●

Remarks:

The substrate should be clean, free of dust, rust, oil and grease

Aluminum-Chassis have be primed with a suitable primer

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c I)(540)520:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 540 g/l. **The VOC content of this product is 520 g/l.**

Paint process **P 1, RAPID 1**

Spreading rate ≈ 404 m^2 / l / 1µm **Solid content** ≈ 68 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD CHASSIS SURFACER

beige-grey

PF

Mixing ratio	100:20:20 by volume		
Hardener	**H360** or H310		
Reducer	GV300, slow **GV400, very slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	25 s. DIN 4	**Potlife 20 °C**	4 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,3 - 1,8	1,5 - 1,7	1,5 - 1,7	0,28 - 0,33	1,0 - 1,1
Voltage	**kV**				50 - 80	
Elect. Resistance	**Ω**				300 - 500	
Number of spraycoats		2	2	2	1 - 2	2
Flash off	**min.**	without	without	without	without	without
Filmbuild	**µm**	60 - 70				

Drying		**over-coatable** Min.	**over-coatable** Max.	**tack free**	**tapeable**	**ready to assamble**	**sandable**
Panel temperat.	**20°C**	60 min	72* h	2 h	16 h	16 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	45 min

Remarks

!

Can be tinted with up to 10% of GHD TOPCOAT Line Topcoat for the 2nd spraycoat.
To plasticize the product, mix it 100:25 by volume (using the mixing stick) with ADDITIVE SF before adding hardener.
Can be overcoated with CV topcoats of Lines GHD TOPCOAT, ONYX.
For tinting see CV Primer Tinting Paste GHD PRIMER TINTING PASTE !
The adhesion on hot dipped galvanized steel has to be checked before.
* Line DIAMOND/ONYX has to be applied within 1 working day

PRODUCT DATA SHEET

GRAPHITE HD CHASSISMIX

DTM

T

Application

chassis painting (steel / aluminum), chassis (color change), container

Description:

- tintable
- suitable for large areas / surfaces
- good leveling
- can be applied directly on steel or galvanized steel
- high efficiency
- good corrosion protection

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●●
Galv. Steel	●●
Stainless steel	●
Aluminium	
Anodized Aluminium	
GRP / SMC	●
PP-EPDM	
RM CV-Primer	●
RM CV-Primer-Filler / Filler	
Powder	●
Coil-Coating	●
Plywood	
Wood	
OEM Paint work	●
Old paint work	●

Remarks:

Aluminum-Chassis have be primed with a suitable primer

The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (d)(420)419:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 420 g/l. **The VOC content of this product is 419 g/l.**

Paint process **P 1.2**

Spreading rate ≈ 503 m^2 / l / 1µm **Solid content** ≈ 80 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

GRAPHITE HD CHASSISMIX

DTM

T

Pre-mix mix GHD CHASSISMIX with line GHD TOPCOAT in the ratio 1:1

Mixing ratio	100:15:10-15 by volume		
Hardener	**H350** or H300		
Reducer	GV200 CV, normal	15 - 20°C	
	GV300, slow	**20 - 25°C**	
	GV400, very slow	25 - 30°C	
Spray viscosity DIN 4 / 20°C	30-40 s. DIN 4	**Potlife 20 °C**	2 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,7 - 1,9	1,7 - 1,9	0,28 - 0,33	1,0 - 1,3
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	700 - 1500	-
Number of spraycoats		2	2	2	1 - 2	2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	60-150				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**		16 h	2 h	16 h	16 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	30 min

Remarks

!

Attention! The shelf life of the mixed product (Line GHD TOPCOAT and GHD CHASSISMIX) is only 2 weeks.
The DTM version is not suitable for areas that are directly exposed to sunlight.
The corrosion protection can only be achieved, if the required film thickness is applied (covering of sand blasting roughness, edges).
Mixing of GHD CHASSISMIX and Line GHD TOPCOAT can change the color (DTM)
The adhesion on hot dipped galvanized steel has to be checked before.

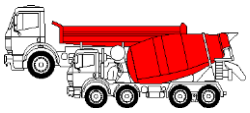
PRODUCT DATA SHEET

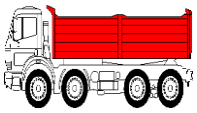
GRAPHITE HD CHASSISMIX

PF

Application

construction machinery (steel), chassis painting (steel / aluminum), chassis (color change), container, steel and galvanized steel spare parts





Description:

- suitable for large areas / surfaces
- can be applied directly on steel or galvanized steel
- tintable
- good coverage of shot blasted profile
- brilliant top coat appearance
- improves the hiding power

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●●
Galv. Steel	●●
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	●
PP-EPDM	
RM CV-Primer	●
RM CV-Primer-Filler / Filler	
Powder	●
Coil-Coating	●
Plywood	
Wood	
OEM Paint work	●
Old paint work	●

Remarks:

Aluminum-Chassis have be primed with a suitable primer

The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c II)(540)530:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 540 g/l. **The VOC content of this product is 530 g/l.**

Paint process **P 1.1**

Spreading rate ≈ ~540 m^2 / l / 1µm **Solid content** ≈ 80 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD CHASSISMIX

PF

Pre-mix mix GHD CHASSISMIX (70 parts) with line GHD TOPCOAT (30 Parts)

Mixing ratio	100:15 :15-25 by volume		
Hardener	**H350** or H300		
Reducer	GV200 CV, normal	15 - 20°C	
	GV300, slow	**20 - 25°C**	
	GV400, very slow	25 - 30°C	
Spray viscosity DIN 4 / 20°C	25-35 s. DIN 4	**Potlife 20 °C**	2 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,7 - 1,9	1,7 - 1,9	0,28 - 0,33	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 90	-
Elect. Resistance	**Ω**	-	-	-	700 - 1500	-
Number of spraycoats		2	2	2	1 - 2	2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	40-60				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**	60 min	72 h				16 h
Panel temperat.	**60°C**	30 min					30 min

Remarks !

Attention! The shelf life of the mixed product (Line GHD TOPCOAT and GHD CHASSISMIX) is only 2 weeks.
The corrosion protection can only be achieved, if the required film thickness is applied (covering of sand blasting roughness, edges)
The adhesion on hot dipped galvanized steel has to be checked before.

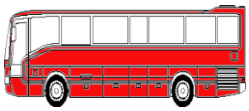
PRODUCT DATA SHEET

GRAPHITE HD CLEAR

C

Application

busses, sign writing, metallic coating (line ONYX), boxes,
busses (repair)



Description:

- suitable for large areas / surfaces
- good leveling
- excellent UV resistance
- outstanding application characteristics
- excellent gloss level

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (d)(420)419:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 420 g/l. **The VOC content of this product is 419 g/l.**

Paint process

Spreading rate ≈ 417 m^2 / l / 1µm **Solid content** ≈ 54 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

GRAPHITE HD CLEAR

C

Mixing ratio	300:100:100 by volume		
Hardener	**H300** or H350		
Reducer	GV300, slow **GV400, very slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	18-22 s. DIN 4	**Potlife 20 °C**	4 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5		2,5
Material pressure	**bar**	--	-	-		0,8 - 1,5
Nozzle size	**mm**	1,3 - 1,4	1,5	1,7		1,0 - 1,1
Voltage	**kV**	-	-	-		-
Elect. Resistance	**Ω**	-	-	-		-
Number of spraycoats		1 1/2	1 1/2	1 1/2		1 1/2
Flash off	**min.**	without	without	without		without
Filmbuild	**µm**	40-60				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**		16 h	2 h	16 h	12 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	30 min

Remarks !

Pre-spray 1 light coat, then apply 1 wet coat for flow.
Recoatable with itself for up to 16 hours after application of first coat, after force drying and 16 hours air drying the adhesion promoter TRANSPARENT SEALER CP has to be sprayed first.

PRODUCT DATA SHEET

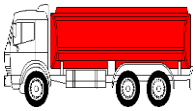
GRAPHITE HD CV 12

Silver direct gloss, RAL 9006

T

Application

all applications, dumptruck (aluminum), boxes, bulk loading vehicles



Description:

- suitable on all RM CV primer filler and filler
- suitable for large areas / surfaces
- good leveling
- excellent UV resistance
- Excellent surface hardness

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	○
Old paint work	○

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (d)(420)419:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 420 g/l. **The VOC content of this product is 419 g/l.**

Paint process **Can be used for all CV Painting Processes.**

Spreading rate ≈ 536 m^2 / l / 1µm **Solid content** ≈ 62 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD CV 12

Silver direct gloss, RAL 9006

T

Mixing ratio	100:25:25 by volume		
Hardener	**H300** or H350		
Reducer	GV100, fast **GV100, fast** GV300, slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C		**Potlife 20 °C**	1,5 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	2	2,5
Material pressure	**bar**	--	-	-	120-180	0,8 - 1,5
Nozzle size	**mm**	1,4	1,5	1,7	0,23-0,28	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	700-1500	-
Number of spraycoats		1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Flash off	**min.**	without	without	without	without	without
Filmbuild	**µm**	40-60				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**		16 h	2,5 h	16 h	12 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	30 min

Remarks !

Application: Pre-spray 1 thin grip coat with the finishing coat following immediately. Alternatively, apply several thin spray coats.
Recoatable with itself without intermediate sanding for up to 16 hours after application of first coat.
After baking + 16 hours of air drying and prior to multi-colour finishing, the use of the adhesion promoter TRANSPARENT SEALER CP is mandatory.

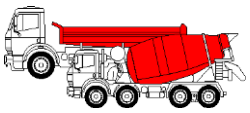
PRODUCT DATA SHEET

GHD CV 40M MATT MIXING CLEAR

Z

Application

all applications where a reduced gloss is required



Description:

- suitable on all RM CV primer filler and filler
- good matting effect
- excellent UV resistance
- good leveling
- all gloss levels can be achieved

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	
Old paint work	

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process

Spreading rate ≈ 404 m^2 / l / 1µm

Solid content ≈ 31 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

GHD CV 40M MATT MIXING CLEAR

Z

Pre-mix

Line GHD TOPCOAT u. CV 40M MATTING MIXING CLEAR 100:20 Vol. (20 %) = Gloss 75-85 E / 60 °
exchange Mixing clear CV35M to CV 40M (30 %) = gloss 70-85 E / 60 °
exchange Mixing Clear CV35M to CV 40M
and add CV 40M in mixing ratio 100:20 (50 %) = gloss 50-65 E / 60 °

Mixing ratio	100:20:20 by volume		
Hardener	**H350** or H300		
Reducer	GV200 CV, normal **GV300, slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	18 - 22 s. DIN 4	**Potlife 20 °C**	2 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 180	0,8 - 1,5
Nozzle size	**mm**	1,4	1,5	1,7	0,23 - 0,28	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	700 - 1500	-
Number of spraycoats		1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	40-60				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**		16 h	2,5 h	16 h	12 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	30 min

Remarks

!

A maximum addition 20% (100:20) with GHD TOPCOAT gives a gloss level of about 75-85%
GHD CV 40M must be stirred in with an air stirrer or alternatively a shaker.
GHD CV 40M can only be used in line GHD TOPCOAT.
For alternative gloss levels see index block D
After the first coat a flash off of 10-15 min is required, after the second coat flash off until matt.

PRODUCT DATA SHEET

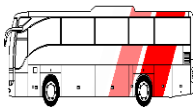
GRAPHITE HD DECO A

clear

Z

Application

cabs (refurbishing), boxes, busses (repair), sign writing



Description:

- good leveling
- fast to assemble
- fast drying

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process **RAPID 1, 2, 3, 4**

Spreading rate **Solid content**

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

GRAPHITE HD DECO A

clear

Z

Mixing ratio	100:25:25 by volume		
Hardener	**H350** or H300		
Reducer	**DECO A**		
Spray viscosity DIN 4 / 20°C	18 s. DIN 4	**Potlife 20 °C**	1 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	-	2,5
Material pressure	**bar**	--	-	-	-	0,8-1,5
Nozzle size	**mm**	1,4	1,5	1,7	-	1,0-1,1
Voltage	**kV**	-	-	-	-	-
Elect. Resistance	**Ω**	-	-	-	-	-
Number of spraycoats		1 1/2	1 1/2	1 1/2	-	1 1/2
Flash off	**min.**	without	without	without		without
Filmbuild	**µm**	40-60				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**	120 min		120 min	120 min	120 min	
Panel temperat.	**60°C**						

Remarks !

Use paper with a sized face for masking
Application: See Painting Process RAPID
Use adhesion promoter TRANSPARENT SEALER CP after 8 h at 20°C or oven drying.
GHD DECO A can also be used in GHD CLEAR and also with GHD PUR PRIMER / FILLER.. However the maximum amount of GHD DECO A should only be 50% of the used reducer
(premix of GHD DECO A and GV-… 1:1)

PRODUCT DATA SHEET

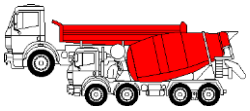
GRAPHITE HD EPOXY CF

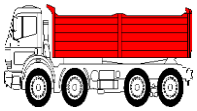
light grey

PF

Application

construction machinery (steel), boxes, busses (repair)





Description:

- tintable
- chromate free with good corrosion protection
- brilliant top coat appearance
- good leveling

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●
Galv. Steel	●
Stainless steel	●
Aluminium	
Anodized Aluminium	
GRP / SMC	●●
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	
Powder	●●
Coil-Coating	●●
Plywood	●●
Wood	●●
OEM Paint work	●
Old paint work	●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c I)(540)520:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 540 g/l. **The VOC content of this product is 520 g/l.**

Paint process

Spreading rate ≈ 425 m^2 / l / 1µm **Solid content** ≈ 73 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD EPOXY CF

light grey

PF

Mixing ratio	100:25:25 by volume		
Hardener	**GHD EPOXY HARDENER**		
Reducer	GV300, slow **GV300, slow** GV300, slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	18 - 20 s. DIN 4	**Potlife 20 °C**	8 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,7	1,7	0,28 - 0,33	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	600 - 900	-
Number of spraycoats		2	2	2	1,5 - 2	1,5 - 2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	50 - 60				

Drying		**over-coatable** Min.	**over-coatable** Max.	**tack free**	**tapeable**	**ready to assamble**	**sandable**
Panel temperat.	**20°C**	60 min	72 h	3 h	16 h	16 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	60 min

Remarks !

Minimum ambient temperature during application and drying: +12°C
Sandable after 16 h or 60 min 60 °C.
For tinting see CV Primer Tinting Paste GHD PRIMER TINTING PASTE !
Before applying polyester products GHD EPOXY CF has to be dried for at least 45 min 60°C.
The adhesion on hot dipped galvanized steel has to be checked before.
Do not use reducer GV 200

PRODUCT DATA SHEET

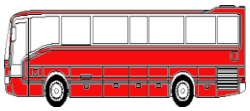
GRAPHITE HD EPOXY

grey-green

PF

Application

busses, fire-fighting vehicle, boxes, bulk loading vehicles, boxes (aluminum)



Description:

- suitable on all substrates
- good leveling
- good filling properties
- all-purpose
- outstanding corrosion protection

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●●
Galv. Steel	●●
Stainless steel	●●
Aluminium	●●
Anodized Aluminium	○
GRP / SMC	●●
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	●●
Coil-Coating	●●
Plywood	●●
Wood	●●
OEM Paint work	●
Old paint work	●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c I)(540)520:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 540 g/l. **The VOC content of this product is 520 g/l.**

Paint process **P 1, 1.1, 1.2, 3.1, 4, RAPID 1**

Spreading rate ≈ 424 m^2 / l / 1µm **Solid content** ≈ 73 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD EPOXY

grey-green

PF

Mixing ratio	100:25:25 by volume		
Hardener	**GHD EPOXY HARDENER**		
Reducer	GV300, slow **GV300, slow** GV300, slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	18 - 20 s. DIN 4	**Potlife 20 °C**	8 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	2	2,5
Material pressure	**bar**	-			120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,5	1,7	0,28 - 0,33	1,0 - 1,1
Voltage	**kV**				50 - 80	
Elect. Resistance	**Ω**				600 - 900	
Number of spraycoats		2	2	2	1,5 - 2	1,5 - 2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	40 - 60				

Drying		**over-coatable** Min.	**over-coatable** Max.	**tack free**	**tapeable**	**ready to assamble**	**sandable**
Panel temperat.	**20°C**	60 min	72 h	3 h	16 h	16 h	
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	

Remarks !

Minimum ambient temperature during application and drying: +12°C
For tinting see CV Primer Tinting Paste GHD PRIMER TINTING PASTE !
Before applying polyester products GHD EPOXI has to be dried for at least 45 min 60°C.
The adhesion on hot dipped galvanized steel has to be checked before.
If GHD EPOXY is used as a primer (3-layer system) a filmbuild of 25-30µm is required.
Do not use reducer GV 200

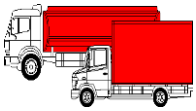
PRODUCT DATA SHEET

GHD ETCH PRIMER FILLER CF

PF

Application

boxes (aluminum), dumptruck (aluminum), flatbeds (aluminum), boxes, bulk loading vehicles (aluminum)



Description:

- good leveling
- suitable for large areas / surfaces
- fast drying
- chromate free with good corrosion protection

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●
Galv. Steel	●
Stainless steel	●
Aluminium	●●
Anodized Aluminium	
GRP / SMC	●
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	
Powder	○
Coil-Coating	○
Plywood	●
Wood	
OEM Paint work	●
Old paint work	●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c III)(780)750:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 780 g/l. **The VOC content of this product is 750 g/l.**

Paint process **P 3.2**

Spreading rate ≈ 169 m^2 / l / 1µm **Solid content** ≈ 37,5 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GHD ETCH PRIMER FILLER CF

PF

Mixing ratio	100:50:20 by volume	
Hardener	**ACTIVATOR FOR PRIMER FILLER CF**	
Reducer	GV300, slow	15 - 20°C
	GV300, slow	**20 - 25°C**
	GV400, very slow	25 - 30°C
Spray viscosity DIN 4 / 20°C	16-17 s. DIN 4	**Potlife 8 °C**

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2,0	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,7	1,7	0,28	1,0 - 1,1
Voltage	**kV**	-	-	-	-	-
Elect. Resistance	**Ω**	-	-	-	-	-
Number of spraycoats		2,5 - 3	2,5 - 3	2,5 - 3	2	2,5 - 3
Flash off	**min.**	until matt	until matt	until matt	until matt	until matt
Filmbuild	**µm**	> 30				

Drying		**over-coatable**	**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.			
Panel temperat.	**20°C**	30 min				
Panel temperat.	**60°C**	10 min				

Remarks

!

Do not overcoat with polyester products! Do not overcoat with ONYX!
To be used only in 2-stage systems. Apply topcoat within one working day (8 hours).
Do not use GHD ETCH PRIMER FILLER CF on sandblasted areas
The adhesion on hot dipped galvanized steel has to be checked before.

PRODUCT DATA SHEET

GRAPHITE HD PRIMER CF

beige

P

Application

busses, dumptruck (aluminum), flatbeds (aluminum), boxes, bulk loading vehicles (aluminum)

Description:

- suitable for large areas / surfaces
- chromate free with good corrosion protection
- fast drying

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●
Galv. Steel	●
Stainless steel	
Aluminium	●
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	●
Old paint work	●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c III)(780)760:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 780 g/l. **The VOC content of this product is 760 g/l.**

Paint process **P 1, 1.1, 1.2, 2, 4, 5, 6, RAPID 1, 4**

Spreading rate ≈ 101 m^2 / l / 1µm **Solid content** ≈ 43 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD PRIMER CF

beige

P

Mixing ratio	100:50:10 by volume		
Hardener	**GHD ACTIVATOR, slow**		
Reducer	GV300, slow **GV300, slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	16 - 18 s. DIN 4	**Potlife 20 °C**	8 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,7	1,7	0,28	1,0 - 1,1
Voltage	**kV**	-	-	-	-	-
Elect. Resistance	**Ω**	-	-	-	-	-
Number of spraycoats		2	2	2	1 - 2	1,5 - 2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	15 - 20				

Drying		**over-coatable**	**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.			
Panel temperat.	**20°C**	30 min	8 h			
Panel temperat.	**60°C**	10 min				

Remarks

!

Do not overcoat with polyester products.
To be used only in 3-stage systems with all CV PUR Primer Filler / Filler.
Spray filler within 8 hours.
Do not use GHD PRIMER CF on sandblasted areas
The adhesion on hot dipped galvanized steel has to be checked before.

PRODUCT DATA SHEET

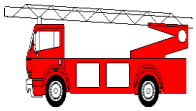
GRAPHITE HD PRIMER FILLER MP

light grey

PF

Application

boxes, busses (repair), cabs (refurbishing), fire-fighting vehicle, steel and galvanized steel spare parts



Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●●
Galv. Steel	●●
Stainless steel	●●
Aluminium	
Anodized Aluminium	
GRP / SMC	●●
PP-EPDM	
RM CV-Primer	●●
RM CV-Primer-Filler / Filler	
Powder	●●
Coil-Coating	●●
Plywood	●●
Wood	●●
OEM Paint work	●
Old paint work	●

Description:

- suitable on all substrates
- brilliant top coat appearance
- chromate free with good corrosion protection
- all-purpose
- tintable

Remarks:

The substrate should be clean, free of dust, rust, oil and grease

Find addition information in the technical data sheet of GHD PASTE AC

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c I)(540)530:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 540 g/l. **The VOC content of this product is 530 g/l.**

Paint process **P 5, 6, RAPID 2**

Spreading rate ≈ 393 m^2 / l / 1µm **Solid content** ≈ 68 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD PRIMER FILLER MP

light grey

PF

Mixing ratio	100:25:25 by volume		
Hardener	**H360** or H310		
Reducer	GV400, very slow **GV400, very slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	18 s. DIN 4	**Potlife 20 °C**	4 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,7	1,7	0,28 - 0,33	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	1300 - 1600	-
Number of spraycoats		2 - 3	2 - 3	2 - 3	2	2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	50 - 70				

Drying		**over-coatable** Min.	Max.	**tack free**	**tapeable**	**ready to assamble**	**sandable**
Panel temperat.	**20°C**	60 min	72 h	3 h	16 h	16 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	45 min

Remarks !

Can be tinted with up to 10% of GHD TOPCOAT Line Topcoat for the 2nd spraycoat.
To plasticize the product, mix it 100:25 by volume (using the mixing stick) with ADDITIVE SF Softface Additive
before adding hardener.
For tinting see CV Primer Tinting Paste GHD PRIMER TINTING PASTE !
Before applying polyester products GHD PRIMER FILLER MP has to be dried for at least 90 min 20°C.
The adhesion on hot dipped galvanized steel has to be checked before.

PRODUCT DATA SHEET

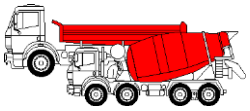
GHD CV PRIMER TINTING PASTE

black

Z

Application

all applications



Description:

- brilliant top coat appearance
- colour strength
- can be used in all PUR and EP primer and filler

Remarks: Aluminum-Chassis have be primed with a suitable primer

The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process **Can be used for all CV Painting Processes.**

Spreading rate

Solid content 56 %

Mixing ratio 10% by volume

Hardener

Reducer

Spray viscosity DIN 4 / 20°C

Remarks !

GHD PRIMER TINTING PASTE can be used in following CV Primer / Filler:
GHD CHASSIS PRIMER FILLER,GHD CHASSIS SURFACER, GHD PRIMER FILLER MP, GHD SURFACER WHITE, GHD EPOXI und GHD EPOXI CF
Processing data of the mentioned primer and primer fillers do not change by adding GHD PRIMER TINTING PASTE

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

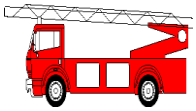
GRAPHITE HD SURFACER WHITE

white

F

Application

busses, plastic painting, cabs (color change), boxes



Description:

- suitable on all RM CV primer
- suitable on all RM CV primer filler and filler
- good adhesion to various plastics
- brilliant top coat appearance
- good leveling
- filler for 2 step colors
- tintable

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	●●
PP-EPDM	●
RM CV-Primer	●●
RM CV-Primer-Filler / Filler	●●
Powder	●●
Coil-Coating	●●
Plywood	●●
Wood	●●
OEM Paint work	●●
Old paint work	●●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c I)(540)530:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 540 g/l. **The VOC content of this product is 530 g/l.**

Paint process **P 2, 4, 6.1, 6.2, 7, 8, 9, 10, RAPID 4**

Spreading rate ≈ 408 m^2 / l / 1µm **Solid content** ≈ 73 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD SURFACER WHITE

white

F

Mixing ratio	100:50:10-30 by volume		
Hardener	**H 380** or H 390		
Reducer	GV300, slow **GV400, very slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	17 - 21 s. DIN 4	**Potlife 20 °C**	2 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,4 - 1,6	1,5	1,7	0,28 - 0,33	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	600 - 800	-
Number of spraycoats		1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Flash off	**min.**	without	without	without	without	without
Filmbuild	**µm**	50 - 70				

Drying		**over-coatable** Min.	Max.	**tack free**	**tapeable**	**ready to assamble**	**sandable**
Panel temperat.	**20°C**	60 min	72 h	2 h	16 h	16 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	45 min

Remarks !

Can be tinted by adding up to 10% of GHD TOPCOAT. To plasticize the product, mix it 100:25 by volume (using the mixing stick) with ADDITIVE SF before adding hardener
Can not be used on top of GHD ETCH PRIMER FILLER CF and GHD WASH FILLER
For tinting see CV Primer Tinting Paste GHD PRIMER TINTING PASTE and Tinting Poster!
For sanding the filmthickness should be 80µm (50-60µm after sanding) and the drying time has to be 45min 60°C or drying over night. Sandthroughs have to covered by using a suitable primer.
Mixing ratio 100:50 + 30% if the product is used as an adhesion promoter on plastic or old paint work (30µm)
For using GHD SURFACER WHITE as plastic adhesion promoter please refer to the corresponding file in part D in the CV manual.

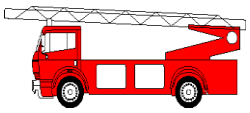
PRODUCT DATA SHEET

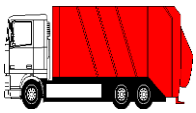
GRAPHITE HD TEXTURING AGENT

Z

Application

all applications, structure effect





Description:

- suitable on all RM CV primer filler and filler
- suitable for large areas / surfaces
- different structure effects can be achieved

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	
Old paint work	

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Find addition information in the technical data sheet of the top coat

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process **Can be used for all CV Painting Processes.**

Spreading rate ≈ 536 m^2 / l / 1µm **Solid content** ≈ 74 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

Jan 2014

Perfection made simple

PRODUCT DATA SHEET

GRAPHITE HD TEXTURING AGENT

Z

Pre-mix Mixing acorrding to mixing formula or mix line GHD TOPCOAT : GHD TEXTURING AGENT in ratio 1:1

Mixing ratio	100:25:25 by volume		
Hardener	**H350** or H300		
Reducer	GV200 CV, normal **GV300, slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	18-22 s. DIN 4	**Potlife 20 °C**	2 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	-	2,5
Material pressure	**bar**	--	-	-	-	0,8 - 1,5
Nozzle size	**mm**	1,4	1,5	1,7	-	1,0 - 1,1
Voltage	**kV**	-	-	-	-	-
Elect. Resistance	**Ω**	-	-	-	-	-
Number of spraycoats		1 1/2	1 1/2	1 1/2	-	1 1/2
Flash off	**min.**	without	without	without		without
Filmbuild	**µm**	40-60				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**		16 h	2,5 h	16 h	12 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	30 min

Remarks !

Mixing ratio for GHD TOPCOAT Line and GHD TEXTURING AGENT: max. 1 : 1.
Addition of GHD TEXTURING AGENT: See also GHD TOPCOAT Line mixing formulas.

PRODUCT DATA SHEET

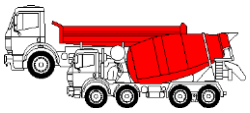
GHD TOPCOAT

+ CV 40M MATTING MIXING CLEAR

T

Application

all applications where a reduced gloss is required, construction machinery (steel), chassis painting, chassis (color change)



Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	○
Old paint work	○

Description:

- all gloss levels can be achieved
- suitable on all RM CV primer filler and filler
- suitable for large areas / surfaces
- good leveling
- excellent UV resistance
- Excellent surface hardness
- good hiding power

Remarks:

The substrate should be clean, free of dust, rust, oil and grease

The complete color range for CV-application is covered

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (e)(840)830:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 840 g/l. **The VOC content of this product is 830 g/l.**

Paint process **Can be used for all CV Painting Processes.**

Spreading rate ≈ 536 m^2 / l / 1µm **Solid content** ≈ 67 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GHD TOPCOAT

+ CV 40M MATTING MIXING CLEAR

T

Pre-mix

Line GHD TOPCOAT u. CV 40M MATTING MIXING CLEAR 100:20 Vol. (20 %) = Gloss 75-85 E / 60 °
exchange Mixing clear CV35M to CV 40M (30 %) = gloss 70-85 E / 60 °
exchange Mixing Clear CV35M to CV 40M
and add CV 40M in mixing ratio 100:20 (50 %) = gloss 50-65 E / 60 °

Mixing ratio	100:20:20 by volume			
Hardener	**H350** or H300			
Reducer	GV200 CV, normal **GV300, slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C		
Spray viscosity DIN 4 / 20°C	18-22 s. DIN 4	**Potlife 20 °C**	1,5 h	

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 180	0,8 - 1,5
Nozzle size	**mm**	1,4	1,5	1,7	0,23 - 0,28	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	700 - 1500	-
Number of spraycoats		1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	40-50				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**		16 h	2,5 h	16 h	12 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	30 min

Remarks !

Application: After the first coat a flash off of 10-15 min is required, after the second coat flash off until matt.
Recoatable with itself without intermediate sanding for up to 16 hours after application of first coat.
Pre-spray adhesion promoter TRANSPARENT SEALER CP prior to multi-colour finishing if painted surface was baked or flashed-off for 16 h.
Airless or Airmix - substrate temperature not to exceed 45° C when oven drying !! Use CV38M instead of CV35M.
Due to the reduced gloss level not suitable for blend in processes

PRODUCT DATA SHEET

GHD TOPCOAT HARDENER

H350 normal, H300 fast

Z

Application

all applications

Description:

-

Remarks: Find addition information in the technical data sheet of the top coat

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm

Paint process

Spreading rate

Solid content 90 %

Mixing ratio

Hardener

Reducer

Spray viscosity DIN 4 / 20°C

Remarks ! These hardeners are for use in GHD TOPCOAT Line HS 2K CV topcoating products only
Isocyanate hardeners are sensitive to humidity.
Seal tins carefully after use.

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD TOPCOAT

Glossy

T

Application

all applications

Description:

- suitable on all RM CV primer filler and filler
- suitable for large areas / surfaces
- good leveling
- excellent UV resistance
- fast drying
- Excellent surface hardness
- good hiding power

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	○
Old paint work	○

Remarks:

The substrate should be clean, free of dust, rust, oil and grease

The complete color range for CV-application is covered

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (d)(420)419:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 420 g/l. **The VOC content of this product is 419 g/l.**

Paint process **Can be used for all CV Painting Processes.**

Spreading rate ≈ 536 m^2 / l / 1µm **Solid content** ≈ 69 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD TOPCOAT

Glossy

T

Mixing ratio	100:25:25 by volume		
Hardener	**H350** or H300		
Reducer	GV200 CV, normal **GV300, slow** GV400, very slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	18-22 s. DIN 4	**Potlife 20 °C**	1,5 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 180	0,8 - 1,5
Nozzle size	**mm**	1,4	1,5	1,7	0,23 - 0,28	1,0 - 1,1
Voltage	**kV**	-	-	-	50 - 80	-
Elect. Resistance	**Ω**	-	-	-	700 - 1500	-
Number of spraycoats		1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Flash off	**min.**	without	without	without	without	without
Filmbuild	**µm**	40-60				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**		16 h	2,5 h	16 h	12 h	16 h
Panel temperat.	**60°C**	30 min		30 min	30 min	30 min	30 min

Remarks !

Application: Pre-spray 1 thin grip coat with the finishing coat following immediately
Recoatable with itself without intermediate sanding for up to 16 hours after application of first coat.
Pre-spray adhesion promoter TRANSPARENT SEALER CP prior to multi-colour finishing if painted surface was baked or flashed-off for 16 h.
Airless or Airmix - substrate temperature not to exceed 45° C when oven drying !! Use CV38M instead of CV35M.

PRODUCT DATA SHEET

GRAPHITE HD WASH FILLER

light beige

PF

Application

dumptruck (aluminum), boxes (aluminum), flatbeds (aluminum), boxes, bulk loading vehicles (aluminum)

Description:

- suitable for large areas / surfaces
- fast to assemble
- fast drying
- outstanding corrosion protection

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●
Galv. Steel	●
Stainless steel	
Aluminium	●●
Anodized Aluminium	○
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	
Powder	
Coil-Coating	●
Plywood	
Wood	
OEM Paint work	●
Old paint work	●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c III)(780)779:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 780 g/l. **The VOC content of this product is 779 g/l.**

Paint process **P 1, 3, RAPID 1, 2, 3**

Spreading rate ≈ 135 m^2 / l / 1µm **Solid content** ≈ 48 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

GRAPHITE HD WASH FILLER

light beige

PF

Mixing ratio	100:100 by volume		
Hardener	**GHD ACTIVTOR, slow**		
Reducer			
Spray viscosity DIN 4 / 20°C	20 - 22 s. DIN 4	**Potlife 20 °C**	8 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5	2	2,5
Material pressure	**bar**	--	-	-	120 - 150	0,8 - 1,5
Nozzle size	**mm**	1,6 - 1,8	1,7	1,7	0,28	1,0 - 1,1
Voltage	**kV**	-	-	-	-	-
Elect. Resistance	**Ω**	-	-	-	-	-
Number of spraycoats		3	3	3	2	2 - 3
Flash off	**min.**	10-15	10-15	10-15	10-15	10-15
Filmbuild	**µm**	25 - 30				

Drying		**over-coatable**	**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.			
Panel temperat.	**20°C**	30 min	8 h			
Panel temperat.	**60°C**	10 min				

Remarks

!

Do not overcoat with polyester products. Do not overcoat with ONYX!
If ambient temperature is below 20°C the flash-off time is 45min
Apply topcoat within one working day (8 hours).
Do not use GHD WASH FILLER on sandblasted areas
The adhesion on hot dipped galvanized steel has to be checked before.

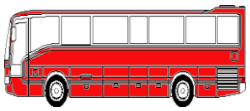
PRODUCT DATA SHEET

ONYX

T

Application

busses, cabs (color change), boxes, bulk loading vehicles, busses (repair)



Description:

- good leveling
- suitable for large areas / surfaces
- excellent UV resistance
- good hiding power
- outstanding application characteristics

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●●
Powder	
Coil-Coating	
Plywood	
Wood	
OEM Paint work	
Old paint work	

Remarks:

The complete color range for CV-application is covered

The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (d)(420)419:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 420 g/l. **The VOC content of this product is 419 g/l.**

Paint process

Spreading rate ≈ 130 m^2 / l / 1µm **Solid content** ≈ 15 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

ONYX

T

Mixing ratio	100:60 by volume
Hardener	
Reducer	**HYDROMIX SLOW**
Spray viscosity DIN 4 / 20°C	20 - 30 s. DIN 4
Potlife 20 °C	8 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**		2,0			2,5
Material pressure	**bar**	-	-			0,8 - 1,5
Nozzle size	**mm**		1,5			1,0 - 1,1
Voltage	**kV**					
Elect. Resistance	**Ω**					
Number of spraycoats			2 + 1/2			2 + 1/2
Flash off	**min.**		until matt			until matt
Filmbuild	**µm**	15 - 20				

Drying		**over-coatable** Min.	Max.	**tack free**	**tapeable**	**ready to assamble**	**sandable**
Panel temperat.	**20°C**	30 min	8 h				
Panel temperat.	**60°C**	15 min					

Remarks

!

Use PK 2000 to clean substrates after sanding.
Prespray one light spraycoat, leave to flash-off until mat. Then finish with one wet coat, leave to flash-off until mat.
Apply ½ spraycoat (minimum distance to the panel: 50 cm) to match the effect.

PRODUCT DATA SHEET

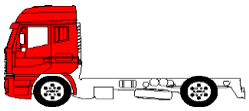
TRANSPARENT SEALER CP

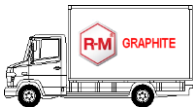
clear

F

Application

sign writing, cabs (color change), multi - color painting, GHD TOPCOAT line, powder coated profiles / boxes





Description:

- tintable
- brilliant top coat appearance
- fast drying

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	
Galv. Steel	
Stainless steel	
Aluminium	
Anodized Aluminium	
GRP / SMC	○
PP-EPDM	
RM CV-Primer	●●
RM CV-Primer-Filler / Filler	●●
Powder	●●
Coil-Coating	●●
Plywood	○
Wood	●●
OEM Paint work	●●
Old paint work	●●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (c II)(540)525:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 540 g/l. **The VOC content of this product is 525 g/l.**

Paint process **P 6.1, 6.2, 7, 8, 9**

Spreading rate ≈ 404 m^2 / l / 1µm **Solid content** ≈ 64 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

TRANSPARENT SEALER CP

clear

F

Mixing ratio	100:50:30 by volume		
Hardener	**H360** or H310		
Reducer	GV100, fast **GV200 CV, normal** GV300, slow	15 - 20°C **20 - 25°C** 25 - 30°C	
Spray viscosity DIN 4 / 20°C	17 s. DIN 4	**Potlife 20 °C**	3 h

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5	2,0	2,5		
Material pressure	**bar**	--	-	-		
Nozzle size	**mm**	1,4	1,5	1,7		
Voltage	**kV**	-	-	-		
Elect. Resistance	**Ω**	-	-	-		
Number of spraycoats		1	1	1		
Flash off	**min.**					
Filmbuild	**µm**	20 - 25				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**	15 min	3 h				
Panel temperat.	**60°C**						

Remarks ! Can be tinted with (up to 10% of) GHD TOPCOAT Line Topcoat.

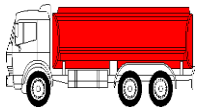
PRODUCT DATA SHEET

STOP FILLER II

grey

Application

all applications



Description:

- good filling properties
- fast drying
- fast sandable

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●
Galv. Steel	
Stainless steel	
Aluminium	○
Anodized Aluminium	
GRP / SMC	●●
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●
Powder	●
Coil-Coating	●
Plywood	●
Wood	●●
OEM Paint work	●●
Old paint work	●●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (b)(250)249:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 250 g/l. **The VOC content of this product is 249 g/l.**

Paint process **Can be used for all CV Painting Processes.**

Spreading rate ≈ 550 m^2 / l / 1µm **Solid content** ≈ 71 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

STOP FILLER II

grey

BF

Mixing ratio	100:3 by weight
Hardener	**STOP FILLER HARDENER**
Reducer	
Spray viscosity DIN 4 / 20°C	**Potlife 20 °C** 30 min

Application		**Compliant-garvity feed cup**	**HVLP-Spray gun**	**Suction cup**	**Airless/ Airmix (ESTA)**	**Pressure pot/ Dble membr. Pump**
Atomization pressure	**bar**	2,2 - 2,5		2,5		
Material pressure	**bar**	--		-		
Nozzle size	**mm**	2,5 - 3,0		2,5 - 3,0		
Voltage	**kV**	-		-		
Elect. Resistance	**Ω**	-		-		
Number of spraycoats		3 - 8		3 - 8		
Flash off	**min.**					
Filmbuild	**µm**	> 150				

Drying		**over-coatable**		**tack free**	**tapeable**	**ready to assamble**	**sandable**
		Min.	Max.				
Panel temperat.	**20°C**	3-4 h					3-4 h
Panel temperat.	**60°C**	30 min					30 min

Remarks !

Do not overcoat etch wash primer or acid pre treated substrates with STOP FILLER II !
Use only dry sanding for STOP FILLER II. Galv. Steel has to be primed with GHD PRIMER CF + GHD PRIMER FILLER MP or GHD CHASSIS SURFACER before applying STOP FILLER II.
For temperature less than 15°C or to speed up the drying the amount of STOP FILLER HARDENER can be increased up to 7,5% (75 ml).
Cool storage, shelf life 8 month at 20°.

PRODUCT DATA SHEET

STOP MULTI

white

Application

all applications

Description:

- fast drying
- suitable on all substrates
- good filling properties
- fast sandable

Substrates:

●● = very well suited
● = well suited
○ = suited in some cases

Steel	●●
Galv. Steel	●●
Stainless steel	○
Aluminium	●●
Anodized Aluminium	
GRP / SMC	●
PP-EPDM	
RM CV-Primer	
RM CV-Primer-Filler / Filler	●
Powder	●
Coil-Coating	●
Plywood	●
Wood	●
OEM Paint work	●
Old paint work	●

Remarks: The substrate should be clean, free of dust, rust, oil and grease

Special remarks

- The products are suitable for professional use only.
- It cannot be ruled out that this product contains particles < 0.1 µm
- **2004/42/IIB (b)(250)180:** The EU limit value for this product (product category: IIB(d) in ready to use form is max.. 250 g/l. **The VOC content of this product is 180 g/l.**

Paint process **Can be used for all CV Painting Processes.**

Spreading rate **Solid content** 98 %

R-M Automotive Refinish Paints, BASF Coatings S.A.S, F-60676 Clermont-de-l'Oise Cedex

PRODUCT DATA SHEET

STOP MULTI

white

BF

Mixing ratio	100:2-3 by weight	
Hardener	**STOP HARDENER**	
Reducer		
Spray viscosity DIN 4 / 20°C	**Potlife 20 °C**	4 min

Drying	**over-coatable**	**tack free**	**tapeable**	**ready to assamble**	**sandable**
	Min. Max.				
Panel temperat. 20°C					20-30 min
Panel temperat. 60°C					

Remarks !

Can be sanded after 20-30 min
Not suitable for applications that require elasticity, e.g., weld seams.
Do not apply on etch wash primer or acid pre treated substrates!