



The Chemical Company

# Fundamental Automobile Refinishing Concepts

Definitions for common automobile refinishing tasks.

These topics represent the experience of BASF Corporation Automotive Refinish Coatings group. They are intended to be used as a reference by collision repairers, vehicle owners, insurers and other interested parties to support a better understanding of the refinishing process.

For detailed processing instructions, please refer to the appropriate R-M or Glasurit technical manual.

# Fundamental Automobile Refinishing Concepts

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## 1. **Blending and or Tinting for Color Match:**

BASF recommends blending into an adjacent undamaged panel whenever the panel being repaired / replaced has color applied to the entire surface, or color is applied to the part of the panel that borders an undamaged panel.

There is a limit to the amount of color tone variance that can be overcome by blending. When the variance is too great to successfully blend, adjusting the color by “tinting” is recommended. Tinting a color to a “panel match” can require an unpredictable amount of time and still may not produce the same undetectable repair that can be achieved by blending. For this reason, we recommend tinting a color to the point that it can be successfully blended.

## 2. **Spot Repair:**

Spot repair on a basecoat/clearcoat finish is defined as applying color only to the damaged area and then blending the repair paint into the original so that no transition can be detected. The clearcoat is then applied to the entire panel. The goal is to keep the actual repair as small as possible to avoid having color directly next to an undamaged panel(s). This will minimize color mismatch.

## Fundamental Automobile Refinishing Concepts

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### 3. **Clearcoat Blending:**

BASF recommends applying the specified amount of clear to the entire panel when doing Basecoat/Clearcoat repairs. This will make the repair eligible for the Glasurit or R-M lifetime warranty.

Because there are situations when clearcoating an entire panel is not possible, when a roof and a quarter panel have no break-off point for example, BASF has developed processes and products for blending clearcoats. These processes and products can be found in the Glasurit and R-M technical manuals.

Blending the clearcoat requires that the thickness of clear be reduced in the blend area. This can result in the clearcoat blend edge becoming visible after a period of exposure to sunlight and weather. The blend edge can also become visible if it is polished too aggressively.

For these reasons, BASF will not warrant the blended edges of clearcoats. Blending procedures recommended by BASF are intended as a cost saving measure in those instances where an economical repair is required.

### 4. **Flexible / non metal parts:**

BASF recommends using separate and distinct products and processes when refinishing flexible or non-metal parts. Beginning at the preparation stage, the process is considerably different between metal parts and flexible parts. Flexible parts require a more thorough cleaning than metal parts using products specially designed for this purpose. Sanding requirements are different for non-metal substrates. Because many flexible substrates can deform at relatively low temperatures, force dry temperatures can be different than metal parts. Because of this, it is usually better to paint flexible parts separately from metal ones.

In addition to matching the color, gloss and texture of the original finish, flexible parts must also be able to deform when “bumped” and resist chipping and cracking. This requires special adhesion promoters for bare substrates and flexible additives combined with primers and clearcoats. These products and processes are detailed in our technical application manuals. These processes must be followed in order to achieve the same level of performance as the original equipment finish.

While it is technically possible to use primers and clearcoats mixed with flexible additives on a metal part, BASF does not recommend this procedure. Doing this would unnecessarily increase the cost of paint materials used. Also, since “flexed” products typically require longer flash off times, total paint processing time will increase resulting in reduced paint shop productivity

## Fundamental Automobile Refinishing Concepts

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### 5. **Molding / Trim Removal**

Removing moldings will improve the appearance of a repair and ensure it is undetectable. In order to obtain proper adhesion, existing paintwork must be thoroughly cleaned and sanded before applying repair paint. This can be difficult or even impossible if the moldings are not removed. Also, painting right up to a molding can leave a paint edge that is visible after the repair is completed. Moldings should be removed whenever possible to insure the repair looks and performs the same as the original finish.

### 6. **Underhood Repair Process:**

BASF recommends applying catalyzed solvent borne basecoat without clearcoat to underhood and other interior areas that originally were not finished in the exterior BC/CC system. This system produces the same color tone, gloss and physical performance characteristics as the OEM finish.

When using waterborne basecoats, the color is mixed with a tinted transparent catalyzed sealer to achieve the desired finish characteristics.

### 7. **Single Stage Finishes:**

BASF offers single stage finishes that are matched to OEM BC/CC finishes. These finishes can be used as an economical alternative for the repair of older vehicles. They will not however, offer the same level of durability as a BC/CC finish.

### 8. **Polishing and Color Sanding:**

BASF recommends polishing, sanding and or de-nibbing to remove dirt inclusions from refinished automotive panels. Sanding finishes to match the texture of existing paintwork is also recommended as long as the minimum amount of clearcoat thickness is maintained.

While refinishing automotive panels with zero dirt inclusions is possible in theory, it rarely happens in actual practice. Following best practices for cleanliness in paint processing areas, and equipment maintenance can minimize this problem and should never be disregarded, but in the overwhelming majority of repairs, some dirt is inevitable.

Detailed guidelines for polishing clearcoats and topcoats can be found in the R-M or Glasurit technical data sheets and technical reference manuals. These documents can also be found online at [BASFRefinsh.com](http://BASFRefinsh.com)

## **Fundamental Automobile Refinishing Concepts**

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### 9. **Tintable Primers and Sealers:**

BASF basecoats are designed to achieve full hiding in 2 to 3 coats. In a small percentage of colors, achieving full hiding can require additional coats. In these cases a tintable primer or sealer can be used to reduce the number of coats required to reach full hiding.

### 10. **Glass Adhesion to Repaired Areas:**

In order to insure the proper adhesion of glass to repaired areas, BASF recommends masking off the area where the glass bonding material will be applied so that no repair paint is applied over that surface. In the event a repair is required in this bond area, it should be properly repaired and any bare metal primed with epoxy primer only. No other coatings should be applied over the epoxy primer.

### 11. **Masking:**

To prevent overspray settling on undamaged parts of the vehicle, the entire vehicle should be covered during priming and painting operations. To minimize dirt in the final finish, all masking materials used in the priming operation should be removed and replaced with clean material prior to final paint application.