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Common Paint Defects Possible Causes and Corrective Actions

There are several defects that can happen during applications. Users should be aware of cause and effects and strictly follow the guidelines printed on the can or additional documents provided by retailers. For more information, please [contact us](#) at the feedback section. Common paint defects with possible causes and corrective actions are provided in this section.

Faults Defects Causes Corrective Actions

Run & Sags

1) Application too heavy (excessive film build)

Check operator techniques for overload areas.

Check that fluid flows are not too high.

Ensure operator is not spraying too many “passes” per panel and/or too slowly; or applying too many coats.

Ensure viscosity is not too high.

Ensure gun fan width is sufficiently open.

2) Solvent balance too slow (Either in original paint or in thinner)

If in original paint then request reformulation.

If thinner too “wet” or “slow” than change to “faster” or “drier” thinner blend.

3) Atomizing air pressure too low at the gun (poor atomization)

Increase air pressure

Mottle & Flooding (of metallic)

1) Application too “wet”

Check that fluid flows are not too high

Ensure operator is not holding the gun too close to the work.

Ensure there is sufficient air flash time between coats.

Ensure that last coat is applied slightly “drier” than preceding coats.

Ensure the reducing thinner is the correct “blend” for the application.

Ensure the viscosity is correct.

Is the solvent balance of the original metallic product correct?

2) Incorrect atomization

Ensure atomizing air pressure is not too low.

Ensure air cap and nozzle set up in spray guns are correct.

Ensure gun fan width is sufficiently open.

3) Air flow in booth too low

Insufficient air flow over the painted surface does not allow the paint film to “flash off” quickly enough.

If this is the case more air flash time between coats is required.

4) Spray booth and/or paint temperature must be checked frequently occurs in the early morning.

Poor Coverage (poor opacity)

1) Application too light (films build below specifications)

Ensure sprayers apply the correct number of coats.

Ensure fluid flows are not too low

Ensure operators are not applying too few “passes” per panel at too fast a gun speed.

Ensure viscosity is not too low.

2) Opacity of paint as supplied to customer is too low. Withdraw the paint and rectify at laboratory.

3) Paint incorrectly mixed

Check whether the can of paint was correctly mixed during thinning.

Check that the paint is properly mixed in the paint system.

4) Flocculation

Check that incorrect solvent and/or other additive has not been used in the paint. If it is a true original paint fault

Dry Film Appearance

- Excessive orange peel

- Dry spraying

- Textured film

- Tight film appearance

- Poor flow 1) Incorrect spray sequence

Ensure the flash time between coats is not excessive.

Ensure the sprayers operate in unison when spraying horizontals such as vehicle engine hoods etc.

2) Fluid flows too low	Increase fluid flows.
3) Operators holding gun too far from the work	Ensure operators spray at correct gun distance from surface.
4) Viscosity too high	Thin to correct viscosity.
5) Insufficient air movement in both feed and throat	Adjust material flow rate, air pressure, or gun etc. to overcome deficiency as much as possible.
6) Booth and/or work temperature too high	As high
7) Atomizing air pressure too high	Reduce air pressure
8) Reducing thinner too fast	Use "wetter" thinner blend or retarder.
9) Solvent balance of paint as delivered to customer too fast	
10) Substrate not smooth	Ensure base coating etc. is more fully "flatted" before subsequent paint application.
11) Low film build	Refer to "poor coverage" defect.

Solvent Boil

- Solvent popping

- Pimpling

1) Film build too high	Ensure sprayers do not apply too many coats or "overload" certain areas.
2) Fluid flows too high	Reduce viscosity
3) Viscosity too high	Reduce viscosity
4) Air flash between coats too short	Increase air flash time

- 5) Atomizing air pressure too low Increase air pressure
- 6) Application too "heavy & wet" Ensure sprayers readjust spray technique to minimize solvent entrapment the paint film.
- 7) Reducing thinner too "fast" Change to slower thinner blend or add retarder.

8) Oven warm-up zone may be out of balance, i.e. temperature rise too rapid

Correct oven or allow longer flash off time before stoving.

9) Work has been "rerun" and recoated Sand wet blotches to reduce substrate film build before recoating.

Dirt in Finish

1) Combination of paint

Restrain. If unsuccessful replace material.

2) Dirty shop condition

Improve housekeeping of spray booth ovens, clean paint system etc.

3) Poor cleaning of work prior to painting

Improve cleaning by solvent wiping, tack ragging etc.

Concentrate on crevices etc. where hidden dust can blow out during spraying.

Color Off Shades

1) Poor agitation of paint

Stir paint thoroughly

2) Reduction in paint system circulating rate leading to settlement of paint in the lines

Restore full circulation in main supply line and recheck color.

3) Contamination by another color Empty out line, clean the system and recharge with fresh paint.

4) Variation in color between batches

Withdraw paint and reprocess

5) Incorrect application technique (for metallic)

Apply as recommended using correct paint parameters.

Cratering

- Cissing

- Fish eyes

Oil, greases or water is the prime cause of these defects

1) Contaminants carried in the paint

a) Water or oil droplets entering paint drums during thinning or under circulating pumps.

b) Oil droplets in compressed air used for atomization. Faulty in-line traps etc.

2) Contaminants carried on work prior to painting

a) Oil & grease from sanding machines not completely removed from work in solvent wiping areas.

b) Air borne polishing dust etc. settling on work and not being completely removed in solvent wipe area.

c) Contaminated (silicones) air supply-drain into and through air make up house, and deposited on work prior to painting. Particularly at times of production.

d) Contaminated air supply used for blow-off just prior to painting.

3) Airborne contaminants on the wet paint

a) Silicones from new hoses, tire fitting areas, welding nearby, buff polishing dust etc. are major contributors.

b) Paint overspray can cause cratering when mixed qualities or mixed suppliers' materials are being sprayed.

c) Dust particles (particularly dried overspray)

d) Spray guns excessively lubricated.

Seediness

1) Caused by throw out of resin agglomeration of aluminium flake (in case of metallic) or poor dispersion of the pigment.

Corrective action in the customers paint shop is limited to filtering material, but not often successful. Withdrawal and reprocessing is recommended.

2) Overbake

Check that correct metal temperature bake is used.

Yellowing

1) Material sprayed too wet (metallic) particularly the final coat.

Slightly dry-spray the final coat to impart a slight orange peel to the metallic finish.

2) Overbake

Reduce bake to correct limits

3) Insufficient polishing

Repolish

4) Material supplied to customer at below acceptable gloss limits

Withdraw and replace

5) Repair polished when too soft

Ensure repair is dried or baked sufficiently before polishing.

Ensure correct catalyst ratio used if catalyzed repairs.

Blistering

- Pimpling

- Humidity blistering

Typified by pimples in the paint film whenever the weather is very wet or humid.

Preventing action is:

- Ensure surface is clean and free of oil, moisture, etc.

1) Moisture penetrating into the paint films at points where adhesion is weak

Sanding water must be clean and low in soluble.

Ensure operator wear gloves to prevent perspiration markings.

2) Low film thicknesses (particularly on undercoats) thickness of each coat is correct.

3) If blisters area “snail trail”, or similar, over contamination or improper treatment or primer stages

Poor adhesion 1) Contamination occurring during paint processing of contamination

2) Overbake Gross overbaking of one or more of paint coats.

Chippiness (Poor flexibility) Often associated with poor adhesions

1) Overbake Gross overbaking of one or more of paint coats has to be eliminated.

2) Excessive film builds Operate within specified film builds.

3) Poor choice of paint system Re-evaluate customer requirements.