Mohawk Finishing Products
Division of RPM Wood Finishes Group, Inc.
Solving Common Wood Finishing Problems

Should problems occur, a careful and thorough investigation should be made to determine the exact cause of the problem. Every factor that may have a bearing upon the finishing or coating operation from the wood specie through the rubbing and polishing process should be taken into account. To solve problems, consider and analyze the following factors which impact the end result of your finishing operation.

1. Type of surface.
2. Preparation of surface.
3. Type and brand of washcoat or sealer.
4. Type and brand of stain or filler.
5. Type and brand of thinner used.
6. Percentage of material reduction for each coat.
7. Type and brand of topcoats.
8. Method of application.
9. Drying time between coats and method of drying.
10. Number of coats in each operation.
11. Mixing procedures of material prior to application.
12. Appearance of the goods in the package.
13. Shop conditions:
    a. Cleanliness.
    b. Atmospheric conditions.
    c. Knowledge of finishing practice.
14. Coating manufacture dates, product identification numbers.
15. Equipment variables.
16. Expertise of personnel.

An unclean surface, insufficient drying time for each coat, sealing in moisture, failing to stir the material thoroughly, and unfavorable shop conditions are the usual causes of trouble. Also make sure the environmental conditions, ventilation; temperature and humidity are suitable to insure proper application. Check the spray equipment to make sure that the spray gun and compressor are working properly and that neither oil nor moisture is passing through the air or material lines.

This trouble shooting guide will not only help preempt the cost of unnecessary material or application line adjustments, but also assist in the better use of materials, avoiding potential problems. If the suggested remedies fail to solve your finish quality or applications problems, contact your coatings supplier.

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Common Wood Finishing Problems

Your Check List of Causes and Remedies

PROBLEM	CAUSE	REMEDY
1. Separation of Coating/Coating not in solution.	a. Wrong solvent used	a. If the separation is slight, addition of the proper solvent, along with constant agitation, may correct the problem.
	b. Material subjected to unusual conditions - heat or cold.	b. Keep material at a temperature from 70° F to 75° F.
	c. Over reduction.	c. Follow directions for proper reduction. If material is already over reduced, addition of fresh material will often bring the material back to the proper state.
	d. Reducer added too quickly without sufficient stirring.	d. Add reducer slowly, stirring constantly.
	e. Natural oxidation of material after extended exposure to air.	e. Addition of proper amounts of solvents, plus infusion of fresh material may put the batch into useable condition if oxidation has not proceeded too far. Choose a reducer of greater solvent strength than the coating. ***

If separation is too pronounced, it may not be possible to recover the material into satisfactory condition for use.

PROBLEM	CAUSE	REMEDY
2. Sagging of Film (Curtains or Runs)	a. Sagging is caused by either over reduction or by use of a solvent that evaporates too slowly.	a. Use the proper solvent consistent with the general nature and temperature of the surface to be coated.
	b. Heavy application of a coating.	b. Control amount of material applied to surface.
	c. Draft condition.	c. Eliminate draft.
	d. Strong sunlight causing top drying and consequently, late slipping of film on vertical surfaces.	d. Avoid application in strong sunlight.
	e. Cold weather.	e. Use faster evaporating reducing thinner or bring room temperature up to 75° F.
	f. Dirty air cap and fluid tip.	f. Remove cap and fluid tip and clean.
	g. Gun manipulated too close to surface.	g. Hold the spray gun 6-10 inches from surface.
	h. Failure to release trigger at end of stroke (when stroke does not go beyond object).	h. Release trigger after every stroke.
	i. Gun manipulated at wrong angle to surface.	i. Work gun at right angles to surface.
	j. Fluid pressure too high.	j. Reduce fluid pressure.
	k. Spray application too slow.	k. Speed up movement of gun across surface.
	l. Improper atomization	l. Use larger air cap (internal mix); increase volume of air through horns (external mix).

PROBLEM	CAUSE	REMEDY
3. Lack of Flow	a. Insufficient reduction viscosity too high.	a. Reduce according to instructions.
	b. Use of solvents with fast evaporation rates.	b. If fast evaporation is due to atmospheric conditions, choose a slower evaporating solvent than originally recommended.
	c. Improper atomization of spray gun.	c. Adjust spray equipment/air supply.
	d. Coating application too thin.	d. Apply more material to surface.
	e. Draft condition.	e. Find reducing solvent or blend to provide proper flow in a draft or eliminate the draft.
4. Inconsistent Sheen	a. Flattening not evenly distributed throughout product.	a. Stir product completely and often during the work shift.
5. Cratering	a. Silicone contamination.	a. Locate and eliminate source of contamination and eliminate it. Check wipers, belt dressings, lubricating greases and oils, hand creams, metal and wood polishes, etc., as possible sources.
6. Blistering	a. Topcoat dries on surface before air can be released.	a. Reduce airflow across part, reduce heat in room, retard dry of topcoat.
	b. Filler, glaze or wipe stain not dry.	b. Dry filler, glaze or wipe stain completely before proceeding with topcoats.
7. Pinholes or Bubbling	a. Drafts causing surface drying and forcing the solvent to break through that surface film in order to evaporate.	a. Avoid drafts, reduce viscosity or retard dry of material.
	b. Fine drops of moisture coming through separator in spray apparatus.	b. Clean spraying equipment and purge separator.
	c. Small bubbles from force drying.	c. Lengthen flash time before drying, reduce heat in drying room.

PROBLEM	CAUSE	REMEDY
8. Brown Spots	a. Oil coming through "separator" of spray line.	a. Cleanliness. Bleed the line at least once every shift, or every 8 hours.
9. White Spots	a. Water mixing with the lacquer either through the "separator" or by not having the surface dry.	a. Clean airline and "separator." Be sure surface to be finished is dry. Bleed the line at least once every shift, or every 8 hours.
	b. Flattening paste not thoroughly mixed.	b. Stir completely-strain if needed.
10. Oil Bloom (Cottoning)	a. Coating over a glaze, wiping stain or filler without adequate dry leaving a hazy appearance.	a. Allow longer drying time. Bloom can sometimes be removed by applying a heavily retarded lacquer.
11. Blushing	a. 1. Humid Weather 2. Drafts 3. Poor Thinner 4. Lacquer sprayed when cold 5. Damp spray rooms (generally concrete floors at ground level). 6. Moisture in spray equipment	a. Combination of factors tends to cause blushing & likewise, a com-bination of factors may be used to remedy the difficulty. 1. Close windows & add retarder to thinner or use a higher quality thinner. 2. Bring the lacquer to room temperature. 3. Blushing caused by condensation of water & subsequent evaporation from cold spray rooms can be avoided by warming up the room.

PROBLEM	CAUSE	REMEDY
12. Dirty, Gritty or Seedy Finish	a. Unclean conditions of application area. 1. Dust in paint room. 2. Dirt in air or paint line of spray apparatus.	a. Cleanliness. Rearrange equipment so that any spray dust from booths or other workshop areas does not reach finishing room.
	b. Improper solvent tends to render resin incompatible.	b. Use the proper recommended thinner.
	c. Material has been subjected to extreme cold reducing system compatibility or solubility.	c. Allow material to reach 75° F. before applying. If still seedy, consult your coatings supplier.
13. Orange Peel	a. Material not thinned out sufficiently.	a. Add the correct amount of solvent by measure.
	b. Failure to deposit a wet coat.	b. Check solvent; use correct spread and overlap of stroke.
	c. Spray gun stroke too rapid.	c. Make deliberate, slow spray passes.
	d. Insufficient air pressure.	d. Increase atomizing pressure or reduce fluid pressure.
	e. Using wrong air cap.	e. Select correct air cap for the material and feed.
	f. Spray gun too far from surface.	f. Spray with gun 6-10 inches from surface.
	g. Spray gun too close to surface.	g. Spray gun should be worked 6-10 inches from surface.
	h. Overspray striking a previously sprayed surface.	h. Spray detail parts first; end with wet coat.
	i. Poor thinner.	i. Use better grade of thinner for material.

PROBLEM	CAUSE	REMEDY
	j. Material not thoroughly dissolved.	j. Mix material thoroughly.
	k. Drafts (synthetics & lacquers).	k. Eliminate excessive drafts.
	l. Humidity too low causing rapid dry conditions.	l. Raise humidity of room.
14. Excessive Print	a. Insufficient drying time.	a. Allow longer air-drying.
	b. Heavy coating application.	b. Apply lighter coats or reduce.
	c. Slow drying time due to poor drying conditions.	c. See reference to non-drying or poor drying.
15. Discoloration	a. Presence of foreign vapors.	a. Investigate the nature of vapors which might be present. It will then be necessary to shield off the vapors from contact with the finish.
	b. Iron contamination from application equipment or container contamination.	b. Change to stainless or plastic parts.
16. Excessive Marring	a. Film not completely dried.	a. Allow for more complete air-drying.
	b. Cold application.	b. Most coatings will not cure properly at low temperatures, drying area should be approximately 70° F.
17. Cracking or Crazing of Film	a. Heavy application of coats.	a. Apply only sufficient material to accomplish full covering. Do not exceed 4 dry mils total film thickness.
	b. Mud cracking.	b. Occurs when latex is applied in excess film thickness or dries too quickly after application. Reduce application thickness.

PROBLEM	CAUSE	REMEDY
18. Lack of Adhesion Between Coats	a. Sealer and topcoat not recommended for use together.	a. Use proper system. (A total system is always recommended)
	b. Primer surface may have picked up contamination.	b. Apply finish coat in recommended sequence.
	c. Stain not dry or excess build-up of stain.	c. Dry thoroughly, wipe any excess stain.
	d. Catalyzed finishes-dried too long before sanding and recoating.	d. Follow manufacturers recoat instructions.
19. Lack of Adhesion	a. Unclean surface.	a. Clean carefully with volatile solvent.
	b. Incompatible finish - the finish primer coat is not meant to be used together and the solvent in the finish coat practically lifts the primer from the surface. Even though the film will dry & have good appearance, primary adhesion has been ruined.	b. Insure the recommended primer and finish coat are used together.
20. Lack of Hiding	a. Over reduction.	a. Add fresh, unreduced material to that which has been reduced.
	b. Application on very hot, smooth surface which tends to cause finish to flow off.	b. Use a faster evaporating solvent.
	c. Pigment not properly stirred into suspension.	c. Stir thoroughly to properly distribute pigment.
	d. Slow evaporating solvent, causing too much flow.	D Use faster evaporating solvent.
	e. Improper atomization.	e. Adjust spray equipment.
	f. Low film thickness.	f. Apply more paint via slower passes with spray gun, higher solids (less reduction) or faster thinner.

PROBLEM	CAUSE	REMEDY
21. Spotty Drying	a. Unclean surface, such as wax, silicone or grease.	a. Carefully clean wood surface with volatile solvent prior to coating.
22. Non-Drying or Poor Drying	a. Humid weather.	a. If possible, place in heated drying room.
	b. Cold weather.	b. Maintain a temperature of a least 65°F-75°F which is desirable for normal drying.
	c. Greasy, waxy or otherwise unclean surface.	c. Clean surface carefully with volatile solvents. Dry completely before finishing.
	d. Failure to stir all pigmented finishes into proper suspension before application.	d. Stir the material thoroughly so that liquids and pigments will be evenly dispersed.
	e. If application is over a stained surface, the stain may not be compatible with clearcoats.	e. Use proper stain.
	f. Improper ventilation.	f. Provide ventilation.
	g. An attempt to fill rough wood by applying a heavy coat retards thorough drying.	g. Do not attempt to use finish coat as surfacer. Apply only as a normal wet coat to not exceed 4-5 wet mils total film thickness.
23. Bubbling of Coating (Latex)	a. Temperature too high for application.	a. Reduce temperature.
24. Pump Freeze-up (Latex)	a. Heat build-up in pump causes latex to coagulate.	a. Switch to diaphragm pump.
25. Foaming (Waterborne Coatings)	a. Agitation too rapid.	a. Reduce the amount of agitation.
26. Streaks	a. Dirty air cap and fluid tip.	Remove cap and fluid tip and clean.
	b. Failure to overlap strokes correctly or sufficiently.	b. Follow previous stroke.

PROBLEM	CAUSE	REMEDY
	c. Gun moved too quickly across surface.	c. Take deliberate, slow strokes.
	d. Gun held at wrong angle to surface.	d. Work gun at right angles to work surface.
	e. Gun held too far from surface.	e. Stroke 6-10 inches fro surface.
	f. Air pressure too high.	f. Use least amount of air pressure necessary.
	g. Split spray.	g. Reduce air adjustment or change air cap.
	h. Tipping gun.	h. Spray pattern should strike at right angles.
27. Excessive Spray – Fog/Dry Spray	a. Wrong solvent blend.	a. Usual remedy is to choose a slower evaporating thinner.
	b. Atomizing air pressure too high.	b. Use least amount of compressed air necessary.
	c. Over reduction of material.	c. Use less reduction. Add fresh material to that which has already been over reduced.
	d. Gun held too far from surface.	d. Hold gun at proper distance from work – usually 6-10 inches.
	e. Spraying past the surface of the product.	e. Release trigger when gun passes target.
	f. Wrong air cap or fluid tip.	f. Ascertain and use correct combination.
	g. Fluid pressure too low.	g. Increase fluid pressure.
28. Spray Pattern Bottom Heavy	a. Horn holes partially clogged (external mix)	a. Remove air cap and clean.
	b. Obstruction on bottom side of fluid tip.	b. Remove and clean tip.
	c. Dirt on air-cap seat or fluid-tip seat.	c. Remove and clean seat.

PROBLEM	CAUSE	REMEDY
29. Spray Pattern Heavy to Right	a. Right side of air holes partially clogged.	a. Remove air cap and clean air holes.
	b. Dirt of right side of fluid tip.	b. Remove fluid tip and clean.
30. Spray Pattern Heavy to Left	a. Left side of air holes partially clogged.	a. Remove air cap and clean air holes.
	b. Dirt on left side of fluid tip.	b. Remove fluid tip and clan.
31. Spray Pattern Heavy at Center	a. Spreader adjustment value set too low.	a. Increase volume of air by opening spreader adjustment valve.
	b. Atomizing pressure too low.	b. Increase pressure.
	c. Material of too great viscosity.	c. Thin material with suitable thinner.
	d. Fluid pressure too high for air cap's normal capacity (pressure feed).	d. Reduce fluid pressure.
	e. Fluid tip too large for material used.	e. Use smaller fluid tip.
32. Spray Pattern Split	a. Air and fluid not balanced.	b. Reduce width of spray pattern.
	b. Air cap or fluid tip dirty.	b. Remove and clean.
33. Excessive Material Usages	a. Not triggering the gun at each stroke.	a. It should be a habit to release trigger after every stroke.
	b. Gun held too far from surface.	b. Hold gun at right angle to surface, 6-10 inches from surface.
	c. Gun held too far from surface.	c. Work gun at right angle to surface.
	d. Wrong air cap or fluid tip.	d. Use correct combination.
	e. Depositing material film of irregular thickness.	e. Learn to calculate depth of wet finish film.

PROBLEM	CAUSE	REMEDY
34. Material does not Flow from Spray Gun	a. Exhausted paint supply.	a. Add paint.
	b. Grit, dirt, paint skin, etc. blocking air cap, fluid tip, fluid needle or strainer.	b. Clean spray gun thoroughly and strain paint; always strain paint before.
35. Material does not Flow From Suction Cup	a. Dirty air cap or fluid tip.	a. Remove air cap and fluid tip and clean thoroughly.
	b. Clogged air vent on cup cover.	b. Remove obstruction.
	c. Wrong air cap.	c. Ascertain and use correct set-up.
	d. Leaky connections on fluid tube, air cap or fluid tip.	d. Check for leaks under water and repair.
36. Material does not Flow from Pressure Tank or Pressure Cup	a. Lack of proper air pressure in pressure tank or cup.	a. Check for air leaks or lack of air entry; adjust pressure for sufficient flow.
	b. Air intake opening inside pressure tank or cup lid clogged by dried up paint. This is a common problem.	b. Clean air in-take opening periodically.
	c. Leaking gasket on tank or pressure cup lid.	c. Replace with new gasket.
37. Gun Sputters Constantly	a. Fluid tip not tightened to spray gun.	a. Tighten securely, using a good gasket.
	b. Leaky connection on fluid tube or fluid needle packing (suction gun)	b. Tighten connections; lubricate packing.
	c. Lack of sufficient material in container.	c. Refill container with material.
	d. Tipping container at an angle.	d. If container must be tipped, change position of fluid tube and keep container filled with material.
	e. Obstructed fluid passageway.	e. Remove fluid tip, needle and fluid tube and clean.

PROBLEM	CAUSE	REMEDY
	f. Material too heavy (suction feed)	f. Thin material.
	g. Clogged air vent in cup lid (suction feed)	g. Clean.
	h. Dirty or damaged coupling nut on cup lid (suction feed)	h. Clean or replace.
	i. Fluid pipe not tightened to pressure tank lid or pressure cup cover.	i. Tighten; check for defective threads.
38. Material Leaks From Spray Gun	a. Fluid needle packing too tight.	a. Loosen nut; lubricate packing.
	b. Fluid needle packing dry.	b. Lubricate needle and paking frequently.
	c. Foreign particle blocking fluid tip.	c. Remove tip and clean.
	d. Damaged fluid tip or fluid needle.	d. Replace fluid needle with correct size for fluid tip being used.
	e. Broken fluid needle spring.	e. Remove and replace.
39. Material Leaks Fluid Needle Packing Nut	a. Loose packing nut.	a. Tighten packing nut.
	b. Dry fluid needs packing.	b. Remove and soften packing with a few drops of light oil.
40. Spray Pattern Top-Heavy	a. Horn holed partially plugged (external mix)	a. Remove air cap and clean.
	b. Obstruction on topside of fluid tip.	b. Remove and clean.
	c. Dirt on air cap seat or fluid tip seat.	c. Remove and clean seat.

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