



**NATIONAL
PAINTS**

Paint Troubleshooting Guide Book




NUMIX
AUTOMOTIVE COATINGS

Even with proper surface preparation, advanced application methods, and the skill of trained refinishers, paint defects can still occur during automotive refinishing.

For body shop managers, such defects are not just imperfections, they mean lost time, wasted materials, and dissatisfied customers. Identifying the root cause of these issues can be challenging.

Defects may arise from environmental conditions, incorrect application techniques, or other process-related factors.

The Numix Troubleshooting Guide is designed to help you identify, understand, and prevent common paint defects in automotive refinishing.

By studying the examples illustrated in this booklet, you will be able to:

- Recognize specific paint defects and their visual symptoms.
- Understand the most likely causes within your process or environment.
- Apply recommended solutions to prevent these issues in future applications.

With the right knowledge and attention to detail, you can ensure high-quality, durable, and professional refinishing results, every time.

Paint Troubleshooting

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Peeling of refinish paint from the plastic surface. Usually happens after application.



Causes

Prevention

Application on virgin plastic without treatment and proper preparation.	Heat the virgin plastic, rinse with water and then dry.
Substances which cause adhesion problems are left on the substrate to be coated (e.g. Silicone, oil, wax, rust, polishing residue, etc.).	Clean the surface properly. Use Numix Antistatic Degreaser for good results.
Plastic Primer was over dried.	Apply next coat within 5-10 min after plastic primer application.
Wrong Primer used.	Use the recommended primer. Check TDS for proper product selection.

Remedy:

Sand the surface properly. Then repeat the application process.

Adhesion loss can occur in two different ways.

1. There can be adhesion problems to the substrate
2. There can be an inadequate bonding between the individual coats (Inter-coat Adhesion).



Causes

Prevention

Poor quality of painting works. Using dirty cloths, contamination wiped on the surface.	Use always two clothes for cleaning. One to dissolve contamination and other for Wipe of before evaporation.
Substances which cause adhesion problems are left on the substrate to be coated (e.g. Silicone, oil, wax, polishing residue, etc.).	Clean the surface properly. Use Numix Degreaser for good results.
Sanding of the substrate was inadequate	Wash with water and soap and use Numix Degreaser.
Excessive use of binder in basecoat formulation.	Use the amount of binder as per standard formulation.
Excessive coat thickness of basecoat.	Apply the film thickness as per TDS recommendation.

Adhesion Failure, between clear coat and basecoat

Intermediate and final flash-off times of the basecoat was not enough.	Respect the flash off time as per TDS recommendation.
An incorrect primer was applied to the substrate.	Use the recommended primer. Ask nearest Numix technical support for further details.
Wrong mixing of Clear Coat and Hardener.	Mix clear coat correctly. Refer TDS for guidance.

Remedy:

Sand the surface properly. Then repeat the application process.

Paint cracking is when the paint coating splits and crack throughout the paint film thickness.



Causes

Prevention

Excessive film thickness.	Refer TDS for proper film thicknesses guidance.
Component "A" and Component "B" not uniformly mixed	Mix the material thoroughly.
The coating was applied over a previously cracked finish or unstable substrate	Prepare the surface properly and then use Numix Degreaser.
Application of topcoats over NC or oil base paint.	Use the right coating system suitable for your car.
Flash off time too long between the coats.	Respect the flash off time.

Remedy:

The finish needs to be removed from the affected area, repaint the substrate.

Shades of repaired car differs from the standard color.



Causes

Prevention

Improper mixing of color.	Mix the color homogenously.
If car was exposed to sun or poor weather condition original shade may change.	Match the color from the right side of panel. Spray test card before application.
Wrong color formula selection by technician.	Refer to Numix color software for right color formula. Use the Numix spectrophotometer.
Wrong pressure adjustment e.g.: metallic / pearls effects shades sprayed with heavy or low pressure.	Follow the instructions on TDS for right pressure adjustment.
Use of wrong thinner.	Select the correct thinner according to TDS recommendation.
Poor opacity.	Mix the color and make sure the pigment not left on the base of paint can.

Remedy:

Sand the painted area, check the new formula on a test panel first. If color is match than apply on the repair area. Blend in Color if required.

Yellowing of clear coats is a natural phenomenon during weathering processes, as well as from extreme baking conditions.



Causes

Prevention

Poor Quality Clear coat with no UV resistance capacity.	Use the Numix Clear coat. Refer TDS for right selection required for your job.
Dirty Spray gun containing contamination.	Clean the spray gun and equipment.
Hardener with contamination.	Close the hardener cap after use and avoid it from direct sun light.
Incorrect film thickness	Use the correct film thickness.
Finish good primer tinting by body shop's painters or technician.	Use as standard primer, don't mix any additional toner for mixing purpose.

Remedy:

Let the surface be dry properly. Sand and repeat the process.

Large or small particles appears on the paint surface after the application which may appears in different sizes, shapes, types and patterns.



Causes

Prevention

Improper cleaning of substrate prior to application.	Surface must be cleaned and prepared well before starting application.
Air filters or other filter like pocket filter and floor filter too dirty.	Proper maintenance of the spray booth and if required replace the filter.
Pressure of spray booth too low.	Adjust the pressure as per STD requirement.
Contamination in the paint due to skipping of paint straining or filter.	Always use paint strainer.
Masking of car when painting with low quality tapes, newspapers or reused paper.	Use masking tape and good quality of brown masking papers to avoid from dust particles.

Negligence of spray booth housekeeping	Always keep spray booth and surrounding area clean.
Tack cloth was not used to remove dust contamination and poor quality clothes were used.	Highly recommend to use two tack clothes. One for wipe on and second for wipe off.
Painters clothes too dirty	Use head cover and neat suitable spray overall.

Remedy:

If dirt particles are on wet surface can be removed by small needle or by sanding fine sanding papers. For major condition, sand down completely and apply a new finish.

Dull film texture with a granular type effect due to coating substance dries too quickly after excessive solvent evaporation before it reaches the target area.



Causes

Prevention

Excessive air pressure.	Follow the pressure settings as per TDS.
High surrounding temperature or painting area.	Applied on normal temperature or use the thinner with slow drying or retarder.
Spraying too fast.	Be a professional painter and spray as normal. Let the surface to be painted well and respect flash off time between the coats as well.
Holding the spray gun too far from the target area for coating	Apply the paint from a distance of 6 Inch.
Incompatible thinner	Use the right thinner.
Spray gun too dirty, nozzle, fan is not clean well.	Clean the spraying equipment properly.

Remedy:

In solids colors if the defect is minor, just try with compound or polish.
In major defect, sand the area properly and respray.

Visible edge marking/mapping of the lower layer over the upper layer usually caused by putties or primers.



Causes

Prevention

Insufficient drying of putty / primer.	Allow the surface to cure properly.
Finishing with high coarse sanding grit and not proper featheredging.	Use the right grade of sanding grit and do proper featheredging.
Excessive film thickness.	Refer to TDS for proper Film thickness guidance.
Wrong mixing ratio.	Mix the paint as per recommendation.
Excessive sanding and substrate is visible.	Sand the surface properly.
Improper surface cleaning.	Prepare the surface till smooth and no contamination.
Low primer opacity due to insufficient mixing.	Mix the primer well and make sure no settling in the can.

Remedy:

Dry topcoat thoroughly. Sand defect area, isolate and repaint. If necessary, remove all the way to the bare metal. Apply wash primer and respray.

Fish eyes / cratering are circular holes in the paint film that appears during application or after due to contamination.

Contamination may cause due to grease, air, wax, silicon, or dirt etc.



Causes

Prevention

Air supply contains oil or water.	Check the maintenance of air lines regularly. Use a suitable air drier near to air compressor.
Improper substrate cleaning or preparation.	Proper housekeeping of painting areas.
Oil, wax, grease or silicone contamination.	Use the recommended silicon remover.
Usage of silicon containing items e.g. Interior cleaning, polishes or aerosol paint nearby painting area.	It is highly recommended to use always two clothes for cleaning. One to dissolve contamination and other for Wipe off before evaporation. Keep the polishes away from the painting areas.
Poor housekeeping or maintenance of spray booth.	Proper maintenance of spray booth and change the filters within specific time frame.

Remedy:

If fish eyes defect is minor apply mist coat. In severe case, need repainting. Sand the paint smoothly, clean the surface with Numix Degreaser, and respray with the process as required.

Gradually decreasing of gloss on surface when applied fresh paint or apply excessive film thickness of basecoat.



Causes

Prevention

Extra Fast Thinner used in uneven temperature.	Used the right thinner as per your location temperature & atmosphere.
Excessive Topcoat film thickness.	Apply normal coats as recommended on TDS
Topcoat film thickness too less.	Applied as per recommendation on TDS.
Selection of wrong product which may not compatible each other.	Use the right product, refer to TDS.
Poor wax quality, not properly polished, particles of wax still available on surface.	Use good quality wax. Wash thoroughly with hot water, then use Numix Degreaser.

Shrinkage of Primer or clear coat due to Insufficient hardener cross linkage.	Give sufficient time of drying primer or clear coat till ideal hardness. If required use IR or heat.
Inappropriate preparation of intermediate coat paints.	Should be applied a filler surface followed by using a suitable sandpaper grit and uniform pressure and movement.

Remedy:

If the low gloss is minor than try to resolve it by Buffing and polishing.

If extreme, In 1K system, sand with grit paper of 1500-2000 and refinish by repeating process.

Failure of dried paint to hide the under layer film color or surface to which it is applied.



Causes

Prevention

Low film thickness.	Apply film thickness as recommendation.
Poor Lighting in spray booth	Always select the recommended color strength for the spray booth.
Use of the wrong type or nozzle size or poor flow of paint.	Always follow the right nozzle size and spray as per recommendation.
Excessive thinner use.	Use the thinner as per standard recommendation.
Wrong primer color application.	Always use the primary color as per shade of car.

Remedy:

If low opacity appears during application and surface is wet can be recoat till coverage.
If surface dried, the sand it and respray.

Clouding / Mottling appears like dark and light patches/shadows in a metallic finish.



Causes

Prevention

The flash off of the base-coat was too short between coats.	Respect the flash off time. Allow the surface to dry well.
Material was not properly mixed.	Mix properly.
Wrong mixing ratio.	Refer to TDS for mixing ratio guidance.
Spray too wet and gun was close to object.	Keep the distance 6 inches from the object and apply normal film thickness.
Wrong atomization and spray gun setting	Use the correct spraying technique
Application by untrained painter.	Educate the painter and if required give him proper training.
Surface was too cold or hot	Allow the substrate temperature to come down normal.

Remedy:

Sand the defective area and respray.

Uneven surface of the paint film formation resembles with orange peel.



Causes

Prevention

Improper gun adjustment, low air pressure and gun distance is more from object.	Use proper gun adjustments, techniques and recommended pressures. Apply with a distance of 6 Inch.
Higher spray viscosity.	Dilute as per recommended on TDS.
Low quality solvents or unsuitable solvents.	Use the recommended product on TDS.
Excessive temperature in spray area.	Applied on ambient temperature.
Substrate not sanded thoroughly	Prepare and sand substrate correctly.
Improper flash or recoat times between coats.	Allow the film thickness to dry well and respect the flash off time as recommended.

Orange Peel

Excessive film thickness or less.	Apply film thickness as recommendation.
Materials not mixed correctly	Mix the material properly.

Remedy:

If orange peel has slightly effect than rub out followed by compound and polish.
In severe cases it may be necessary repaint the surface.

Uneven paint particles appears on finishing during the application which have not been absorbed or partially absorbed in the surface of the film.



Causes

Prevention

Poor masking of vehicle.	Mask the area which doesn't required paint.
Air pressure too high.	Adjust the pressure according to the requirement.
Improper ventilation.	Check the spray booth air health and do maintenance related work if required.
Dirty spray gun.	Use a clean and proper spray gun.
Use of extra fast drying hardener or thinner.	Refer to product TDS for proper guidance.
Flash off time too long between the coats.	Respect the flash off time.

Remedy:

Let the paint film to be dry properly. After drying, depends defect may cover by polish or need sanding followed by respray.

Small or tiny holes in the surface of finish good which may occurs in the following layers due to excessive film thickness, air, moisture or poor surface preparation.

1. Putty or body filler
2. Primer / Surfacer



Causes

Prevention

Putty: Interruption of air which ensnared in body filler or polyester putty while application. Upon sanding air will release and cause pinholes.	Putties must be mixed thoroughly. First coat must be thin and fill the surface gap till cover.
Primers: Excessive film thickness of primer and no respect of flash off time.	Allow recommended flash off time and always spray with normal film thickness.
Inadequate mixing of body filler, polyester, fiberglass bodies or primers.	Mixed the hardener with the set ratio mention on TDS.
Contamination of air and water in lines.	Maintain the spray booth regularly, check the air flow, ventilation system and gun adjustment as well.
Improper Surface cleaning where moisture left on primer layer which pass through the wet coat of top coat cause this defect.	Thoroughly clean all surfaces and ensure surface is dry

Remedy:

For small pinholes after primer application apply a thin layer of Numix Spot putty on defects. If more pinholes sand it well, than reapply putties or primers and finish till topcoat as recommendation.

Fine scratches most commonly caused by wiping your car with a dry towel (typically when it's dusty) or improper washing and detailing techniques.



Causes

Prevention

Buffing with the incorrect pad or job done by untrained worker.	Need a professional worker for such kind of jobs with the right selection of pads.
Compounding or polishing the object before fully cured.	Let the polish dry properly.
Towels and applicators containing polyester threads.	Always use wool, microfiber cloth or sponge category fine grade pads.
Over pressure / rubbing or speed of polishing machine.	Use mechanical machine at low pressure and speed which make surface smooth.
Low quality polish or wax	Use good quality polish for better results.
Use of dirty water containing dust particles when rubbing.	Always use filtered clean water free from contamination.

Remedy:

Ensure topcoat is dry enough than polish.

If marks are more visible, sand it well with fine grade papers and respray.

When a surface is to be painted with a thick layer of paint, the paint film may run downwards and forms sagging of paint. It is similar to running.



Causes

Prevention

Spray gun was held too close to the surface.	Use correct spray technique and gun settings with a suitable distance.
Inconsistent movements, spray viscosity.	Spray at suitable position and mixed as per TDS recommendation.
Nozzle issue, fan width too narrow, more pressure on gun.	Follow the gun settings as recommend on TDS. Check the health of spray gun.
The substrate was too cold during application.	Settle the substrate at least room temperature.
Use of non-compatible thinner / reducer.	Use the correct temperature.
Excessive number of coats & flash off time	Apply coats as per recommendation on TDS and respect the flash off time.

Remedy:

If paint is dried properly, sand the runs with paper lightly till flat, clean the area with Numix Degreaser and respray with the process as required. If small run down occurs at the stage of application, it might covered by respray when paint is still wet. Usually the metal flakes, metallic paints normally required repainting. Sometimes small runs can be removed with fine sanding paper; than polish the surface.

The reddish brittle coating formed on iron especially when usually come comes in contact with metal.



Causes

Prevention

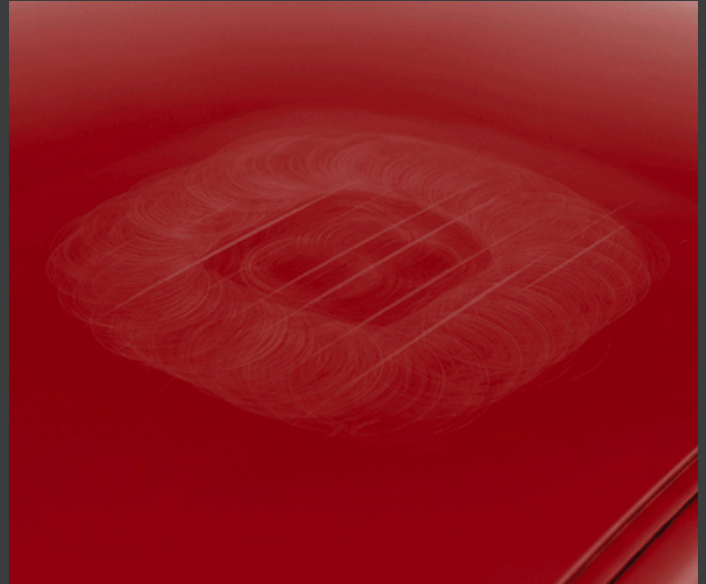
Previous rust was not properly removed.	Remove the rust from surface by sanding and use rust remover.
Surface was not cleaned properly.	Clean the surface with Numix Degreaser.
Application of topcoat directly by skipping putty and primer process.	Respect the primer and putty process and don't skip. Use Epoxy based primers.
Insufficient film thickness of primer.	Refer the TDS for guidance.
Moisture penetration, due to cracks or mechanical damage (e.g. stone chips) to the paintwork, right down to the bare metal.	Seal the gaps by primers / putty whichever is suitable according to defect condition.

Remedy:

Remove all rust thoroughly before refinishing (preferably by sand blasting) and carefully re- clean before repainting. Remove all stone chips and other mechanical damage immediately.

Apply an anti-corrosive Numix Epoxy Primer and complete the painting process as recommend in TDS.

Usually round or linear shape marks in the surface show as lines in the surface of the finishing.



Causes

Prevention

Surface was not properly dried.	Allows the surface to be dry properly.
Sanding paper was too coarse.	Use proper sanding steps. Refer TDS for guidance.
Primer was not cured well and sanded.	Let the primer to be cured properly than do sanding work.
Unprofessional painter who doesn't have much experience.	Train the painters before handling jobs.
Insufficient paint thickness	Refer TDS for proper film thickness guidance.
Use of incompatible or poor quality thinner	Select the right product. Refer TDS OR Ask your nearest Numix technical support for more information.

Remedy:

Sand the defective area and repeat the application process.

Small bubbles in finish layer appears after application due to the air or solvent trapped in the lower primer, basecoat or topcoat layers.



Causes

Prevention

Short flash off time.	Respect the flash off time.
Spray booth temperature increased after spraying vehicle.	Adjust the booth temperature according to requirement.
Excessive film thickness.	Refer TDS for film thickness guidance.
Infrared too fast forced drying or IR too close to object	Use the IR as per recommendation and maintain a safe distance.
Substrate temperature too high.	Observe the temperature and let it to be normal.
Wrong hardener selection.	Use the correct hardener. Refer TDS for guidance.
Compressed air pressure too low.	Refer TDS for guidance.

Remedy:

Remove the damage area and repaint the area.

Paint shrinkage is an application defect that occurs in the paint's surface coat, showing a kind of circle or sinking in the previously coated area.



Causes

Prevention

Excessive film thickness.	Refer to TDS for guidance.
Wrong thinner selection.	Use the correct thinner.
Insufficient drying of primer and putty.	Respect the flash off time.
Wrong mixing ratio.	Mix each product according to standard ratio.
Use of 1K Primers or NC based primer.	Recommend to use 2K primers.
Application at high temperature.	Spray the paint at normal temperature suitable for the substrate.
Sanding of topcoat layers.	Avoid topcoat layer's sanding.
Excessive film thickness of basecoats.	Apply film thickness as per TDS recommendation.

Remedy:

Sand and reprocess again.

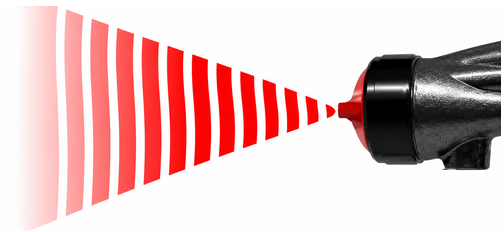
Troubleshooting Spray Gun's Problems



Problem : Fluttering Spray / Paint Sputters

Cause: Insufficient material in cup, material not filtered, fluid nozzle loose, needle Teflon packing damaged, needle & nozzle dirty.

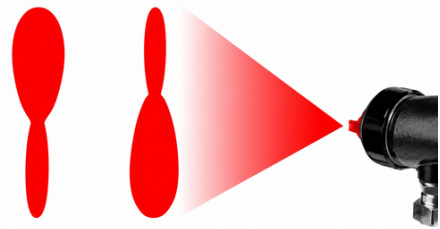
Remedy: Refill cup, filter material, tighten loose parts, and replace Teflon packing, clean needle & nozzle.



Problem : Improper / Wrong Pattern

Cause: Incorrect viscosity.

Remedy: Adjust the viscosity.



Problem: Gun leakage from needle sealing area.

Causes: Teflon packing is damaged or missing.

Remedy: Replace Teflon packing.

Problem: Improper atomization.

Causes: Inlet air pressure too low or material too thick; pressure too high or material too thin.

Remedy: Adjust air pressure and/or product viscosity.

Problem: Gun leakage from fluid tip.

Causes: May stuck needle or damaged, fluid tip damage, screw loose

Remedy: Tight the screw, check if required lubricant needle of needle packing, if damaged replace needle or fluid tip.

