

TROUBLE SHOOTING GUIDE

Determine the Problem. Try to get an understanding of conditions for the coating, the substrate, the facility and as much background information as possible. Here are some questions you may ask to understand all variables:

- What is the temperature of the product? The substrate?
 - Have any additions been made to the product? If so, what and how much?
 - What step in the finishing process did you first see the issue?
 - Have the product containers been left open?
 - Is the coating being applied in even coats, and at proper mils (3-4)?
 - Are the spray guns atomizing and operating correctly? Verify equipment set-up
 - Have air movement conditions changed-higher winds, fans operating, filters changed, etc.?
 - Have the regulators been drained to see if the lines have any water or oil in them?
 - Have the air make-up units had any maintenance done on them recently?
 - What is the viscosity?
 - What are the ambient conditions? Have they changed significantly since the last time product was applied?
1. **Surface Prep:** Surface area must be clean and dust free with a moisture content not to exceed more than 8% prior to application. Proper sanding and keeping the application area free of dust are instrumental to achieve the best results.
 2. All products should be stirred before use and continually agitated while in use for best results.

Issues Covered:

Blisters/Air Bubbles
Blooming
Blushing
Cracking /Cold Checking
Fish Eyes/Craters
Orange Peel
Overspray
Pinholes
Poor Adhesion
Sags/Runs

BLISTERS (Bubbling):

Raised bubbles on the surface of the coating as it cures.

Causes:

- Too heavy of a film build-up of lacquer at one time.
- Lacquer or surface is too hot when sprayed.
- Oven curing is set too hot

Corrections:

- Cut back fluid and air pressure.
- Thin down the lacquer (usually not more than 25% unless specifically recommended by the manufacturer).
- Spray lighter coats.
- Note: When it is over 100 deg. F, it is best to stop and do something else.

BLOOMING:

Film looks bluish, or iridescent.

Causes:

- Uncured oil based finishing materials, and/or incompletely cured oil based stains trapped under the surface of the lacquer.

Corrections:

- Always allow sufficient dry time (for thorough deep drying, not just "dry to the touch ") of oil-based finishing products prior to top coating.
- Extend dry times of oil based products in cold or humid conditions.

BLUSHING:

Film looks whitish, cloudy, or milky.

Causes:

- Moisture trapped in the surface of the lacquer from the spray equipment or atmosphere.

Corrections:

- Add retarder (1A.114) to the coating as needed (and as directed on label/PDS).
- Close doors, - heat rooms, - heat objects being sprayed.
- Use air assist hot spray airless for clear lacquers in summer and winter.

Summer:

- Air pressure to pump should be 40 lbs. air assist should be 20-30 lbs.
- Too much air pressure to pump and air assist can cause tiny bubbles or gassing along the grain.

Winter:

- The same as summer except increase pump pressure to 45lbs., air assist should remain the same.

CRACKING/COLD CHECKING

Coating contains cracks when fully cured. (Usually due to changes in temperature or too much catalyst in the system)

Causes:

- Product applied at a dry film thickness above manufacturer's recommendation.
- Product over-catalyzed.
- Excessive temperature changes to substrate after coated.

Corrections:

- Apply at proper mil thickness.
- Verify catalyst amount and allow to fully incorporate before use.

FISH-EYES. or CRATERING:

A small crater or depression in the film; can appear as isolated cases or in large quantities.

Cause:

- Contamination in the finish or substrate from silicone and oils.
- In refinishing; -- usually from inappropriate wood care products.

Corrections:

- Clean surfaces thoroughly with VM&P Naphtha (only a partial help)
- After paint and finish removal or stripping, clean surface thoroughly with lacquer thinner (1A.519) or VM&P Naphtha (only a partial help)
- Add recommended flow additive, as directed on container
- Maintain equipment and substrates with silicone & oil free maintenance products. (Unless it says it is silicone free, you can bet it has silicone in it.)
- Keep silicones away from all wood & all woodworking tools and machinery.

ORANGE PEEL:

Wood Coating resembles an orange peel when dry.

Cause:

- The film does not flow and level out completely because the lacquer dries too quickly.

Corrections:

- Add small amounts of reducer (use retarder 1A.114 as a last resort) as needed to your lacquer.
- Use a matched and proper lacquer thinner (1A.519 or 1A.406) for your lacquer. Thin not more than 25% unless specified by the manufacturer.
- Spray at 8 - 12 inches from the surface.
- Use as little air pressure as will allow a proper coat of material to be applied.

OVERSPRAY (Graininess):

Rough, pebbly look or sometimes white looking fuzz stuck in the finish surface.

Cause:

- Too much air pressure or bounce-back from spraying too close to the surface; or spraying into blind comers and cubby holes, as in bookshelves or desks.
- Excessive air flow pre-dries the atomized coating before it can reach the surface.

Corrections:

- Add a small amount of recommended reducer (1A.519 or 1A.406) to your lacquer.
- Spray at 8 -12 inches from surface.
- Use as little air pressure as will allow a proper coat of material to be applied.
- Spray in an environment free from gusts or excessive air flow. Control air flow in spray booths to avoid issues.

PINHOLING:

The appearance of numerous small holes in the film.

Cause:

- Moisture in the lacquer when being sprayed.
- Trapped air or bubbling in the surface as coating cures.

Corrections:

- Bleed traps on air lines, bleed compressor tank completely, and make sure air lines are free of moisture on a Daily basis.



- Install a moisture trap and a moisture filter as close to the spray gun as possible.
- Adjust with air release additive or retarder (1A.114) as necessary.

POOR ADHESION

Coating flakes off easily from edges or corners, and may chip off easily with minor impact. Finish lacks durability and rubs, chips, or flakes off easily.

Causes:

- Dry spray; too much air flow across the coating as it cures.
- Incompatible coatings used together in finishing system.
- Improper sanding between coats.

Corrections:

- Adjust product/equipment for above causes.

SAGGING. & RUNS:

Runs and drips of lacquer that collects by gravity in thick ridges.

Causes:

- Over-thinning, or cheap and/or mismatched lacquer thinner.
- Cold surface and/or material.
- Too much material applied per coat or coats applied in rapid succession.
- Worn or damaged spray gun cap, nozzle, and/or needle.

Corrections:

- Adjust product/equipment for above causes.