LOW VOC GLASURIT CERTIFICATION

STUDENT WORKBOOK





SAFETY

GLASURIT LVOC CERTIFICATION



A brand of BASF – We create chemistry

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NOTICE:

All vehicles, persons and items are subject to search upon entry to any BASF Corporation facility. The possession of firearms, alcoholic beverages, illegal substances or objects lis strictly prohibited on these premises.

SAFETY

Safety and Health Precautions

Paint products are a mixture of components that can be hazardous to your health and safety. They are typically composed of resins, pigments, solvents and isocyanates. To use these materials safely, a number of precautions should be followed.

- Flammable paint products should always be kept away from heat, sparks and other ignition sources due to the flammability of the solvents used as carriers.
- No Smoking
- · All containers must be labeled during use and storage.
- · First aid equipment and working fire extinguishers must be available.
- Proper ventilation is required when working with any solvent based product including paints, reducers, hardeners, body putties, etc.
- · Keep containers closed when not in use.
- · Store material properly.
- No food or drink in a hazardous material area.
- Proper respiratory and other PPE (personal protective equipment) must be used when mixing, spraying, applying or sanding.
- Review all labels, technical sheets and material safety data sheets (MSDS) for recommendations on product use.

Health effects are associated with solvents, some pigments, and other additives. OSHA has established PELs (permissible exposure limits) for many of these and there may be TWA (time weighted averages), STELs (short term exposure limits) or TWA-C (TWA-ceiling) associated with a product. It may also have a skin designation. These levels are enforceable by OSHA inspectors. Some solvents or components in a paint product can cause acute (immediate) or chronic (long term) effects. See the MSDS for specific information on damage to the liver and kidneys after overexposure. Acute effects may include dizziness, blurred vision, disorientation, and in some severe cases, unconsciousness. It is therefore very important to use these materials with the proper PPE including respiratory protection. Isocyanates have special hazards. See appropriate MSDS and product labels for further information.

SAFETY

NOTES:

Personal Protective Equipment

Gloves

Always use gloves when skin is exposure to chemicals. Organic solvent can be absorbed through the skin or inhaled. Never wash hands in solvent. Use soap and water or a hand cleaner designed to remove paint. Solvents can also cause drying skin, dermatitis or other irritations. BASF recommends the use of nitrile gloves when handling, mixing, spraying or sanding refinish products.

Safety Eyeglasses

Wear safety glasses or goggles to protect your eyes from splashes or vapors. Solvent in the eyes is painful and may cause damage if this does happen. If solvent does get in the eyes, flush with large quantities of water and seek immediate medical attention.

Respirator

When using a material containing solvent, it is necessary to use proper respiratory protection. The respirator must be properly fitted to the face to seal against leakage. A vapor particulate respirator will protect you from vapors, mist and dust. An organic vapor cartridge (TC-23) must be used. All respirators must be NIOSH (National Institute for Occupational Safety and Health) and MSHA (Mine Safety and Health Administration) approved. If you have facial hair or other conditions that prevent a proper seal of the mask, you must use a fresh air system such as a hood that has a positive pressure system which conforms to TC-19C NIOSH/MSHA requirements.

Cartridges must be replaced frequently in cartridge respirators using negative pressure. Cartridges must be replaced immediately if you can smell solvent or it becomes difficult to breathe while wearing. When not in use the respirator should be cleaned and stored in a sealed plastic bag away from sunlight, heat or moisture. See the manufacturer's recommendation for proper cleaning and storage.

A fresh air supplied system is the <u>only</u> respirator that meets NIOSH/MSHA specifications for use with products containing, or mixed with products containing, isocyanates.

Note: While it is important to use the proper respiratory protection and other personal protective equipment when spraying products, it is also important to use them when mixing or otherwise handling the products.

See the appropriate SDS and product labels for more information.

Working with Isocyanate Products

When working with isocyanate products it is necessary to wear an approved respirator specifically designed to filter out isocyanate chemicals. The BASF Training Department recommends that a fresh air supplied hood be worn when spraying any paint products.

SAFETY

Simple Tips to Remember

Over 11,000 people die from job-related accidents each year – and a worker is injured every 18 seconds.

Common Sense – Safety Sense

The biggest cause of all accidents is lack of common sense. People become careless about safety for a number of reasons.

- Complacency running on "auto-pilot" because we've done the job so often.
- Emotions being angry or upset by something that happened at home, an argument with a co-worker, etc.
- Fatigue too little sleep or too many hours on the job.
- Not appreciating hazards lack of training, or not paying enough attention when we are trained.
- Reckless or know-it-all attitude thinking safety is not important, or does not apply to you.
- The bottom line: don't let these factors set you up for a painful accident.
- Take Safety Seriously All the Time

SAFETY

NOTES:	Develop good work habits
	 Look around for anything that could go wrong.
	Eliminate the hazard before you start.
	Check and read product labels and SDS.
	Use the correct protective clothing and equipment.
	 Remove from the workspace anything you could trip over or that creates a hazard, ignition source, reactive chemicals, combustibles, etc.
	 Be sure equipment is in good working order. If it's not, don't use it; report it to your supervisor.
	Don't eat or smoke in the work area.
	Use proper ventilation.
	Respect electricity and power equipment.
	Turn off equipment when not in use.
	Use the right tool or equipment to do the job.
	 Don't, for instance, use a pile of boxes instead of a ladder.
	Follow all job procedures.
	Don't do a job if you are unsure how.
	Have a buddy present if you are assigned to a hazardous task like working in a confined space.
	Stay focused on what you are doing.
	No cell phones allowed in the booth or mixing area

SAFETY

18 Point Checklist	NOTES:
Use this list to update your shop's health and safety program	
\Box Proper approved footwear	
Fresh air supply respirator	
\Box Hearing protection	
□ Hand protection	
\Box Eye protection	
\Box Lint free coveralls	
Proper respirators for sanding	
\Box Is respirator fit testing done	
\Box SDS (Safety Data Sheet)	
\Box Is there proper ventilation	
\Box Housekeeping (is the work area tidy)	
□ Are containers labeled properly	
\Box Are hazardous materials stored properly	
\Box Eye wash station (are they located in the proper area)	
\Box Are fire extinguishers monitored regularly	
Proper waste disposal	
\Box Is there an evacuation process in place	
\Box Is there a designated smoking area	

SAFETY

NOTES:

Student Expectations

Over the duration of this class, what do you expect to learn?

 1.	
 2.	
 3.	

The Glasurit Promise

"World class, European technology, with a reputation to back it, and the productivity to be best in your market"

World Class, European Technology

- · Leading edge, innovative, first to market
- · Gives the shop a lead in technology to help them in their markets

Reputation

- · Highest finish quality in the marketplace
- Technically advanced systems
- · Premium paint line with a top shelf feel
- Product that is consistent and reliable

Productive

- Streamlined and sophisticated product portfolio
- Standardized mix ratios

Introduction	NOTES:
Program Objective	
The student will be able to achieve an undetectable and fully warranted finish repair using Glasurit system approach.	
The program will	
• Demonstrate safe handling procedures for Glasurit products to ensure customer awareness.	
 Identify Glasurit Primers and Sealers and their procedures to address a variety of substrates for the optimum repair method. 	
 Provide students with an understanding of the Glasurit product line, to ensure correct usage in their shop. 	
Show students how to select, mix and apply Glasurit Clearcoats for maximum performance.	
• Show students how to choose equipment that will give them optimum application results.	
• Identify the benefits of following recommended systems and processes for their repair center.	
 Identify the OEM approved repair products and systems. 	
Program modules:	
Safety and Introduction	
Surface Preparation	
• Undercoats	
• Top Coats	
Clear Coats	
Blending Procedures	

NOTES:	Indemnity Clause			
	I do hereby state that the safe use of hazardous at the BASF training program held this day	I do hereby state that the safe use of hazardous materials was explained to me during my attendance at the BASF training program held this day of year All safety precautions and procedures pertaining to automotive paint products, working with isocya- nates, respiratory equipment, safety equipment, fire hazards and clothing were explained in full and were completely understood.		
	All safety precautions and procedures pertainin nates, respiratory equipment, safety equipment, were completely understood.			
	I will not hold BASF Corporation, its subsidiaries or distributors of BASF automotive paint products responsible for any injury that I may cause through the misuse and handling of BASF automotive paint and related products.			
	Participant's Signature	Print Name		
	Witnessed By	Print Name		

SURFACE PREPARATION



GLASURIT LVOC CERTIFICATION

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SURFACE PREPARATION

Introduction

Proper surface preparation is the key to a quality refinish paint job. Therefore, it has become necessary for technicians to be well-trained and knowledgeable, in order the beginner and assist the experienced technician in their daily work. This manual provides a systematic approach to obtaining a durable, attractive finish, by utilizing the most efficient methods of the preparation process.

Module Objective

The student will learn how to properly prepare a surface for application of Glasurit Primers in a safe and efficient manner, meeting OEM specifications.

Enabling Tasks

The student will be able to:

- Remove dirt and grime from a vehicle's surface by washing with soap and water.
- Evaluate a vehicle's substrate by inspecting for rust, dents, stone chips and other paint defects.
- Chemically remove silicone, mold release agents and other surface contamination by using the proper Glasurit cleaners.
- Build a Standard Operating Procedure for his/her repair center.
- · Remove surface imperfections through correct featheredge methods.
- · Back sand a featheredge in preparation for application of primer surfacer.
- · Understand and use a mil gauge.
- Understand the importance of correct mil thickness of Glasurit products in the repair process.
- · Mix and apply pre-treatment primers, anti-corrosion over bare metal substrates.
- · Mix and apply adhesion promoters for plastic substrates
- · Select the correct repair products for OEM warranty repairs.

SURFACE PREPARATION

NOTES:

Poor Preparation Poor Performance

What are the steps for Proper Surface Preparation prior to Primer Application?





Surface Washing

Prior to the start of any refinish work, it is important to wash the old paint work with mild detergent and water. This will remove any dirt or other water-soluble contaminants that may mask or hide a serious problem.

Washing

- Removes dirt, dust, road grime, coffee, pop, and handprints.
- Removes fresh bug residue, bird droppings, tree sap, salt and blood.
- Helps identify damage not caused by the accident which may allow shop to up sell small damage repair instead
- Enables a more accurate evaluation of the surface by visual inspection for dents, rust, stone chips, cracking, scratches or other surface imperfections.
- Saves time and effort during the sanding operation.
- · Increases life expectancy of the sandpaper.
- · Reduces costly redo's/comebacks.

Question?

What are the benefits of washing vehicles with soap & water?

Cleaning Weather Stripping

Weatherstripping should be removed. If this is not possible, wash the stripping with warm soapy water and dry. Next wipe the stripping with Glasurit 541-5 and wipe dry. This should provide a clean surface for masking.

SURFACE PREPARATION

Pre-evaluation

Inspection of the surface determines the preparation process required for the desired topcoat application or determines the type of topcoat to be used. Determining the process from the beginning will save time by understanding what is required to restore the finish and how to anticipate and avoid problems.

Visual Inspection

The visual inspection is a quick walk around the vehicle to identify the potential damage to be repaired as well as to identify damage not recorded on the work order. All damage missing from the work order should be recorded and reported to the supervisor who will decide what damage will be repaired. At this point, it is a good opportunity for any potential upsells. Customer may be willing to repair these areas while in your facility.



SURFACE PREPARATION

NOTES:

Things to Look for:



Loss of Adhesion



Cracking, Crazing



Corrosion, Rust



Industrial Fallout



Scratches



Stone Chips



Pre-evaluation also determines which other washing methods may be necessary for removal of silicone, commercially applied waxes, mold release agents and other surface contamination.

Evaluation of the paint type is also a key factor in the repair process to identify the stability of the substrate as well as the type. i.e. basecoat / clearcoat, green finish. This may be accomplished through different methods such as sanding, compounding or a solvent examination.

SURFACE PREPARATION

Chemical Cleaning

Although soap and water are excellent cleaners for removal of water-soluble materials, they will not remove all the contamination found on a vehicle's surface.

Special chemical cleaners are required for removal of silicone, wax, grease, oil, road tar and mold release agents found on plastics and polyurethane components.

Glasurit pre-cleaners are a blend of the finest quality chemicals available to the refinish industry today. They are designed to removes Stubborn surface contamination from a wide range of OEM substrates without damage to existing paint films or flexible materials. They wipe away clean, leaving no streaks or oily residue.

It is recommended to chemically wash the vehicle before beginning any grinding or sanding operation. This will avoid contamination of other vehicles in the shop from paint dust that may contain wax or silicone, and prevent the transfer of contamination from rags or hands. All surfaces should be dry and free of salt, dirt, grime and other water-soluble contamination. Metal Cleaner 360-4.

Glasurit® 360-4 Metal Cleaner

Aggressive cleaner used to remove oil and grease. Clean bare metal areas before and after sanding. Apply 360-4 to a clean cloth or rag to wipe off surface contaminants, sanding residue, oil or grease. Do not use 360-4 Metal cleaner on painted surfaces. Apply on aluminum, galvanized, steel sheet. In the case of hard to remove materials, a second cleaning with a new clean cloth/rag may be required. Also available in aerosol.



Glasurit[®] 541-5 Wax and Silicone Remover

Used to remove silicones, tar spots, wax, grease, oil and environmental dirt from the surface. The cleaner should preferably be applied by means of a pump dispenser or by hand, and should then be wiped off using clean cloths. Do not leave the cleaner to dry on the surface. Respect the recommended flash-off before applying other products. Use on old paintwork, surfacers, new parts. Do not use this product on raw plastic substrates



Glasurit[®] 541-30 Universal Cleaner for Plastics

Thanks to its solvent combination it is specifically suited to removing the release agents used in manufacturing plastic parts. Cleaner residue remaining in the plastic may cause loss of adhesion or blistering. If cleaning is performed in several steps, use a fresh, clean cloth for each operation. Use on all plastics. This cleaner may need to be reduced with 352-45 to meet VOC regulatins.

SURFACE PREPARATION

NOTES:



Glasurit[®] 700-1 Cleaner

An all-purpose, anti-static water-based cleaner designed to clean all substrates prior to undercoat application; to remove sanding residue prior to application of topcoat; and to clean equipment used to apply Glasurit water-based undercoats and 90-Line. Use to clean before the application of waterborne primers and basecoat. Also used to clean spray equipment after application of waterborne products. This cleaner may need to be reduced with distilled or deionized to meet VOC regulations.



Glasurit[®] 700-10 Waterborne Degreaser

700-10 For removal of oil, silicone, tar, wax, grease residues and mold release agents. Apply products with a clean cloth and while still wet, wipe dry. Wash small areas at a time and change cloths frequently. In some VOC compliant areas the application of the above products must be done with a pressurized spray bottle. Wear a charcoal filter respirator, eye protection, and Nitric gloves and work in a well ventilated area. This cleaner may need to be reduced with distilled or deionized to meet VOC regulations.

SURFACE PREPARATION

Sanding

Within the repair process it is important to have a sanding system. There are five key types of sanding which need to be addressed: featheredging, machine sanding, hand or block sanding, back sanding, and wet sanding. Each type must have a grit of sandpaper associated with it to obtain a high quality repair, in a proficient and productive manner.

FEPA graded papers are designated with a "P" and rely on a tighter measurement system, with closer tolerances for particle size. As a result FEPA and ANSI grades of paper differ in scratch pattern starting at 180 and finer grit.

As you develop a sanding system, it is important to understand the means in manufacturing of quality sandpaper as well as the grading system.

Ask your sandpaper manufacturer about the following:

Grading of the mineral

Mineral typeMineral shape

- Mineral diameter
- Mineral hardness

Adhesive resin

Mineral size distribution

- Backing
- In the set up of your system, keep the amount of varying grits to a minimum.

Using BASF's recommended sand grits will produce the highest quality while maintaining high productivity. Grits for hand sanding are finer than for machine sanding.

SURFACE PREPARATION

NOTES:	Recommended Sanding Grits:
	Group exercise to determine best grits for these processes
	Stripping to bare metal or fiberglass: grit to grit Sanding body fillers/polyester putties: grit to grit
	Machine Sanding
	Machine sanding can save time and effort. It is most commonly used to sand large flat areas with fine grit papers and feather edging with the coarser grit papers. The skills associated with this type of sanding can be quickly learned.
	The dual action (DA) or random orbital sander is most often the best tool to use for its easy guidance and speed control. It has a good selection of pads from flexible to rigid, making it suitable for any sanding process.
	Follow sand paper manufacturer's recommendations for DA Setup
	Select the orbit that's right for your project.
	tor aggressive sanding.
	3/16" Diameter Orbit for general purpose sanding.
	3/32" Diameter Orbit for fine finish sanding.

SURFACE PREPARATION

Cleaning Matrices B1

Surface Preparation of Substrates and Old Paintwork

Metallic Substrates



Cleaning Matrices B1

Surface Preparation of Substrates and Old Paintwork

Raw Plastics



Note: product must be used in a pump spray bottle for low VOC compliancy

SURFACE PREPARATION

Refinishing Primed Plastic Parts

Solvent-test all OE and aftermarket primer coats for solubility with Glasurit 541-30 Plastic Cleaner or Glasurit 352-25 or 352-45 Reducer by wiping the substrate with a rag. If using a strong solvent such as 352-25 or 352-45, caution must be used to prevent the potential of a static charge build-up.

If the primer softens or dissolves during wiping, it is absolutely necessary to completely remove the factory primer and treat the bumper cover as an unprimed cover. We also suggest a tape test to verify the adhesion integrity of the primer. If the primer resists softening, it can be finished by thoroughly cleaning, scuffing and re-cleaning the bumper primer. Then apply either a flexed Glasurit primer/sealer, if required, or topcoat, which may be applied directly (per Glasurit technical recommendations). It is not necessary to apply a plastic adhesion promoter unless the bumper primer is "cut through".



Cleaning Matrices B1

Surface Preparation of Substrates and Old Paintwork

Metallic Substrates



Note: product must be used in a pump spray bottle for low VOC compliancy

SURFACE PREPARATION

Cleaning Matrices B1a

Low VOC Surface Preparation of Substrates: Metallic Substrates



Note: Aerosol versions of the products on B1 may be used in low voc areas.

Cleaning Matrices B1a

Surface Preparation of Substrates and Old Paintwork: Plastics



Note: Aerosol versions of the products on B1 may be used in low voc areas.

SURFACE PREPARATION

Cleaning Matrices B1

Surface Preparation of Substrates and Old Paintwork: Old Paintwork / New Panels



Note: Aerosol versions of the products on B1 may be used in low voc areas.



839-20 Multi-Purpose Body Filler

839-20 is a two-component, high-solid, fine/coarse body filler for use directly over a variety of automotive substrates, including aluminum, sheet metal, and zinc-plated panels. The filler should be applied over bare substrates (without primer). The 839-20 offers fast ambient cure times of 20-30 minutes at 68°F/20°C. It may also be cured in 3 minutes using an infrared short wave lamp. You must prime or seal 839-20 prior to topcoat application.

	Application	Course and fine putty
	Paint System	B1,B2,B6,B8,C1,C2,C3,D.S1,D.S2,D.S4
	VOC Ready for Use	0.5lbs/gal;60gms/liter
	Mixing Ratio	100% b yweight 839-20
Â	Hardener	2-3% by weight 948-36
	Pot life at 68°F/20°C	4-5mins.
	Drying at 68°F/20°C	20-30 mins.
	Infrared Short Wave	3 mins.
	Dry Sanding: Machine	80-150, guide coat then finish with 240-320

SURFACE PREPARATION

Cassing of the second s 839-90 Plastic Body Filler

839-90 Plastic Body Filler

839-90 is a flexible, two-component, fine body filler for



	Paint System	B1, B2, B4, B6, B8, C1, C2, C3, D.S3,
	VOC Ready for Use	3.4 lbs/gal; 410 gms/liter
	Mixing Ratio	100% by weight 839-90
	Hardener	2-3% by weight 948-36
	Pot life at 68°F/20°C	4–5 mins.
1	Drying at 68°F/20°C	25-35 mins.
	Drying a t140°F/60°C	15 mins.
1	Infrared Short Wave	8 mins.
	Infrared Med. Wave	5-10 mins.

 The control of the cont	plastic materials that allows shops to repair damaged plastic parts by leveling off scratches. This body filler can be used universally on all paintable plastics after application of Glasurit 934-40 1K Adhesion Promoter. Pure polypropylene and polyethylene plastics cannot be painted or repaired with this product. The maximum film thickness of this product should not exceed 4 mils; exceeding this thickness will decrease the flexibility of the paint film. 839-90 can be cured using a medium- or short- wave infrared lamp, or in ambient conditions.	
Application	839-90 flexible fine body filler	
Paint System	B1, B2, B4, B6, B8, C1, C2, C3, D.S3, D.S3a	
VOC Ready for Use	3.4 lbs/gal; 410 gms/liter	
Mixing Ratio	100% by weight 839-90	
Hardener	2-3% by weight 948-36	
Pot life at 68°F/20°C	4-5 mins.	
Drying at 68°F/20°C	25-35 mins.	
Drying a t140°F/60°C	15 mins.	
Infrared Short Wave	8 mins.	
Infrared Med. Wave	5-10 mins.	
Dry Sanding: Machine	80-150, guide coat then finish with 240-320	

SURFACE PREPARATION

NOTES:			839-171 UV Body Filler			
			Fine body filler.			
			Properties: Universally applicable on steel, galvanised steel, aluminium, e-coated parts, old paintwork, and all coatable plastic add-on parts. The high solids fine body filler allows for fast drying, excellent sandability and good anti-corrosive properties. They are coupled with good finish qualities. Especially developed for the repair of small damages and scratches, to achieve a repaired surface without pinholes.			
			Remarks:			
			• Do not use in direct sunlight.			
			• Do not expose to sunlight on storage.			
		Application	Fine body filler			
		Paint System	B1, B4, B6, B8, C1, C2, C3, D.S3, D.S3a			
		VOC Ready for Use	2.0 lbs/gal; 239 gms/liter			
		Mixing Ratio	Ready for use			
		Film Thickness	31 mil (800 µm) maximum			
		Drying with UV-A (> 6 mW/cm²)	5 mins. By using LED lamps, the drying time can be reduced due to their higher intensity in the decisive wavelength range. This must be checked individually.			
	.	Dry Sanding: Machine	Prep, P80 - P150 P240 - P320 putty area and old paintwork			

SURFACE PREPARATION

		839-743
	www.basfrefinish.com	A high build surfaces re
	A brand of MSF- We can st denary	Properties: temperature
K	839-7451	Remarks:
	Body Filler Media de arconado Edito de arconado Ministrativa (24 000 Fill y performand, subard pendent selle prover referent Ref	 The substr grease.
	The set of	• On galvan is requirec 801-72 or
	516/116c 0 6 52282 02852 3	 Do not use pre-treated
		Can be use

839-7451 Body Filler

A high build polyester body filler to be used for large surfaces requiring flexibility.

NOTES:

Properties: Easy to apply and sand. Suitable for high remperatures.

- The substrate should be clean, free of dust, rust, oil and grease.
- On galvanized steel: before 839-7451 can be applied it is required to pre-prime the substrate with Glasurit EP 801-72 or 801-73.
- Do not use on acid-hardening products or substrates pre-treated with acid.
- Can be used over fiberglass.
- Before use, mix 839-7451 and 948-36 well without leaving streaks of hardener.
- Do not exceed 3% hardener; excess peroxide can cause discoloration in the finish.

	Application	Body filler	
	Paint System		
	VOC Ready for Use	2.0 lbs/gal; 2530 gms/liter	
	Mixing Ratio	100% by weight 839-7451	
A	Hardener	3% by weight 948-36	
	Film Thickness	Maximum - up to 2-3cm (780-1180 mils) possible, but must be done in at least 2 applications	
	Pot life at 68°F/20°C	35-40 mins.	
	Drying at 68°F/20°C	3-4 hrs.	
	Dry Sanding: Machine	P80-P150, guide coat then finish sand with P240-P320	

SURFACE PREPARATION

NOTES:



spray application on sheet metal and well cured existing finishes. This product is suitable for the repair of fiber glass-reinforced plastic parts without gel coat, making it a great addition for shops repairing fiber glass parts. Application of thick coats is possible due to its high filling capabilities. A minimum film thickness of 8 mils is suggested when using 1006-26. Do not apply over acid treated surfaces or etch primers. The 1006-26 Sprayable Body Filler can be air-died, baked, or force-dried with an infrared short- or medium-wave lamp. You must prime or seal 1006-26 prior to topcoat application. Aluminum and Galvanized steel must be pre-primed with an epoxy primer

75 ml 948-22 at temperatures below 60°CF/15°C

SURFACE PREPARATION

Metallic Substrates - Body Fillers

NOTES:

Product recommendations for applying body filler to metallic substrates



 \bigcirc = Not Applicable

= Direct Application Possible

1 = Pre-prime with 801- (1 spray coat 0.6 – 0.8 mil; flash off 30 mins.)

Coating of Plastics - Undercoats

Product recommendations for car refinishing only

		Flexible		Rigid Plastics					
Body Fillers	PU-RIM	TPO	PP-EPDM	ABS	GRP/SMC	PC-PBTP	PA	DPO	Rigid PVC
839-90 Plastic Body Filler									
1006-26 Sprayable Body Filler									

○ = Not Applicable

• = Can be applied directly over uncoated plastics, adhesion promoter coat not required...

Notes:

For more types of plastics that may be used go to www.basfrefinish.com/glasurit products, then click on "painting of plastics," and then click on "type identifier."
No tempering (or baking) necessary prior to painting plastic parts.

• All bumpers to be considered flexible.

SURFACE PREPARATION

NOTES:	Featheredging					
	Featheredging is a trade term used to smooth and taper a paint finish edge through multiple layers. This process is used primarily to remove stone chips, rust, and scratches and to taper roughly ground repaired areas. It is the first process used in the sanding of a vehicle or part to be painted.					
	Featheredging is usually done with P180-P320 for 285 series primers and P180-P220 grit for 151-170 UV Primer.					
	All paint finishes should be feathered back from the metal approximately 3/4" – 1" per paint layer. Feather back all paint and primer layers until the fingertips and hands cannot feel the taper.					
	When featheredging a body repair, it is recommended to start your featheredging from the end of the sand scratches working toward the center. Total use of the sand paper and automatic taper of each paint layer will assure removal of the sand scratch. The DA sander will never touch the filler.					
	Back Sanding					
	Back sanding is a term used to describe the sanding process performed outside the feathered area. Its purpose is to create mechanical adhesion for the application of the primer beyond the featheredge area. Back sanding may be accomplished by hand or done with an orbital sander. Sand the immediate area around the featheredge where primer will be applied. Sand this area to a complete matte finish. If there are any areas that remain glossy, the primer will not adhere.					
	Recommended Grit for Back Sanding:					
	By machine grit					
	By hand grit					
	Which produces a courser scratch, 600 by hand or 600 by machine?					
	What are the three main reasons for sanding?					
	1					
	2					
	3					

SURFACE PREPARATION

Hand Sanding Rules

- · Use hand-sanding pads, never sand with your fingers.
- Applying too much pressure to the edge of the block or the sharp fold of the sandpaper will cause deep scratches.
- Whenever possible keep the sandpaper flat with the wrist down, sanding with palms of the hand.
- · Use a sanding pad of similar grit to reach hard to get at areas.
- Be very careful not to sand through to bare metal on edges of the panel under repair. This will cause unnecessary work.

To achieve good mechanical adhesion, sanding needs to be aggressive and in a circular (multi-directional) pattern.

Film Build

Film build is the term of measurement used to define the thickness of layers of paint. A mil of paint is equal to 1/1000 of an inch. The average piece of paper is equal to 3 mils.

The performance of a given paint product is related to the number of mils left on the vehicle after solvent evaporation. Each product that Glasurit manufactures has a predetermined mil thickness required for optimum performance. See the technical data section of your manual for these recommendations.

To achieve an adequate mil thickness, it is important to look at several factors:

Spray Equipment: The fluid tip size is the key component in allowing the flow of material to the surface. More material and a higher film build is achieved with a larger fluid tip. Less material and a thinner film build will be achieved with a smaller fluid tip.

Number of Coats: Each product has an optimal number of coats. The technical information will inform you of the number of coats required; however it is directly related to the type of spray equipment you use.

Solid Content: Solid content refers to the amount of material that remains on the vehicle after all the solvent has evaporated. The higher the percentage of solid in a product means more product remains on the vehicle giving a quality repair while using less product.

Spray Technique: Spray technique will also have a direct effect on the final film build. Gun distance should remain at a consistent 4-6 inches from the panel, held at a 90° angle to the surface. Set fluid adjustment at full, pull the trigger all the way back and move in a constant motion over the panel.

SURFACE PREPARATION

NOTES: Film build is directly related to the ability of a coating to remain durable through its service life. Above 11 mils will promote failure: Falling below the 4 mil mark will cause premature failure: • Cracking or delamination • Peeling • Dieback- excessive shrinkage • Poor Holdout • Sandscratch swelling • Severe chipping • Cracking • Cracking • Note: OE film build specifications average 5-7 mils. The maximum is 11 mils.

What is the average film build of a paint job from metal up?

Building the right film:

Example 1

	Total Film/Steel Up	mils
+	Clearcoat	mils
	Basecoat	mils
	Primer Sealer	mils
	Primer Surfacer	mils
	Etch Coat	mils

SURFACE PREPARATION

Pre-Treatment Primers

Glasurit Pre-Treatment Primers are zinc rich, non-sanding, pre-treatment coatings. When applied directly to bare metal surfaces, they form an anti-corrosive chemical barrier. They provide excellent adhesion for subsequent topcoats and unsurpassed protection against rust and corrosion.

There is one and two components etch primers. The two components are more commonly used be cause of its superior performance characteristics.

All metal surfaces should be free of grease, oil, dirt and properly sanded and re-cleaned prior to the application of any subsequent materials.

Other corrosion protective products include:

- Pre-treatment Primers
- Adhesion Promoters
- Anti-corrosion Primers

A primer is used to promote anti-corrosion and or adhesion. In the case of bare metal it is needed for both corrosion resistance and adhesion. Plastics on the other hand would need a primer for adhesion only. Primers by their definition have filling properties and differ from a primer filler or surfacer (Glasurit uses both references when referring to filling primers).

NOTES:



From Bath to Oven

During cathodic, an electric current is used to apply the paint to the body permanently. The part to be coated, the body, becomes a cathode. It has a negative charge. The coating's binder particles are the cations. They have a positive charge. In the cathodic e-coat bath, the coating particles migrate toward the steel panels with the aid of an electric current and are deposited. The body is then rinsed before being moved to the oven, where the paint is baked at approximately 180 degrees celsius. Dipping the entire body and exploiting the range of the electric field allows the cavities to be coated, which lends them ideal corrosion protection. If a spray painting technique was used instead, the cavities of the body could not be accessed.

SURFACE PREPARATION



SURFACE PREPARATION

<text></text>		801-74/801-76 Elite Epoxy Primer	NOTES:
		Black/White	
		Application: Primer	
		Properties: Good corrosion protection, good finish, on bare metal, galvanized steel and aluminum, fiberglass and body fillers.	
	A S N MAR	Remarks:	
		 801-74 can be mixed with 801-76 Elite Epoxy Primer White to make gray colors. 	
		Chromate Free	
		 Minimum temperature for air drying: +60°F / 15°C. 	
		 May be used as a primer under Glasurit 839- body fillers and Glasurit 1006-26 (after 3 hrs. at 68°F/20°C). 	
		 BASF 1000 Multi-Metal Prep Wipes or 2000 Advanced Prep Wipes may be used to extend the longevity of the repair. 	
	Application	Primer	
	Paint System	B1, B3, B6, B7, B8, C1, C2, C3, D.S1	
	VOC Ready for Use	2.1 lbs/gal; 250 gms/liter	
	Gravity Cup / Spraying Pressure	HVLP: 1.3 - 1.5 mm / 9 - 10 psi at air cap	
	Number of Spray Coats	1	
	Film Thickness	0.5 - 0.75 mils. dry	
	Mixing Ratio	4:1:2 100 parts by volume 801-74/-76	
A	Hardener	25 parts by volume 965-63	
	Reducer	50 parts by volume 352-45	
	Pot life at 68°F/20°C	6 hours	
$\frac{\left\langle \uparrow \right\rangle \uparrow \left\langle \uparrow \right\rangle}{2}$	Flash-off at 68°F/20°C	15 - 30 mins. Flash off before applying primer surfacer 3 hours before applying body filler	
NOTES:

SURFACE PREPARATION

Metallic Substrates – Undercoats

Product recommendations for applying undercoats to metallic substrates



SURFACE PREPARATION

	<image/> <text><image/><image/><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text>	 934-40 1K Low VOC Plastic Adhesion Promoter Application: Adhesion promoter for plastics. Properties: Multi-purpose adhesion promoter suitable for all paintable plastics on cars. Remarks: Suitable primer surfacers: Glasurit 285-HS fillers/primer fillers Shake 934-40 15 to 30 seconds before each use. See matrices B1 and B1a. Suitable for both raw plastic as well as (non-soluble) primed plastic. 	NOTES:
	Application	Adhesion Promoter	
	Paint System	B1, B1a, B4, C1, C2, C3, D.S3a	
> 1	Gravity Cup / Spraying Pressure	HVLP: 1.2-1.3 mm / 10 psi at air cap Conventional: 1.3-1.4 mm/45-60 psi	
	Number of Spray Coats	1-2 (entire part should be covered with med. wet coats)	
	Film Thickness	0.2-0.4 mils	
	Mixing Ratio	Ready for use	
<u>)</u>	Flash-off at 68°F/20°C	10-15 minutes prior to filler or topcoat application	

SURFACE PREPARATION

NOTES:



934-71/934-72 AdPro (Low VOC)

Black/White

Application: Adhesion promoter for repair of all paintable plastics on cars. Can also be used as a sealer over sanded or unsanded ecoat.

Properties: Good adhesion and flexibility on all paintable plastics used in car production, on ecoat and properly sanded and prepped OEM coatings. Suitable for use as an adhesion promoter in three stage systems.

Remarks:

- See matrices B1 and B1a for proper plastic substrate cleaning and preparation procedures.
- Suitable for both raw plastic as well as (non-soluble) primed plastic.
- 934-71 and 934-72 cannot be used over "pure" polypropylene or polyethylene.

	Application	Adhesion Promoter
	Paint System	B1, B4, B8, C1, C2, C3, D.S3
	VOC Ready for Use	<250 gms/liter; <2.1 lbs/gal
 >1 1	Gravity Cup / Spraying Pressure	HVLP: 1.3-1.4 mm / 10 psi at air cap
	Number of Spray Coats	1 medium to wet coat
	Film Thickness	0.4 – 1.0 mils
	Mixing Ratio	4:1:2 100 parts by volume 934-71 or 934-72
 Â	Hardener	25 parts by volume 929-105, 929-110, 929-115, or 929- 120
	Reducer	50 parts by volume 352-45
	Pot life at 68°F/20°C	8 hours
 $\frac{\langle \uparrow \rangle \uparrow \rangle}{\langle \uparrow \rangle}$	Flash-off at 68°F/20°C	20 minutes minimum 12 hrs. maximum
	Spray viscosity DIN 4 at 68°F/20°C	11 – 14 s

SURFACE PREPARATION



1000/2000 Metal Wipes

These metal prep wipes are ready to use, rival adhesion and corrosion protection of urethane and epoxy primers and allow you to prime or seal directly over the coating in as little as 2 minutes.

The BASF 1000 Multi-Metal Prep Wipes are specifically formulated for cold rolled steel, hot rolled steel and galvanized surfaces

The BASF 2000 Advanced Prep Wipes are specifically formulated for use on aluminium, titanium and magnesium surfaces

NOTES:

Direct-To-Metal application

- 1000 Multi-Metal Prep Wipes shelf life of 24 months
- · 2000 Advanced Prep Wipes shelf life of 12 months
- · Up to two usages per wipe
- · Use in National Rule or LVOC markets
- · Prime or seal directly over coating in 2 minutes

Benefits

- · Saves time and money
- · Works much better than etch primers on bare steel aluminum surfaces
- · Faster repairs with better adhesion and corrosion protection
- · Ensures a high quality finish, ideal for high quality restorations
- · No need to rinse with water after treatment
- No spray in the atmosphere
- No masking, which saves time
- · Easy to use: clean, apply wipe then prime or seal

SURFACE PREPARATION

NOTES:

Coating of Plastics - Undercoats

Product recommendations for car refinishing only

	Flexible		Rigid Plastics						
	PU-RIM	TPO	PP-EPDM	ABS	GRP/SMC	PC-PBTP	PA	PPO	Rigid PVC
934-40 Low VOC 1K Adhesion Promoter	0	0	0	0	0	0	0	0	1
934-71/72 Adhesion Promoter	0	0	0	0	1	0	0	0	0

 \bigcirc = Not Applicable

= Direct Application Possible

• Can be used directly over uncoated plastics, no elastifier additive required (in some air districts, can ONLY be applied over uncoated plastics).

SURFACE PREPARATION

Meaning of the Technical Pictograms

Technical Information



See Tech Book

Mixing







Viscosity Adjustment





Thinnable





Gravity Gun



Putty Knife

Drying





Brush

Dry Time



Mixing Ratio



Cleaning

Preparation

Use Mixing Stick

00

Airless

Aerosol

)



Addition















SURFACE PREPARATION

NOTES:



Sanding







Dry







Polish





Miscellaneous

Stir in Mixing Machine





Close Lid



Storage

Do Not Freeze

Store in Cool Place

Protect from Moisture



UNDERCOATS

GLASURIT LVOC CERTIFICATION



WHAT YOU'LL LEARN:

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Module Objectives	2
• Enabling Tasks	2
• Key Application Tips 3	3
General Recommendations	5
High Build Primer Fillers	5
Surface Preparation	5

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UNDERCOATS

Introduction

Everyone loves the look of a freshly painted car, whether that car is brand-new or a vintage automobile after a fresh restoration. The first thing people notice is the shiny paint that looks as if you could reach right into it. Of course most people think the topcoat is the most important part of a paint job because it's the part that we all see well, the topcoat wouldn't be worth much if there wasn't a high quality undercoat system for those glossy layers to build on. Glasurit not only offers the highest quality topcoats and clear coats, we also provide a wide range of undercoats to meet every need in the refinish industry. With primers and sealers that comply with any possible VOC regulation, Glasurit has the right product for the job. If you're using the best topcoats available then you must know the importance of laying a good foundation. Glasurit... the best has just gotten better.

In order for the Glasurit undercoats to work at their optimum performance there are several key application tips, which need to be met.

Module Objective

The student will learn how to properly select, mix and apply Glasurit primer surfacers and sealers in order to provide maximum performance characteristics when used under 22 and 90-Line topcoats.

Enabling Tasks

The student will:

- Understand the importance of proper preparation for the application of Glasurit undercoats
- Be able to determine which Glasurit undercoat will give the maximum performance relative to substrate requirements
- Understand the importance of proper mixing and the potential results of improper mixing
- · Understand the role spray gun set up plays and how it impacts film builds
- Understand how film builds influence product performance characteristics over both the short and long terms
- · Be able to build an undercoat system that will meet the needs of the repair
- · Know the Glasurit undercoats approved for OEM warranty repairs

NOTES:	Key Application Tips
	1. Choose the Right Gun
	In order to obtain the correct film build for undercoats of 2.0 to 3.0 mils AFTER SANDING, the application tool must be in good operating condition and have the capability to deliver the correct amount of fluid through the tip. Too large a fluid tip will produce a high film build which will have a problem curing properly, while too small a tip will not provide sufficient film build, resulting in an inability to hold out solvent penetration from the topcoat application.
	2. Choose the Right Hardener
	The purpose of the hardener is to cure the undercoat to a hard surface so solvent from the topcoat application may be resisted and evaporate from the finish. There are several considerations that need addressing when making a hardener selection. The shop environment is the first consideration. What is the room temperature? The cooler the shop, the faster the hardener. How big of an area are we priming?
	• For spot priming @ 68°F/20°C a fast hardener should be used.
	 1- 2 panels @ 68°F/20°C a fast hardener may be used.
	 2- or more panels @ 68°F/20°C a normal hardener should be used.
	Temperature is a key factor in selecting hardeners.

UNDERCOATS

3. Choose the Right Reducer

The addition of solvent to undercoats performs three functions. The viscosity of the undercoat will be changed as reducer is added, making the product sprayable. Secondly, the solvent will allow the primer to flow to a smooth surface. Thirdly, the solvent will create penetration to the substrate giving superior adhesion. Choosing the right solvent has a direct effect on the product's ability to cure. It also affects sand ability of the primer undercoat. Solvents are designed to be chosen by the temperature, airflow, and size of job.

Glasurit 352-Series Reducers

Code **Product Name** Description 352-25 50°F/10°C to 68°F/20°C Exempt Solvent Fast Exempt 352-45 Slow Exempt 80°F/27°C to 100°F/38°C Exept Solvent Normal to high temperatures/normal to lower 352-720 Normal humidities Normal to high temperatures/normal to higher 352-740 Tropical humidities

UNDERCOATS

NOTES:

4. Number of Coats

Each primer has a designated minimum and maximum number of coats, which should be applied. To have the primer work at its optimum performance these guidelines must be met. See the technical data for this information.

5. Flash Time Between Coats

Flash time is defined as the time required for the solvent to evaporate between coats. Temperature in the shop, temperature of the surface being primed, thickness of primer application, and the solvent selection will affect flash time.

Flash time may be found on all technical data information. Remember that these flash times wee developed under a controlled environment. As the shop environment will vary from shop to shop the flash times may be shortened or extended based on those conditions.

A simple rule of thumb for flash time: Once the surface has lost its gloss (matte finish) & the surface may be touched with the back of your hand, the next coat may be applied. If flash times are not adhered to, the undercoat will not cure properly resulting in: sandpaper plugging, primer ringing, and sand scratch swelling.

6. Priming from the Outside In

Due to the fact that we are spraying two component primers, the correct application method will create excellent holdout on the edge of the primer application. To ensure that the edge of the primer is secured to the substrate it is important that the first coat of primer be applied from furthest outside point on one







side to the furthest outside point on the opposite side. Each subsequent coat will be applied inside the previous, applying the majority of primer over the repair area. As we apply primer in this fashion the over spray is always on the top eliminating the possibility of primer ringing.



General Recommendations	NOTES:
Always mix primer in a well ventilated area and wear appropriate safety equipment.	
• Catalyze and thin primers accurately, using the recommended mixing ratios.	
• Use the appropriate reducer to provide improved curing and sanding properties.	
Stir thoroughly to ensure even distribution of primer to hardener and reducer.	
• Pour primer through a medium strainer or use 200 micron filter.	
 Use spray gun with an appropriate tip and pressure setting to ensure proper atomization of the primer. 	
 Protect adjacent panels, wheels, glass and other parts from overspray. 	
Allow sufficient flash time between coats.	
Apply a light guide coat after applying primer.	
• Use a spray gun with a fluid tip recommended for spraying high build primer fillers.	
High Build Primer Fillers The main function of a primer filler is to fill imperfections in the damaged substrate and provide a smooth, sound foundation over which to apply subsequent topcoats.	
high quality demanded by automotive refinishers around the world. They are the recommended primers for use under all Glasurit topcoats and may be applied over cured, cleaned and sanded OEM finishes, properly treated bare metals, body fillers and fiberglass. High film build, excellent adhesion, topcoat holdout, good moisture and chemical resistance are some of their impressive characteristics.	
Surface Preparation	
All metal surfaces should be free of grease, oil, dirt, properly sanded and pre-primed with Etch Primer 283-series, Epoxy Primer 801-series (For Waterborne Systems).	
Note: etch primers should not be sprayed under direct to metal primers	

UNDERCOATS

NOTES:

Meaning of the Technical Pictograms

Technical Information



Mixing







Cleaning

Preparation



Hardener Addition







Thinnable

Mixing Ratio

















Airless









Roller



Aerosol



Putty Knife

Flash Off



Dry Time

UNDERCOATS

Sanding



Sand by Hand Wet

Miscellaneous





Storage



Stir in Mixing Machine

Sand By Hand Dry





Random Orbit

Dry

Check Color

Moisture



Jitterbug

Dry

Close Lid



Polish





UNDERCOATS

NOTES:

Metallic Substrates - Undercoats

Product recommendations for applying undercoats to metallic substrates

Primer Surfacers					PIO
	Bare Metal	Galvanized Steel	Aluminum	OEM Parts with e-coat	Well-cured (Paintwork
151-170 UV Light-Activated Primer Filler	•	•	•	٠	
176-72 1K Waterborne Primer Surfacer	0	0	0		
285-15/285-25 Low VOC DTM Primer	•	•	•		
285-21 2.1 VOC Primer	0	0	2	0	0

 \bigcirc = Not Applicable

Can be applied directly, even on bare metal substrates.

1 = Pre-prime all exposed metal areas with etch primer or epoxy primer.

 Pre-prime large metal areas with etch primer or epoxy primer (as an adhesion promoter) depending on what is compliant in your area.

UNDERCOATS

Sanding of Undercoats





Dry Sanding by

	папа	папи	Machine
Body Fillers			
839-20 Double Plus Body Filler	N/A	N/A	80-150 Finish sand with 240
839-90 Plastic Body Filler	N/A	N/A	80-150 Finish sand with 240
839-171 UV Body Filler			
839-7451 Body Filler			
1006-26 Sprayable Body Filler	N/A	N/A	150 - 240
Primer Surfacers			
151-170 UV Light-Activated Primer Filler	320-500	320-500	320-500
151-170 (Aerosol) UV Light-Activated Primer Filler	320-500	320-500	320-500
176-72 1K Waterborne Primer Surfacer	N/A	360	400-600
285-15/ 285-25 Low VOC DTM Primer	320-500	320-500	400-500
285-21 2.1 VOC Primer	320-360	320-360	320-360

UNDERCOATS

NOTES:



Application

Paint System

Film Thickness

Mixing Ratio

PWMIR

VOC Ready for Use

Number of Spray Coats

Flash-off at 68°F/20°C

Drying with UVA

Dry Sanding: hand

machine

(> 6 mW/cm²)

UV Primer Filler 151-170

Grey, Aerosol

Application: An aerosol, one component UV cured primer.

Properties: High build, easy application. Good corrosion and weather resistance. Excellent topcoat holdout. Suitable for steel, galvanized steel and aluminum. Can be applied on rigid plastic substrates only when suitable adpro is used first.

Remarks:

- Shake aerosol can for one minute after ball rattles and spray to test.
- Spray distance is 4"- 6" from panel.
- · Do not spray to hiding.
- Do not apply in direct sunlight.
- Do not cure in the rain.
- Contents under pressure. Do not puncture, crush or incinerate aerosol containers.
- 12 month shelf life.
- For adhesion to flexible substrates, one coat of 934-10 must be applied first.

Primer Filler

- B1, B1a 3.8 lbs/gal; 451 gms/liter
- 0.662
- 2 3 coats maximum
- 1.5 5.0 mils (10 mils maximum)

Ready for use

20 seconds minimum flash between 5 mins. minimum flash before UV curing

3 - 10 inches away from substrate for 10 - 20 mins.

UV primer can be cured by sunlight. Exposure time is dependent on UV intensity (average time is 10 - 20 mins.) but can be faster, dependent on UV dureing technology (refer to GENBUL4403). Allow to flash before exposing to sunlight. Surface cure will indicate extent of cure.





Dry Sanding: hand

P800

P500 - P600

P320 - P500

		UV Primer Filler 151-170	NOTES:
		Application: Primer filler	
	ww.bastrefinish.com	Properties: Suitable for steel, galvanized steel and aluminium.	
	A brand of tod - We control dentity	Remarks:	
L	151-170 IV Primer Filler - Grey Mark Analysian VF - Gol	 Film will build rapidly with this product- do not spray to hiding. 	
	ndi mito ibeli delen essa. 1921 DO 100072018 US GO 1017 by parleccianel, noned parcenti nile prote operat. 1934 Di Indexe dele so ha con a ly file parcela public. 1934 Di Indexe dele so ha con alla con alla con alla considera e manafi applicità parte	 Do not apply more than two coats. 	
	niem representation. Ein nach aus der auf der Landen ja under nehm eine der auf gelachte represent in Försterfen mehren der aus ein zu Alle straten. Försterfen mehren der Bauset zu Alle Straten. Försterfen mehren der Bauset zu Bauset auf der Bauset auf der Bauset auf der Bauset der Bauset der Bauset der Handenmannen der Bauset. Eine mehren an gelachte aus gelanden auf ein fahren der Bauset.	 Do not apply in direct sunlight. 	
	Cont liet / liet Cannes / Contexs ref Tatar / 23.815, 81 (to: 6 522822 102843) 4	Shelf life 1 year.	
		 For adhesion to flexible substrates, one coat of 934-10 must be applied first. 	
	Application	Primer Filler	
	Paint System		
	VOC Ready for Use	1.0 lbs/gal; 120 gms/liter	
	Gravity Cup / Spraying Pressure	HVLP: 1.1 mm / 10 psi at air cap	
	Number of Spray Coats	1/2 + 1	
	Film Thickness	2.0 - 5.0 mils	
	Mixing Ratio	Ready for use	
	Spray Viscosity at 68°F/20°C	18 - 20 s	
<u>)</u> †)†}	Flash-off at 68°F/20°C	approx. 2 mins. between spray coats. 151-170 should flash 5 minutes before curing.	
	Drying with UVA 450 watt bulb	5 mins.	
	Wet Sanding: hand machine	P800 P400 - P500	

UNDERCOATS

NOTES:



Application

Paint System

VOC Ready for Use

DIN 4 at 68°F / 20°C

Spraying Pressure

Spray Viscosity

Gravity Cup /

176-72 1K Waterborne Primer Surfacer Dark Gray, Water Dilutable

Application: Primer Filler (corrosion protector and filler). Barrier primer for TPA (acrylic lacquer). Can be used as guide coat (1:1 with 93-E3).

Properties: Good adhesion on bare metal and galvanized steel. Contains less than 5% organic solvents. Remarks:

- Minimum working temperature is 60°F/15°C.
- Drying is strongly dependent on temperature, humidity, air circulation and film build.
- Keep spray gun head under water when the gun is not in use.
- Use 90-VE to clean sanding residue• Use 700-1 to clean spray gun and tools.
- Collect left-over paints and waste water, treat them with 700-7 Coagulating
- Powder and dispose of them according to the relevant technical data sheets.
- Keep product from freezing (store at temperature 40°F-105°F/5°C-40°C)
- Shelf life 18 months.
- Not suitable for use on flexible plastic parts.
- Do not apply 176-72 directly over or under peroxide cured body fillers or acid containing pretreatments. Primer Filler

B1, B1a, B3, B5, B6, B7, B8, C1, C2, C3

1.5 lbs/gal; 180 gms/liter

25 - 35 seconds

HVLP: 1.6 - 1.8 / 10 psi at air cap (max.)

Number of Spray Coats



Film Thickness Mixing Ratio Primer Filler



Reducer



Drying at 68°F / 20°C Drying at 140°F / 60°C

Infrared short wave Infrared medium wave

Dry Sanding: hand machine

1.6 - 2.4 mils

2

1:10% 100 parts by volume 176-72

10 parts by volume 93-E3

5 minutes between coats and before drying or until matte

2 hours at 50% relative humidity 30 minutes

3 – 5 minutes 15 – 20 minutes

360, clean with DI water 400-600, clean with DI water

		285-15/285-25 DTM Primer Filler	NOTES:
	Aist.com		
	A bene / list- With the Clinit Primer Filler News Added To Mano Kerk Longhoup 108 lists	Application: Primer surfacer	
 Restance of the second s		Properties: 285-15/-25 are acrylic two-component surfacer designed for repair of automotive metal substrates including CRS, aluminum and galvanized. 285- 15/-25 can also be applied over e-coat, rigid plastic and property property of paint	
		Remarks.	
		 285-25 may be mixed with 285-15 (Black) to achieve differing L shades. 	
		BASF 1000/2000 wipes can be used for enhanced corrosion control.	
		 Surface cleaning and preparation are critical to the success of 285-15/-25. All grease, rust and dirt must be properly removed. 	
	Application	Primer surfacer	
	Paint System	B1, B1a, B3, B4, B6, B7, B8, C1, C2, C3	
	VOC Ready for Use	1.9 lbs/gal; 227 gms/liter	
>1 1	Gravity Cup / Spraying Pressure	HVLP: 1.5 - 1.7mm / 10 psi at air cap	
	Number of Spray Coats	2 - 3	
	Film Thickness	3.0 - 5.0 mils before sanding	
	Mixing Ratio	4:1:10% 100 parts by volume 258-15/25	
	Hardener	25 parts by volume 929-385	
	Reducer	10% to 1 part volume 352-25 or -45	
	Spray Viscosity DIN 4 at 68°F/20°C	15 - 17 s	
	Pot life at 68°F/20°C	2 - 3 hrs. sprayable potlife	
$\frac{\langle \uparrow \rangle \uparrow \rangle}{\langle \uparrow \rangle}$	Flash-off at 68°F/20°C	5 mins. between coats	
	Drying at 68°F / 20°C Drying at 140°F / 60°C	45 - 60 mins. 15 mins	
e	Dry Sanding: hand machine	P320 - P500 P400 - P500	
e	Wet Sanding: hand	P320 - P500	

UNDERCOATS

NOTES:







VOC Ready for Use

Application





Gravity Cup / Spraying Pressure

Number of Spray Coats



Mixing Ratio

Primer Filler

Hardener

Reducer

Pot life at 68°F/20°C

Flash-off at 68°F/20°C

Drying at 68°F / 20°C Drying at 140°F / 60°C

Infrared short wave

Dry Sanding



285-21 2.1 VOC Primer Filler

Dark Grev

Application: A low VOC primer with outstanding dry sanding characteristics

Properties: Fast drying at ambient temperatures. Excellent for baking application. Excellent corrosion/ weather resistance.

Remarks:

- · Use guide coat to achieve better sanding results.
- · Choose hardeners and reducers according to temperature and size of object to be painted.
- This primer may be elastified with 25-50% (by volume) Low VOC Elastifier Additive 522-333 for use over flexible parts.

Primer Filler

B1, B1a, B3, B4, B5, B6, B7, B8, C1, C2, C3

2.0 lbs/gal; 245 gms/liter

HVLP: 1.5 - 1.7 / 10 psi at air cap (max.)

2 - 3 medium wet coats

2.0 mils (6.0 mils max.)

4:1:1

100 parts by volume 285-21

25 parts by volume 929-100, -105, -110, -115, -120, or -130

25 parts by volume 352-25 or -45

45 minutes

5 minutes between coats

90 minutes 30 minutes

5 - 6 minutes

320-360

320-360

Roll of the second seco		 801-74/801-76 Elite Epoxy Primer (LVOC) Black/White Application: Wet-on-wet sealer. Properties: Good corrosion protection, good finish, on bare metal, galvanized steel and aluminum, fiberglass and body fillers. Remarks: 801-74 can be mixed with 801-76 Elite Epoxy Primer White to make gray colors. Chromate Free Minimum temperature for air drying: +60°F / 15°C. BASF 1000 Multi-Metal Prep Wipes or 2000 Advanced Prep Wipes may be used to extend the longevity of the repair. 	NOTES:
	Application	Wet-on-wet sealer	
	Paint System	B1, B3, B6, B7, B8, C1, C2, C3, D.S1	
	VOC Ready for Use	2.1 lbs/gal; 250 gms/liter	
>1 1	Gravity Cup / Spraying Pressure	HVLP: 1.3 – 1.5 / 9 - 10 psi at air cap	
	Number of Spray Coats	1 - 2	
	Film Thickness	1.0 - 1.5 mils	
	Mixing Ratio	4:1:2 100 parts by volume 801-74/-76	
	Hardener	25 parts by volume 965-63	
	Reducer	50 parts by volume 352-45	
	Pot life at 68°F/20°C		
$\frac{\langle \uparrow \rangle \uparrow \rangle}{2}$	Flash-off at 68°F/20°C	30 mins flash off before applying topcoat	

NOTES:	Primer Guide Coats
	Too often we see sand scratches, grinder marks, swelling around featheredges or sinking on the re- pair areas after a paint job was completed. Problems such as these are caused when strong solvents (required in today's paint coatings) penetrate through the primer coat and react with the substrate under them. The real nature of the problem, however, may not be the solvent itself, but that too much primer was sanded off the repair areas allowing the solvent to penetrate through. Guide coating over primer fillers can be a solution to many of these problems, providing enough primer was applied for filling purposes and as a barrier to prevent solvent penetration.
	Guide coats show all imperfections clearly during the sanding process. At this point enough primer has been sanded off to provide the desired leveling and eliminate imperfections such as pinholes, scratches and orange peel. The tendency is to sand more to make sure, but it is this reasoning that contributes to the problem and adds time to the sanding process.
	The use of a guide coat over polyester putties and body fillers is recommended as well. The coat will show the low and high spots as well as other imperfections. The tendency is to sand off too much filler resulting in having to apply more primer filler. This adds to the cost in time and materials.
	Benefits of Guide Coating:
	<u>1.</u>
	2.
	3.
	4.
	What is the purpose of a sealer?
	1
	2.
	3

UNDERCOATS



285-02 Low VOC Transparent Sealer

Application: Wet-on-wet sealer.

Properties: May be elastified 25% - 50% with 522-333. No sanding and no drying times; good weathering resistance. Remarks:

- Prime sand-throughs with Glasurit 283- etch primer filler or Glasurit 285-15, -25.
- When tinting, tint first, then elastify.

	Application	Untinted	Tinted		
	Paint System	B1, B1a, B3, B4, B5, B7, B8, C1, C2, C3	B1, B1a, B3, B4, B5, B7, B8, C1, C2, C3		
	VOC Ready for Use	1.6 lbs/gal; 189 gms/liter	2.0 lbs/gal; 241 gms/liter		
> 1	Gravity Cup / Spraying Pressure	HVLP: 1.3 – 1.7 / 10 psi at air cap	HVLP: 1.3 – 1.7 / 10 psi at air cap		
	Number of Spray Coats	1 - 2	1 - 2		
	Film Thickness	1.0 – 1.4 mils	1.0 – 1.4 mils		
	Mixing Ratio	4:1:1 100 parts by volume 285-02	Step 1 - 10:1		
	Hardener	25 parts by volume 929-100, -105, -110, -115, -120, or -130	100 parts by vol. 285-02 10 parts by vol. 90-Line toner		
		25 parts by volume 352-25 or -45	Step 2 - 4:1:2 100 parts by vol. mixture 25 parts by vol. 929-100, -105 -110 -115 -120 or		
	Reducer	Reducer For a smooth extra part of be added (4:1)	For a smoother finish an extra part of reducer may be added (4:1:2)	-130 50 parts by vol. 352-25 or-45	
	Pot life at 68°F/20°C	1 hour	1 hour		
$\frac{\left\langle \uparrow \right\rangle \uparrow \left\langle \uparrow \right\rangle}{2}$	Flash-off at 68°F/20°C	5 – 10 minutes between coats 15 – 20 minutes before	5 – 10 minutes between coats 15 – 20 minutes before		
		topcoating	topcoating		

UNDERCOATS

NOTES:



Application

Paint System

VOC Ready for Use

Spray Viscosity

Gravity Cup /

Film Thickness

Spraying Pressure

Number of Spray Coats

285-18 Low VOC Sealer 285-29 Low VOC Sealer

White and Black

Application: Wet-on-wet sealer for economical repairs. It can be applied directly to un-sanded e-coat that has been properly cleaned with 360-4

Properties: No sanding and no drying times; very safe to spray; good weathering resistance. To get different grey colors, mix 285-18 with 285-29 Glasurit Low VOC Sealer black.

Remarks:

- Before filler application, fine sand body-filled areas and old paintwork with 280 320 (dry). Use Guide Coat.
- For galvanized and aluminum, prime sand-throughs with Glasurit 283-155 primer.
- 285-18/29 may be elastified for use over flexible plastic parts by adding 25% (by volume) of Low VOC Elastifier Additive 522-333

Wet-on-wet sealer

B1,B1a, B3, B4, B5, B7, B8, C1, C2, C3, D.S4

2.1 lbs/gal; 245 gms/liter

DIN 4 @ 68F/20C 16-18s

HVLP 1.3-1.4 mm / 10 psi at air cap

2

0.8 - 1.4 mils

4:1:2 100 parts by volume 285-18/-29

25 parts by volume 929-100, -105, -110, -115, -120, or -130

50 parts by volume 352-25 or -45

Pot life at 68°F/20°C





1 - 2 hours

Mixing Ratio 4:1:2 100 parts by v

Hardener Reducer



		285-21 2.1 VOC Primer Surfacer	NOTES:
	Aber of Lag-	Application: A low VOC sealer with outstanding dry sanding characteristics.	
	285-21 11 VOC Primer prior 62 10 00 Interna 64 10 no	Properties: Fast drying at ambient temperatures. Excellent for baking application. Excellent corrosion/ weather resistance.	
	RE2000.DDC.NLUE(2001.Ypyoficiandu havadyaesamlinkaga pupu pagata Nai Nai Mahdi Maria Nai Nai Nai Nai Nai Nai Nai Nai Nai N	Remarks:	
	a Propertie manual constructions. Development and provide the approximate problem and Development and provide the approximate problem and Development and provide the approximate provide and approximate provide the appro	 Choose hardeners according to temperature and size of areas to be painted. 	
		 This sealer may be elastified with 25% (by volume) Elastifier Additive 522-111 or Low VOC Elastifier Additive 522-333 for use over flexible parts. 	
	Application	Wet-on-wet sealer	
	Paint System	B1, B1a, B3, B5, B7, B8, C1, C2, C3	
	VOC Ready for Use	2.0 lbs/gal; 240 gms/liter	
	Spray Viscosity	DIN 4 at 68F/20C 11s	
>11	Gravity Cup / Spraying Pressure	HVLP 1.3- 1.4 mm/ 10 psi at air cap	
	Number of Spray Coats	1 – 2 medium wet coats	
	Film Thickness	0.75 - 1.25 mils	
	Mixing Ratio	4:1:2 100 parts by volume 285-21	
A	Hardener	25 parts by volume 929-105, -115, -120, or -130	
	Reducer	50 parts by volume 352-25 or -45	
	Pot life at 68°F/20°C	2 hours	
$\frac{\left< \right>_{\uparrow} \left< \right>_{\uparrow} \right>_{\uparrow} \left< \right>}{\left< \right>}$	Flash-off at 68°F/20°C	5 minutes between coat 20 minutes before topcoating	

UNDERCOATS



Glastirit

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TOPCOATS

GLASURIT LVOC CERTIFICATION

WHAT YOU'LL LEARN:

Introduction	
Module Objectives	
• Enabling Tasks	
Meaning of Technical Pictograms	4

•	22-Line Urethane Acrylic	6
•	90-Line Basecoat Metallics/Solids	8
•	90-Line Basecoat Metallic/Solid, Peal and Multi-Effect	9

TOPCOATS

Introduction

In 1982 the age of efficient, simple, manageable and safe automotive refinishing processes began, in the form of the Glasurit RATIO System. In this first RTIO system and subsequent additions, Glasurit products are logically and systematically matched. With the aid of these systems, all automotive refinishing jobs can be completed rapidly and at low cost.

Achieve more with less solvent!

In 1995, a further step was taken towards increased eco-efficiency for Collision Centers, when Glasurit Line 22- was introduced as a high-solids refinishing system for solid-color finishes. The higher solids content means less solvent, combined with significant savings of material and processing time.

Glasurit puts one of the first water-borne basecoat systems on the market.

The 1992 Automechanika fair heralded the premiere of the most successful water-based refinishing system on the German and European market. Right from the start, the main emphasis was on reducing solvent contents and thereby increasing the system's environment-friendly character. In short, Line 90- is simple, economical and safe.

1996 saw the launch of Glasurit Line 55-, a new product for solvent-borne basecoat-clearcoat refinishing that even surpassed the product performance of the successful Glasurit Line 54-.

From the beginning, Glasurit Lines 55- and 90- have been researched and perfected to accurately duplicate the character, color and metal orientation of OEM Basecoat / Clearcoat finishes. Lines 55- and 90- are formulated directly from OEM two stage technologies and both are specifically designed to meet the demand for high quality repairs required for these finishes.

The amount of labor involved in a paint job depends on the condition of the old paintwork and the customers' requirements.

Module Objective

The student will learn how to safely, consistently, and efficiently produce a quality finish repair using the Glasurit topcoat refinish systems, 22 Line HS Single Stage Urethane Acrylic, and 90-Line Waterborne Basecoat.

TOPCOATS

NOTES: Enabling Tasks The student will be able to: · Understand proper final sanding recommendations before the application of the Glasurit topcoat systems. • Choose the correct mixing ratios for the Glasurit topcoats dependent on ambient shop conditions. • Select optimum fluid tip and air cap recommendations for the application of the Glasurit topcoats. • Understand and follow Glasurit recommendations for OEM warranty repairs.

TOPCOATS

Meaning of the Technical Pictograms

Technical Information



See Tech Book

Mixing







Mixing Ratio



Cleaning

Preparation

Use Mixing Stick



Hardener Addition

Viscosity Adjustment



Viscosity



Water Thinnable

Schultz Gun

Brush





Gravity Gun



Drying





Dry Time













IR



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Aerosol







TOPCOATS

NOTES:



Sanding







Dry



Dry



Polish

Sand by Hand Wet















Do Not Freeze

Store in Cool Place

Protect from Moisture



Storage





TOPCOATS



22-Line Urethane Acrylic

22-Line color is an acrylic urethane enamel to be applied as a single stage finish over well cured old paintwork and primers. 22-Line colors meet the low VOC system requirements when mixed with the appropriate hardener, reducer and Low VOC mixing clear.

Final Sanding Recommendations for Solid Colors and Single Stage Finishes







P600 grit or finer P400

P400 grit or finer

P500 grit or finer

	2.8 VOC	3.5 VOC
Application	Single Stage Topcoat	Single Stage Topcoat
Paint System	B7, B9, C3, D.S1, D.S3, D.S3a, D.S4, D.S4a, D.S7	B7, B9, C3, D.S1, D.S3, D.S3a, D.S4, D.S4a, D.S7
VOC Ready for Use	Refer to mixed color formula to calculate applied VOC.	Refer to mixed color formula to calculate applied VOC for specific color. 3.5 lbs/gal (420 gms/ liter) VOC is the maximum.
Mixing Ratio	2:1+10%: 100 parts by volume 22-Line	2:1+10%: 100 parts by volume 22-Line
Hardener	50 parts by volume 929-100, -105, -110, -115, -120, or -130	50 parts by volume 929-100, -105, -110, -115, -120, or -130
Reducer	10 parts by volume 352-25 or -45	10 parts by volume 352-50, -91 or -216
Spray Viscosity DIN 4 at 68°F/20°C	20 – 24 s	20 – 24 s
Potlife at 68°F / 20°C	90 mins	90 mins
Gravity Cup / Spraying Pressure	HVLP 1.3 mm/ 10 psi at air cap (max)	HVLP 1.3 mm/ 10 psi at air cap (max)
Number of Spray Coats	2	2
Film Thickness	2.2 - 3.0 mils	2.2 - 3.0 mils
Flash-off at 68°F/20°C	5 mins. between coats	5 mins. between coats
Drying at 68°F / 20°C Drying at 140°F / 60°C	Tack free in 8 hrs 30 mins.	Tack free in 8 hrs 30 mins.
Infrared short wave Infrared medium wave	7 mins. 10 mins.	7 mins. 10 mins.

Important Remarks

· Be sure to observe flash-off times between spray coats.

· Choose hardener and reducer according to temperature and size of object to be painted
TOPCOATS

- Tinting bases must be shaken for 10 15 minutes, and then stirred with a metal stick before using
 or placing on a mixing rack. To ensure good color match, agitate tinting bases on a mixing rack 15
 minutes before use and every 4 hours during the work day.
- When completing a repair, it may not be possible to obtain an exact panel-to-panel color match.
 Where color variations are expected, or where there is no natural break (such as a seam or trim strip), it is more practical to blend the color into the areas surrounding the repair. Blending in can be more economical and efficient than time-consuming color tinting.
- To polish or remove dust particles: after 24 hrs. air dry, or when cool after force drying, wet sand with 1200 grit or finer sandpaper, then polish with fine polishing compound and/or liquid polish. Two mils (dry film) of color must remain after polishing. If extensive color sanding is anticipated, apply an additional coat of color.

TOPCOATS

www.bassfrefinish.com
Abadd 805- We coale denter. 90-A 589 Blue
Control that Units to a second s
Inter/or come of a 52282 02114

Glasurit 90-Line entered the market place in 1992

Glasurit 90-Line is a solvent

Glasurit Undercoats and Topcoats are compatible with

Color Max, Color-Match

Glasurit 90-Line application

with fast and slow reducers

Glasurit 90-Line blending and

Standards and variances are

Glasurit 90-Line paint and clear

coated, over 8,000 spray outs

Better, quicker coverage than

solvent borne paints, faster dry

than most water borne paints.

application, faster and accurate

Simplicity in spot repair

blends

borne material

Glasurit 90-Line

spot repair

Feature

90-Line Basecoa	nt Metallics/Solids	NOTES:
Advantage	Benefit	
No product recall like competitive products	Tried and Tested, Life Time Guarantee	
Longer shelf life, frost resistant, concentrated toners	Cost savings You don't have to replace toners in 24 months (some competitive products do)	
No new products to re-learn	No new or extra products to purchase	

Color match accuracy and time

Maintain current collision

center production and quality

Maintain/Increase productivity

and quality repairs

savings

repair

TOPCOATS



Glasurit 90-Line Basecoat Metallic / Solid, Pearl and Multi-effect

The standard for technological excellence of Glasurit is upheld in the waterborne arena by the 90-Line waterborne basecoat system. 90-Line has some distinct advantages over conventional solvent borne systems. In addition to better hiding and easier blending, 90-Line saves time. And less time means increased productivity. Also, unlike other waterborne systems, with 90-Line bases you don't have to worry about shelf life or special shipping to prevent freezing. And, add to this the fact that waterborne technology is not only environmentally more responsible, but also much safer for your employees.

Final Sanding Recommendations for Solid, Medium Light Metallic Basecoat







P500 grit or finer

Final Sanding Recommendations for Light Metallic Basecoat





P500 grit or finer

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P600 grit or finer

P600 grit or finer

Application	Basecoat	Basecoat with Hardener (OEM Recommendation)
Paint System	B7, B9, B10, C1, C1a, D.S1, D.S3, D.S3a, D.S9, D.S9.1, D.S9.2	B7, B9, B10, C1, C1a, D.S1, D.S3, D.S3a, D.S9, D.S9.1, D.S9.2
VOC Ready for Use	3.5 lbs/gal; 420 gms/liter or less	3.3 lbs/gal; 371 gms/liter or less
Mixing Ratio	2:1 100 parts by volume 90-Line (Stir intermix formula well prior to addition of any 93-E3 or 93-E3S)	10:0.5:4 100 parts by volume 90-Line (Stir intermix formula well prior to addition of any 93-E3 or 93-E3S)
Hardener		5 parts by volume 590-100
Reducer	50 – 80 parts by volume 93-E3 or E3S (Stir well IMMEDIATELY after addition)	40 – 80 parts by volume 93-E3 or E3S (Mix well IMMEDIATELY after addition)
Spray Viscosity DIN 4 at 68°F/20°C	18 – 24 s	23 - 31 s
Potlife at 68°F / 20°C	Mixed according to formula stored in plastic or lined cans – 6 month	24 hrs.
Gravity Cup / HVLP Spraying Pressure Conven- tional	HVLP: 1.2-1.5 mm/10 psi at air cap (max.)	HVLP: 1.2-1.5 mm/10 psi at air cap (max.)
Number of Spray Coats	2 plus 1/2 to harmonize the effect (appearance)	2 plus 1/2 to harmonize the effect (appearance)
Film Thickness	0.4 – 1.0 mil	0.4 – 1.0 mil
Flash-off at 68°F/20°C	Until matte after each coat 2 – 3 mins. or until matte before next step	Until matte after each coat 2 – 3 mins. or until matte before next step
Sanding	Dirt nibs can be removed with a fine sanding pad, then blend in the area.	Dirt nibs can be removed with a fine sanding pad, then blend in the area.







TOPCOATS

Important Remarks

- 90-Line Basecoat Metallic / Solid, Pearl and Multi effect
- Use Glasurit 700-1 to clean tools. Paint residue dried to the tools can be removed with 700-1.
- Collect and dispose all paint-related waste, including water used to clean tools, in accordance with local, state and federal regulations. Refer to Glasurit 700-7 Coagulating Powder technical data sheet for more information.
- Use of an air jet will significantly reduce the flash-of time of 90-Line.
- Tinting bases must be shaken for 10 15 minutes, and then stirred with a metal or plastic stir stick before using or placing on a mixing rack.
- To ensure good color match, agitate tinting bases on a mixing rack 15 minutes before use and every 4 hours during the work day.
- The following 90-Line materials have reduced shelf lives and must be protected from freezing: 90-M4, 90-M4EDT and 90-M4S (12 months from date of manufacture); 93-E3 and 93-E3S (12 months from date of manufacture); 90-M5 (12 months from the date of manufacture).
- Use metal or plastic sticks to stir 90-Line colors; do not use wood.

TOPCOATS

NOTES:

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CLEARCOATS

GLASURIT LVOC CERTIFICATION



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• Enabling Tasks	2
• Equipment	2
• Applying Decals or Stripes	3
• Catalysts	3

Technical Information	4
Blending Best Practices	6
Clearcoat Matrices	7
Technical Information	8
Booth Air Flow	19
Paint Defects, Causes and Remedies	20

CLEARCOATS

Introduction

We've all noticed cars that blind you as they come around the corner – vehicles with a finish so glossy it looks as if you could each right into it. The luscious, wet look of today's finishes has a stunning beauty that really catches the eye.

You may wonder how automobiles get that kind of deep shine. Well, on a truly spectacular finish the answer is most likely a Glasurit clear coat. While the undercoat is the foundation and the base coat provides the color of a refinish job, it is the clearcoat that is responsible for the brilliant, glossy finish.

Glasurit not only offers outstanding undercoats and the world-class 22-, 55- and 90-Line topcoats, but also a line of clear coats that will polish off any refinish need you might have. From clears that are specially formulated for flexible parts, scratch resistance, low gloss to clears that comply with any possible VOC regulation... Glasurit has the right product for the job. You've used the best undercoats and topcoats-now top the job off right with the best clear coats.

In order to have maximum success and eliminate the possibilities of comebacks, certain rules and procedures must be followed when applying Glasurit Clearcoats.

Module Objective

The student will learn how to consistently and efficiently produce a quality finish repair using the Glasurit 923-Series Clears.

Enabling Tasks

The student will be able to:

- How to select, catalyze, reduce and apply Glasurit 923-Series clear coats according to Low VOC regulations.
- How to select the optimum fluid tip and air cap for Glasurit 923-Series clearcoat application.
- · The Glasurit clear coats approved for OEM Warranty repairs.

Equipment

There is no doubt that using a high efficiency or compliant gravity feed spray gun can improve how smooth a clearcoat can be applied. They also apply more material quicker meaning less application time. These guns require less air volume than an HVLP (3-5 CFM less) which can make a difference if dealing with a low volume air system. Certain air management districts do not allow the use of these types of guns. Follow the technical data sheet for proper spray gun selection.

CLEARCOATS

NOTES:

Applying Decals or Stripes Over Air-Dried or Baked Clearcoats

To avoid blistering, the lab recommends waiting the following times before applying DECALS on airdried or baked clearcoats;

1. Wait at least 48 hours before applying stripes.

2. Wait at least 1 week before applying large or thick decals.

Catalysts

Products like 522-20 contain a chemical that catalyzes and accelerates the reaction between activator (isocyanates) and the resin in 2-component urethane products. These additives are meant be used typically where a low temperature application can not be avoided and where a slight decrease in cure times is necessary. There is a balance created in the formula where solvent competes to evaporate out of the film before the film crosslinks enough to trap this solvent. These catalysts increase how fast this reaction occurs giving less time for the solvent to evaporate.



CLEARCOATS



522-20 Universal Rapid Additive

Application: Drying accelerator for clearcoats for blending. Drying accelerator for Glasurit HS Urethane Topcoat 22-Line.

Properties: Fast through dry, dust free and polishability. Used at low temperatures (60°-65°F/15°-18°C) or when fast curing, polishing and masking tape resistance is required. Used with sign writing and multi-color finishes.

Remarks:

- · Use only for blending.
- · Measure amount of 522-20 carefully!
- In 923- Clearcoats, use 2% max. Add up to 0.65 oz / 17 gms per quart of ready-to-spray material.
- In 22-Line, use 4% max. Add up to 1.25 oz / 33 gms per quart of ready-to-spray material.

	Application	Drying accelerator for 22-Line	Drying accelerator for 923- clearcoats
	Paint System	C3	-
	VOC Ready for Use	VOC as packaged: 4.2 lbs/gal; 497 gms/liter VOC as applied: Varies depending on mixed form	ula or clearcoat
	Mixing Ratio	100 parts by volume 22-Line	100 parts by volume 923-
A	Hardener	50 parts by volume 929- up to 4 parts by volume 522-20	50 parts by volume 929- up to 2 parts by volume 522-20
	Reducer	10 parts by volume 352-	10 parts by volume 352-

For additional technical information, refer to specific 923- clearcoat or 22-Line technical data sheets.

Limitations of adding more than the suggested levels are:

- · Increased tendency for solvent popping
- · Lower tolerable bake temperature before solvent popping
- · Increased chance of trapping solvent in film
- Fine wrinkled appearance, known as pinching, evident in clearcoat film. This same appearance is seen when clearcoat is applied extremely thick with very little flash time and cured.

CLEARCOATS

NOTES:

Blending Solvents: 352-500/1500

Having clearcoat overspray out on a blend panel is never a positive situation, nor is having a dry edge when a complete is being sprayed. The purpose of using a blending solvent is to deal with both of these situations. A formulated blending solvent such as 352-500 or 352-1500 (aerosol) is meant to re-wet or dissolve droplets of clearcoat that are starting to flash off, and allow them to flow together to form a smooth consistent surface. Or, in the case a dry patch inside a clearcoat darea, it is able to induce flow to the clearcoat before it becomes too firm.

In some repairs, minor or even no sanding and buffing is required for an acceptably blended clearcoat edge. The two most popular approaches to blending are to blend only the final of the 2-3 coats of clear or blend each coat working inside the previous one.

Successful blending in depends on a few factors, all of which affect how wet the overspray droplets are or if dealing with dry edge, how dry is that clearcoat film.

So what are the most important factors?

- The dry time of the coat before blending
- The choice of clearcoat
- Hardener/reducer combination
- · Temperature of the panel
- The spray gun nozzle size

Take the example of 923-550 with 929-91 typically used in the Small Damage Repair System (SDRS). In a typical scenario, blending must be done within 30 seconds of the last coat being applied for best results. Someone doing repairs outside on a hot panel will blend immediately. A clearcoat like 923-450 can be blended successfully up to 90 seconds, again pending conditions.





CLEARCOATS

Blending Best Practices

The best method for applying a blender is **to be fairly aggressive** with it. This means applying at a close distance especially when using a small spot repair gun (0.8-1.0mm tip).

Dropping your gun pressure (~20-25 psi) helps also to wet up the clearcoat edge. Apply enough material, wet enough, to "melt down" the clearcoat edge fully.

Work a small area at a time using multiple light (1/4-1/3 trigger) strokes. Typically blending is done perpendicular to the clearcoat edge. Move along the edge slowly completing the blend so you don't have to come back and re-apply.

Again, if you are dealing with a hot panel or the edge is drying out too fast, quickly apply a coat of blender along the edge (just to keep it from fully drying out) then come back and work the edge slowly until completely blended out.

Get some lighting behind you and look across panel instead of perpendicular to it so you can see exactly what the blend edge is doing. Keep the light source over the repair by moving your head and body.

Back blend it into the repair instead of out on your blend panel. Haphazardly applying blender too dry will leave a dry clearcoat edge that needs to be sanded and buffed unnecessarily. Applying the blender as aggressively as possible, without it running, leads to the best results.





CLEARCOATS

Clearcoat Matrices

		Hardener	Reducer	Mix Ratio	Pot Life (Hrs.)	Flash (Mins.)	Baking (Mins.)	Polish After (Hrs.)	VOC (Ibs./gal.) (Gm/ltr)	Ideally Suited For
Low VOC										
Low VOC Matte	923-52	929-100, -105, -110, -115, -120, or -130	-45	2:1+30%	3	•	30 @ 60°C/140°F		2.0/250	Fascia, Cladding, custom (suede) flat
Low VOC Klarlack	923-209	929-100, -105, -110, -115, -120, or -130	352-25 or -45	2:1+10%	2-3	1	30@ 60°C/140°F	After cool down	2.0/242	2-3 Panels, overalls (preflexed)
Low VOC Ultimate Clear	923-210	2:1 929-100, -110, -120 or -130 3:1 929-240 or 929-250	352-25, -45, -720 or -740 (2:1) 352-720 or -740 (3:1)	2:1 or 3:1	1-2	10	30@ 60°C/140°F	n/a	2.1/250	Completes
Low VOC Multi-Pur- pose Gloss Clear	923-220	929-100, -105, -110, -115, -120, or -130	352-25 or 45	2:1	3-4	5	30 mins. @ 60*C/140*F	After cool down	2.1/250	Spot repair to completes
Fast Repair Low VOC	923-222	929-100, -105, -110, -115, -120, or -130	352-25 or -45	2:1+10%	1	4	15@ 60°C/140°F	After cool down	1.5/182	1-2 panels, spot repair
Low VOC Multi-Pur- pose Gloss Clear	923-230	2:1 929-100, -105, -110, -115, -120, or -130 <u>3:1</u> 929-245 or -250	<u>2:1</u> 352-25, -45, 720 or 740 <u>3:1</u> 352- 720 or -740	2:1 or 3:1	2-4	5	30@ 60°C/140°F	After cool down	2.1/250	Spot repair to completes
Low VOC Rapid Repair Clear	923-240	929-100, -105, -110, -115, or -120	352-25 or -45	2:1+10%	1	2	15@ 50°C/120°F	After 30 min air dry	2.0/240	1 panel spot repair
Anti-scratch 2.1 VOC HS Clear	923-345	929-346	352-25 or -45	1:1+10%	2	5	35@ 60°C/140°F	After cool down	2.1/250	Repair of Scratch Resistant Finishes
Glamour Production Clear	923-365	929-100, -105, -110, -115, -120, or -130	352-45, -720, or -740*	2:1+20%	1	5	15-20@ 60°C/140°F	2.5	2.1/250	1-4 panel repair

Flash off until matte between coats and before baking.
 = Buffing or polishing will increase the gloss level.
 * See technical data sheet for more information.

CLEARCOATS

		923-27 Rocker Guard	NOTES:
	w.basfrefinish.com	Application: Texture clear for 55- and 90-Line basecoat/ Clearcoat systems and under low VOC clearcoats	
	A braceford MAP	Remarks:	
92 Roc	23-27 ker Guard	 Choose hardener according to temperature and size of object 	
Protection Protection	en vicinita de la telectada de la del factor aco del del factor aco del del factor aco del del factor aco del del del del del del del del del del	Must be clearcoated	
in di scher La tra Tra- Cost	All denominations are associated with the second s	 Should be clearcoated within 30 minutes 	
	Application	Rocker Guard	
	Paint System	B9, B10, C1, C2	
	VOC Ready for Use	2.0 lbs/gal; 250 gms/liter	
> 1	Gravity Cup / Spraying Pressure	HVLP: 1.7 mm / 6 – 8 psi at air cap	
	Number of Spray Coats	2	
	Film Thickness	1.0 – 2.0 mils	
	Mixing Ratio	2:1 100 parts by volume 923-27	
	Hardener	50 parts by volume 929-100, -105, -110, -115, -120, or -130	
	Reducer	N/A	
	Pot life at 68°F/20°C	1.5 hrs	
$\frac{\left\langle \uparrow \right\rangle \uparrow \left\langle \uparrow \right\rangle}{\left\langle \bullet \right\rangle}$	Flash-off at 68°F/20°C	5 mins. between coats 10 – 20 mins. before clearcoating	
	Drying at 68°F / 20°C Drying at 140°F / 60°C	5 hrs. (after clearcoating) 30 mins. (after clearcoating)	
	Infrared short wave Infrared medium wave	N/A N/A	

CLEARCOATS

NOTES:



Application

Paint System

Gravity Cup /

VOC Ready for Use

Spraying Pressure

923-52 Low VOC Matte Clear

Application: Clearcoat used primarily for fascia, cladding and custom (suede) applications.

Properties: Extra matte, plasticized (<10 at 20° angle).

Remarks:

- Suitable for repairing flexible bumper original finishes.
- · Choose hardener and reducer according to temperature and size of object.
- Buffing or polishing 923-52 will increase the gloss level.
- AGITATE BEFORE USE

Clearcoat over basecoat

B9, B10, C1

1.6 lbs/gal; 191 gms/liter

100 parts by volume 923-52

HVLP: 1.2 - 1.3 mm / 10 psi at air cap (max.)

Number of Spray Coats



Mixing Ratio

Hardener

Reducer

Pot life at 68°F/20°C

Flash-off at 68°F/20°C

Drying at 68°F / 20°C Drying at 140°F / 60°C

Infrared short wave Infrared medium wave 10 parts by volume 352-45

1.8 - 2.0 mils

2:1+30%

3 hrs

2

Flash off until matte between coats and before baking.

50 parts by volume 929-100, -105, -110, -115, -120, or -130

5 hrs. 30 mins.

8 mins 10 - 15 mins

CLEARCOATS

	<text><text><image/><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text>	 923-209 Low VOC HS Klarlack Clear Application: HS clear for 2-3 panels and overalls, preflexed and scratch resistant. Properties: High solids content, low VOC, excellent resistance to weathering, Remarks: No flex additive needed for flexible parts. 	NOTES:
	Application	Clearcoat over basecoat	
	Paint System	B9, B10, C1, C2	
	VOC Ready for Use	2.0 lbs/gal; 242 gms/liter	
> 1	Gravity Cup / Spraying Pressure	HVLP: 1.3 - 1.5 mm / 10 psi at air cap	
	Number of Spray Coats	2	
	Film Thickness	2.0 - 2.5 mils	
	Mixing Ratio	2:1+10% 100 parts by volume 923-209	
A	Hardener	50 parts by volume 929-100, -105, -110, -115, -120, or -130	
	Reducer	10 parts by volume 352-25 or -45	
	Pot life at 68°F/20°C	2 – 3 hrs	
$\frac{1}{2}$	Flash-off at 68°F/20°C	5 minutes between coats	
	Drying at 68°F / 20°C Drying at 140°F / 60°C	2 - 2.5 hrs 30 mins.	
R	Infrared short wave Infrared medium wave	8 mins 10 – 15 mins	

CLEARCOATS



923-210 Low VOC Ultimate Clear

Application: HS Clear for 2 coat paintwork.

Properties: Excellent resistance to weathering and yellowing. Very good gloss, hardness and hold out. Does not require reactive reducers.

Remarks:

- Choose hardener according to temperature and size of object to be painted. Drying time will vary accordingly.
- When using 923-210 over 55-Line, the use of 355-55 in the basecoat (10:1:4) is optional.
- For flexible part repair, mix 25% Low VOC Elastifier Additive 522-333 with clear before adding hardener.
- NOTE: up to 4% 522-20 may be added to the RFU mix to speed cure.
- 923-210 can be mixed using one of two possible mix ratios as needed depending on your shop or weather conditions.

• 352-720 is recommended for use in normal to high temps and normal to lower humidities.

- 352-740 is recommended for use in normal to high temps and normal to high humidities.
- To polish or remove dust particles: after 24 hrs. air dry, or when cool after force drying, wet sand with 1200 grit or finer sandpaper and then polish with fine polishing compound and/or liquid polish. Two mils of clearcoat (dry film) must remain over basecoat. If extensive color sanding is anticipated, apply an additional coat of clear.

	Application	Clearcoat over basecoat	
5	Paint System	B9, B10, C1, C2	
	VOC Ready for Use	2.1 lbs/gal; 250 gms/liter	
k	Gravity Cup / Spraying Pressure	HLVP: 1.3 – 1.5 mm / 10 psi at air cap (max.) Conventional: 1.3 – 1.5 mm / 45 – 55 psi	
	Number of Spray Coats	2 medium wet coats	
	Film Thickness	2.0 – 2.5 mils	
	Mixing Ratio	2:1:up to 10% 100 parts by volume 923-210	3:1:up to 20% 300 parts by volume 923-210
7	Hardener	50 parts by volume 929-100, -105, -110, -115, -120, or -130	100 parts by volume 929-245 or 929-250
, , 1	Reducer	up to 10 parts by volume 352-25, -45, -720, or -740	up to 60 parts by volume 352-720, or -740
	Spray Viscosity DIN 4 at 68°F/20°C	15 – 18 s	
	Pot life at 68°F/20°C	1 – 2 hrs.	
\cdot	Flash-off at 68°F/20°C	10 mins. between coats	
\mathbf{b}	Drying at 68°F / 20°C Drying at 140°F / 60°C	2 hrs 30 minutes	
2	Infrared short wave	7 mins.	
2	Infrared medium wave	10 mins.	

CLEARCOATS

	www.basfrefinish.com
	Glastint A trend of BASE -
A	We create charriestry
KV	923-220
X	Low VOC Multi-Purpose Gloss Clear Transparente brillante, multiuso de bajo COV Vernis transparent brillant, universel à faibles niveaux de COV
	An one biochaine Biochaine an
	Carther / Nor Context / Context on 3.5 (Nov. / 172155, Soliton: 4 522282* 02252* 3

923-220 Low VOC Multi-Purpose Gloss Clear

Application: 2 component clear for topcoating Glasurit basecoat colors.

Properties: Excellent resistance to weathering and yellowing. Excellent flow, leveling and sag resistance. High gloss.

Remarks:

- Choose hardener and reducer according to temperature and size of object to be painted. Drying time will vary accordingly.
- To polish or remove dust particles: wet sand with 1200 grit or finer sandpaper and then polish with fine . 1: . . . : .1



Reduce

Flash-o Drying Drying at 140°F / 60°C

30 mins.



	polishing compound and/or liquid polish. Two mils of clearcoat (dry film) must remain over basecoat. If extensive color sanding is anticipated, apply an additional coat of clear.	
	 For flexible part repair, mix 25% Low VOC Elastifier Additive 522-333 with clear before adding hardener. 	
	 Please note that when flexing this product the dry time will be slower. 	
Application	Clearcoat over basecoat	
Paint System	B9, B10, C1, C2	
VOC Ready for Use	2.1 lbs/gal; 250 gms/liter	
Gravity Cup / Spraying Pressure	HVLP: 1.4mm / 9 psi at air cap	
Number of Spray Coats	2 medium wet coats	
Film Thickness	2.0 - 2.5 mils	
Mixing Ratio	2:1 100 parts by volume 923-220	
Hardener	50 parts by volume 929-100, -105, -110, -115, -120, or -130	
Reducer	No reducer is required however up to 10 parts of 352-25 or -45 may be used.	
Pot life at 68°F/20°C	3 - 4 hours at 68°F/20°C	
Flash-off at 68°F/20°C	5 min. between coats	
Drying at 68°F / 20°C	2 hrs.	

CLEARCOATS

NOTES:



Mixing Ratio

Hardener

Reducer

Pot life at 68°F/20°C

Flash-off at 68°F/20°C

Drying at 68°F / 20°C

Infrared short wave

Drying at 140°F / 60°C

923-222 Fast Repair Low VOC Clear

Application: Fast clear for 1-2 panels and spot repair. Must catalyze 55-Line and 90-Line basecoats.

Properties: Excellent resistance to weathering and yellowing. Excellent flow, leveling and sag resistance. High gloss.

Remarks:

- When using 923-222 over 55-Line, use 355-55 (10:1:4).
- For flexible part repair, mix 25% Elastifier Additive 522-111 or Low VOC
- Elastifier Additive 522-333 with clear before adding hardener.

Clearcoat over basecoat

B9, B10, C1, C2

1.5 lbs/gal; 182 gms/liter

HVLP: 1.3 - 1.5 mm / 9 psi at air cap Conventional: 1.3 - 1.5 mm / 45 - 55 ps

2 - 3

2.0 - 2.5 mils

2:1+10% 100 parts by volume 923-222

50 parts by volume 929-100, -105, -110, -115, -120, or -130

10 parts by volume 352-25 or -45

45 mins – 1 – 2 hr

2 - 5 minutes between coats

2 hrs. 15 mins.

6 - 7 mins

CLEARCOATS



923-230 Low VOC Multi-purpose Gloss Clear

2:1 Mixing ratio

Application: 2 component clear for topcoating Glasurit basecoat colors.

Properties: Fast drying, excellent hold-out under all environmental conditions.

Remarks:

- Choose hardener according to temperature and size of object to be painted. Drying time will vary accordingly.
- For flexible part repair, mix 10% Low VOC Elastifier Additive 522-333 with clear before adding hardener.
- NOTE: up to 4% 522-20 may be added to the RFU mix to speed cure.
- 923-230 can be mixed using one of two possible mix ratios as needed depending on your shop or weather conditions.
- 352-720 is recommended for use in normal to high temps and normal to lower humidities.
- 352-740 is recommended for use in normal to high temps and normal to high humidities.
- Spot and panel repair recommendation is not to be used if shop temp is over 75°F / 24°C.
- To polish or remove dust particles: after 24 hrs. air dry, or when cool after force drying, wet sand with 1200 grit or finer sandpaper and then polish with fine polishing compound and/or liquid polish. Two mils of clearcoat (dry film) must remain over basecoat. If extensive color sanding is anticipated, apply an additional coat of clear.

	Application	Over all and multi panel repair	Spot and panel repair
	Paint System	B9, B10, C1, C2	
	VOC Ready for Use	2.1 lbs/gal; 250 gms/liter	
K	Gravity Cup / Spraying Pressure	HLVP: 1.3 – 1.5 mm / 9 - 10 psi at air cap (max.)	
	Number of Spray Coats	2 medium wet coats	
	Film Thickness	2.0 – 2.5 mils	
:	Mixing Ratio	2:1: + 10% 100 parts by volume 923-230	2:1:up to 30% 100 parts by volume 923-230
$\overline{\mathcal{A}}$	Hardener	50 parts by volume 929-100, -105, -110, -115, -120, or -130	50 parts by volume 929-100
	Reducer	up to 10 parts by volume 352-25, -45, -720, or -740	30 parts by volume 352-45 Then add 10% 522-20 by weight to RFU mix.
	Spray Viscosity DIN 4 at 68°F/20°C	13 – 16 s	
	Pot life at 68°F/20°C	2 - 4 hrs	
<u>}</u> ↑/	Flash-off at 68°F/20°C	5 mins. between coats	
	Drying at 68°F / 20°C	2 - 4 hrs	
\checkmark	Drying at 140°F / 60°C	30 mins.	20 mins.
2	Wet Sanding: hand		After cool down. Wet sand with appropriate sand paper. Then buff and polish, consult Gla- surit buff and polish guide for procedure.

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CLEARCOATS



923-230 Low VOC Multi-purpose Gloss Clear

3:1 Mixing ratio

Application: 2 component clear for topcoating Glasurit basecoat colors.

Properties: Fast drying, excellent hold-out under all environmental conditions.

Remarks:

- · Choose hardener according to temperature and size of object to be painted. Drying time will vary accordingly.
- For flexible part repair, mix 25% Low VOC Elastifier Additive 522-333 with clear before adding hardener.
- NOTE: up to 4% 522-20 may be added to the RFU mix to speed cure.
- 923-230 can be mixed using one of two possible mix ratios as needed depending on your shop or weather conditions.
- 352-720 is recommended for use in normal to high temps and normal to lower humidities.
- 352-740 is recommended for use in normal to high temps and normal to high humidities.
- To polish or remove dust particles: after 24 hrs. air dry, or when cool after force drying, wet sand with 1200 grit or finer sandpaper and then polish with fine polishing compound and/or liquid polish. Two mils of clearcoat (dry film) must remain over basecoat. If extensive color sanding is anticipated, apply an additional coat of clear

		anticipated, apply an additional coat of clear.
	Application	Clearcoat over basecoat
	Paint System	B9, B10, C1, C2
	VOC Ready for Use	2.1 lbs/gal; 250 gms/liter
> 1	Gravity Cup / Spraying Pressure	HLVP: 1.3 – 1.5 mm / 9 - 10 psi at air cap
	Number of Spray Coats	2 medium wet coats
	Film Thickness	2.0 – 2.5 mils
	Mixing Ratio	3:1: + 20% 300 parts by volume 923-230
A	Hardener	100 parts by volume 929-245 or -250
	Reducer	60 parts by volume 352-720, or -740
	Spray Viscosity DIN 4 at 68°F/20°C	14 – 16 s
	Pot life at 68°F/20°C	1 – 3 hrs.
<u>)†)†</u> }	Flash-off at 68°F/20°C	5 mins. between coats
	Drying at 68°F / 20°C Drying at 140°F / 60°C	2 - 4 hrs 30 mins.

CLEARCOATS



923-240 Low VOC Rapid Repair Clear

Application: 2 component clear for topcoating Glasurit basecoat colors.

ortion: Excellent onint athoris V . . .

NOTES:

A brand of Lucer	gloss holdout. Excellent flow and leveling. Easy air drying.	
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Application	2 component clear for topcoating Glasuritbasecoat colors.	
Paint System	B9, B10, C1, C2	
VOC Ready for Use	2.0 lbs/gal; 240 gms/liter	
Gravity Cup / Spraying Pressure	HVLP: 1.4 mm / 9 - 10 psi at air cap (max)	
Number of Spray Coats	2 medium wet coats	
Film Thickness	2.0 mils	
Mixing Ratio	2:1 +10% 100 parts by volume 923-240	
Hardener	50 parts by volume 929-100, -105, -110, -115, or -120	
Reducer	10 parts by volume 352-25 or -45 (may be reduced up to 30%)	
Pot life at 68°F/20°C	1 hour	
Flash-off at 68°F/20°C	5 minutes between coats	
Drying at 68°F / 20°C Drying at 140°F / 60°C	30 minutes for buff and polish time 15 minutes	
Infrared short wave Infrared medium wave	6 – 7 mins	







Hardener



16|

CLEARCOATS

NOTES:













Spraying Pressure Number of Spray Coats

Film Thickness

Mixing Ratio

Hardener

Pot life at 68°F/20°C

Flash-off at 68°F/20°C



Reducer







923-345 Anti-Scratch 2.1 VOC HS Clear

Application: A scratch-resistant HS clear 55-, 90-Line basecoat/clearcoat systems.

Properties: High solids content; scratch-resistant; outstanding weathering and yellowing resistance; excellent finish quality.

Remarks:

- · The addition of the elastifier additive (Glasurit Elastifier Additive 522-111 or Low VOC Elastifier Additive 522-333) will change the scratch resistance characteristics of this clearcoat. As such, Glasurit 923-345 is not recommended for use over flexible parts.
- Suitable for repairing scratch-resistant original finishes.
- · Choose reducer according to temperature and size of object to be painted.
- · You may add up to 2% of 522-10 Rapid Additive for improved through dry and dust free times.

Clearcoat over basecoat

B9, B10, C1, C2

2.1 lbs/gal; 250 gms/liter

HVLP: 1.2-1.3 mm / 10 psi at air cap

2 medium coats

2.0 - 2.4 mils

1:1+10% 100 parts by volume 923-345

100 parts by volume 929-346

10 parts by volume 352-25 or -45

2 hrs

5 mins. between coats

10 hrs. 30 mins.

10 mins.

20 - 30 mins.

CLEARCOATS



923-365 Glamour Production Clear Clear (Low VOC)

Application: 923-365 Glamour Production Clear is a 2 component clearcoat that is compliant in both Low VOC and National Rule markets for topcoat of Glasurit basecoats. 923-365 is designed to meet high throughput demands of shops.

Properties: This clear exhibits the appearance of a glamour clear while reducing "bake cycle time" of the shop. It is ideal for 1-4 panel repairs, very easy application, with a recommended baking condition of at least 15 minutes at 140°F/60°C. Fast drying when baked with excellent hold-out under all environmental conditions.

Remarks:

- Choose hardener and reducer according to temperature and size of object to be painted. Drying time will vary accordingly.
- NOTE: Up to 2% 522-20 may be added to the RFU mix to speed cure.
- For flexible part repair, mix 25% by weight Low VOC Elastifier Additive 522-333 with clear before adding hardener and reducer.
- · Vehicle can be immediately recoated, sanded and compounded 2 hours after recommended bake or air-dry times.
- To polish or remove dust particles: when cool after force drying, wet/dry sand with 1500 grit or finer sandpaper and then polish with fine polishing compound and/or liquid polish. Two mils of clearcoat (dry film) must remain over basecoat. If extensive color sanding is anticipated, apply an additional coat of clear.

	Application	Clearcoat over basecoat
F	Paint System	B9, B10, C1, C2
	VOC Ready for Use	2.1 lbs/gal; 250 gms/liter
	Gravity Cup / Spraying Pressure	HVLP: 1.2-1.4 mm / 9 - 10 psi at air cap High Efficiency: 20 - 29 inlet
	Number of Spray Coats	2 med coats
	Film Thickness	2.0 - 2.5 mils DFT/Coverage @ 1 mil=590 - 620 (mils* ft²/gal)
]:[]	Mixing Ratio	2:1+20% 100 parts by volume of 923-365
Â	Hardener	50 parts by volume of 929-100, -105, -110, -115, -120, or -130
	Reducer	20 parts by volume of 352-45, -720, or -740* * If 352-740 is used, reduction should be 10%. Additional 352-45 can be added.
	Pot life at 68°F/20°C	60 mins average - sprayable pot life
<u>/†/†/</u>	Flash-off at 68°F/20°C	5 mins between coats
	Drying at 68°F / 20°C Drying at 140°F / 60°C Sanding/polishing	1.5 - 2.0 hrs 15 - 20 mins. After 2.5 hours air dry or after cool down after bake cycle
R	Infrared short wave	REVO RAPID MC2 program: Flash-Off at 140°F/60°C-3 mins Drying @ 180°F/82°C -6 mins

CLEARCOATS

NOTES:

Booth Air Flow

This is one of the largest variables determining a painter's productivity. Most painters consistently deal with a booth that does not circulate enough air for optimal productivity. A suggest range is 80-100 ft/min (0.3 m/sec). Most booths are rated in the total volume of air they are capable of moving.

To get an estimated value for the velocity use the following equation:

For downdraft: use the rated volume of air and divide by inside height x inside width.

For example if you have a 26' long booth that is 12' wide and the advertised volume is 24,000 cfm. 24000 divided by (26X12) = 77 ft/min.

For cross draft: use the rated volume of air and divide by inside depth x inside width.

For example if you have a cross flow booth that is 28' deep and 12' wide and the rated volume is 36000 cfm. 36000 divided by (28X12) = 107 ft/min.

These values would represent the maximum velocity of air a booth may move. This is often less than what can be expected. The only way to accurately determine booth velocity is to have it measured (with a velometer or anemometer) in a variety of locations accurately identifying dead spots where air velocity is lacking. The easiest way to maintain airflow is to routinely change pit and intake filters in booth. Depending on production, changing pit filters should be carried out roughly every two weeks if not more routinely.

What does this mean to a Painter?

Too little air corresponds to:

· Slow flash of and poor curing for remaining solvent





- · More dirt in topcoats and clearcoats
- · Solvent popping in clearcoats
- · Overspray contaminating other arts/adjacent panels
- Too much air velocity corresponds to: Skinning of solvent base clearcoat causing wrinkling, pinch, or solvent pop
- Trapping solvents in undercoats causing mud cracking

PAINT DEFECTS

Paint Defects, Causes and Remedies

Orange Peel

Description

An uneven texture similar to the skin of an orange

Causes

- Improper gun adjustments and spray technique
- · Hardener and solvent combination used is too fast
- · Topcoat is applied too dry

Prevention

- Adjust air pressure and fan pattern
- Select a hardener & solvent combination that corresponds to the spray temperature

Repair

- Sanding and polishing may help minor conditions
- Severe cases require sanding to a smooth surface and refinishing

Trapped Solvents (Solvent Popping, Boiling) Description

• Bubbles occurring between individual paint layers during the painting process, usually on top surfaces.

Causes

- · Insufficient drying between application coats
- Too long of a purge time before baking
- Too fast of hardener in warmer climates
- Too much material applied at one time
- · Slow hardener mixed with fast reducer
- Too little or too much (skinning) airflow in booth

Prevention

- Proper flash time between coats
- Choose correct hardener according to the temperature
- · Apply the material using the recommended film builds
- · Use the correct hardener and reducer combination

Repair

- Very small blisters showing on the last coat may be sanded and polished
- In extreme cases, remove the paint or clear down to the blisters, re-coat with primer and/or topcoat







PAINT DEFECTS

NOTES:

Loss of Gloss (Poor Holdout, Dieback)

Description

• An uneven and textured topcoat appearance

Causes

- · Insufficient curing of undercoat prior to topcoating
- · Insufficient film build of undercoats
- Excessive film build of topcoats
- Clearcoat applied too wet

Prevention

- Apply primer and topcoat to the recommended film build
- · Allow sufficient flash off and dry times

Repair

· After curing, sand surface and buff/repaint

Runs

Description

• Heavy application of material that runs vertically down a panel

Causes

- · Spray technique was not suitable for the material
- Material was applied too wet
- Flash times were not long enough
- Solvent or hardener were not suitable for the spray conditions

Prevention

- Make sure that the spray equipment is working properly
- · Use the correct application technique
- Use the correct hardener and reducer combination suitable to the spray conditions

Repair

- · Small runs may be sanded out
- Large areas must be completely sanded down and refinished





PAINT DEFECTS

Sand Scratches

Description

· Visible sand marks in the surface of the paint

Causes

- The primer or filler was sanded with paper that was too course
- · Inadequate drying of undercoats

Prevention

- Use recommended grade sandpaper for the paint being used
- Use sealers and guide coats

Repair

Marks in the substrate must be sanded down for new application of primer and/or topcoat

Fisheyes

Description

• Craters or circular dents with raised edges in the topcoat or Intermediate coats

Causes

- Contaminants were not removed from the surface prior to painting
- Oils or water in the compressed air line
- Environmental contamination during paint application

Prevention

- Thoroughly clean the areas to be painted with wax and grease remover
- Drain and clean air pressure regulator and tank daily
- Keep detailing away from paint area

Repair

- Some times it may be possible to sand out very small fisheyes and then polish the finish
- If contamination is severe sand out fisheyes and reapply color







PAINT DEFECTS

NOTES:

Mottling (Clouding, Flooding)

Description

Color distortion resulting from an uneven distribution of metallic flakes

Causes

- · Wet application of topcoat or clear
- Too high or too low air pressure
- Incorrect use of solvents

Prevention

- · Spray evenly applied coats
- Use the recommended spray gun set up for the product being applied
- Reduce and spray in accordance with recommendations

Repair

- · If paint is wet, apply drier coats
- If paint is dry, sand and refinish

Blistering

Description

 Moisture bubbles occurring between individual paint layers during the painting process

Causes

- Inadequate surface cleaning prior to coating (contamination by salts, hand sweat, rust, sanding water residue etc.)
- Not allowing undercoats to dry after wet-sanding
- Not draining air line to remove trapped moisture
- Not draining compressor regularly

Prevention

- · Thoroughly clean areas to be painted
- Change wet-sanding water frequently (especially in winter)
- Allow wet-sanded areas to dry minimum of 2 hours@
 68 F
- Change to dry sanding
- Drain compressor/lines/desiccant daily

Repair

- Small blisters may be sanded resurfaced and topcoated
- In extreme cases, remove the paint down to the blisters, re-coat with primer and topcoat





PAINT DEFECTS

Wrinkling

Description

 Irregular ridges form on the surface as the last layers of paint dry quicker than the layers below

Causes

- Applying synthetic topcoats too thick
- Unfavorable drying conditions

Prevention

- · Ensure that correct film builds are applied
- · Allow proper drying times for undercoats and topcoats

Repair

- Minor defects can be sanded and refinished after completely drying
- In severe cases the entire paint system must be removed and refinished

Water Spotting

Description

• Circular marks on the surface of the repair

Causes

- Water evaporating on the finish before it is thoroughly dry
- Washing vehicle in bright sunlight

Prevention

- · Use correct mixing ratios and hardeners for topcoats
- Ensure correct drying times and baking temperatures are used before exposing the paint work to moisture
- Wash vehicle in shaded area and wipe completely dry

Repair

- Compound or polish
- Severe cases require sanding of affected areas and refinishing





PAINT DEFECTS

NOTES:

Cracking

Description

• Cracks of different length and width spread in various directions in the topcoat or undercoat

Causes

- Excessive paint film build
- Application over surface where hairline cracks already exist
- Use of incompatible paint materials

Prevention

- · Limit excessive paint film builds
- Remove a previously checked finish
- Only use materials that are recommended for use with each other

Repair

- Sand old finishes until all cracks are removed and repaint as required
- Severe cases may require stripping the finish down to bare metal

Crinkling

- Description
- · Raising or swelling of the wet film

Causes

- · Solvents in the new topcoat attack the old finish
- Improper drying of previous coating

Prevention

- · Allow sufficient flash and dry times
- Seal off the old finish

Repair

The affected areas must be sanded down and refinished





BLEND-IN TECHNIQUES



GLASURIT LVOC CERTIFICATION



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BLEND-IN TECHNIQUES

Introduction

90-Line Blending Products:

"Blend-in" is necessary when the painting of a part would result in a visible color difference. Small spots can be economically repaired by using the "blend in" technique. When used with the Colormax chip system the "blend in" technique provides the painter with the quickest way to a successful color match.

Module Objective

The student will learn how to consistently and efficiently produce a quality finish repair using the Glasurit blend in techniques for 90-Line Basecoat/Clearcoat system.

Enabling Tasks

The student will learn:

- · How to prepare a panel for 90-Line blend in techniques
- · How to prepare OEM Finishes for blending of 90-Line base coat.
- The proper mixing and application of orientation and/or adhesion coats.
- · Proper application of basecoat and clearcoat utilizing the blend-in technique.
- OEM recommendation for blending clears when doing OEM Warranty repairs

BLEND-IN TECHNIQUES

NOTES:

90-Line Two Coat Metallic Systems

In principle, panel repairs with metallic base coats are possible, and, as a rule, it is not necessary to re-spray adjacent body parts. Where color variations are to be expected and where there is no limitation to the areas to be sprayed such as seams or trim strips, it is faster to overcome these differences by blending the spray into the surrounding areas or adjacent part.

1. Pretreatment

- 1. Pre-treat damaged part as usual until topcoat painting step. Clean the undamaged paintwork that is to accept the blend with: Silicone and Tar Remover 541-5/700-10.
- 2. Then sand with: P800-P1000.
- 3. After cleaning with water, clean again with: Silicone and Tar Remover 541-5/700-10

2. Blending In

Blending Clear 90-M5 and 90-M50 are used for blending in 90-Line waterborne basecoats. In addition, 90-M5 is used in some 90-Line 3-stage colors to achieve a translucent effect.

This Blending Clear helps to achieve a smooth homogeneous overspray area in the fade-out zone, avoiding dark shadows around the repair area.

The same spray gun can be used for Glasurit 90-M5 and 90-M50 Blending Clears and 90-Line basecoat without having to be cleaned in between

Shelf life: 12 months from date of manufacture.







BLEND-IN TECHNIQUES

Using 90-M	5/90-M50 as a Uniform Finish Blender	NOTES:
1. Apply one (1) we	et spray coat to the entire panel prior to applying color.	
2. Apply 90-Line co	olor over area being blended.	
3. After proper flas treated with 90-	h time has been observed, apply clearcoat over the entire panel area that has been M5/90-M50 blending clear.	
Use of this proced tween the existing	ure will help ensure an accurate color match and proper inter-coat adhesion be- OEM finish and the Glasurit clearcoat, all while giving you superior performance.	
Note: hardener is	recommended for OEM specifications.	
Mix Ratio		
	2 parts 90-M5/90-M50	
	1 part 93-E3	
***.basfefinish.exm		
RO-INSO Indeg Carry Market		
A second se		
BLEND-IN TECHNIQUES

Blend-in Refinishing System Glasurit® 90-Line Basecoat

Properties:

In principle, panel repairs with metallic basecoat/clearcoat systems are possible, and, as a rule, it is not necessary to respray adjacent body parts. When color differences beyond allowable limits are to be expected and when the areas to be resprayed are not limited by trim strips or edges, the more appropriate method to overcome color differences may be to blend in the damaged area and the adjacent part, if required. This procedure can be considerably more efficient and economical than time-consuming color matching.

Blending-in on the adjacent panel



BLEND-IN TECHNIQUES

Blend-in Refinishing System Glasurit® 90-Line Basecoat



BLEND-IN TECHNIQUES

Blend-in Refinishing System Glasurit® 90-Line Basecoat

Properties:

In principle, panel repairs with metallic basecoat/clearcoat systems are possible, and, as a rule, it is not necessary to respray adjacent body parts. When color differences beyond allowable limits are to be expected and when the areas to be resprayed are not limited by trim strips or edges, the more appropriate method to overcome color differences may be to blend in the damaged area and the adjacent part, if required. This procedure can be considerably more efficient and economical than time-consuming color matching.

Blending-in on the panel being repaired



BLEND-IN TECHNIQUES

Blend-in Refinishing System Glasurit® 90-Line Basecoat

Add 90-M5/90-M50 1:1 to 2:1 with 90-Line Basecoat





When blending is on fade-out areas / clearcoat transition





BLEND-IN TECHNIQUES

NOTES:



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BASF Canada Inc. 5025 Creekbank Rd, 2nd Floor Mississauga, Ontario, Canada L4W 5R2

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C.P. 54900 Tutitlan, Edo de México

basfrefinish.com (800) 825-3000 Color and Technical: (800) 758-2273 *Always refer to basfrefinish.com or your latest Technical Data Sheet for the most up-to-date product information.

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