



# Liquid Coatings Troubleshooting Guide

1. Runs or Sags	
Paint pulling down and causing visibly thicker areas	
Potential Cause	Resolution
Paint film too thick	Lower fluid flows or increase applicator speed
Paint is too thin	Add unreduced paint to the system or add thickening agent
Ambient temperature is low	Increase ambient temperature; if not possible, increase reduction solvent speed
Paint temperature is low	Increase paint temperature
Used wrong solvent for reduction	Switch to a fresh container of paint; work off mis-hit paint slowly in good paint
Atomization air is too low	Increase atomization and fan pressures to normal settings
Oven is not hot enough	Adjust oven to the correct temperature
Needle/nozzle/tip bad	Change the needle, nozzle or tip so the paint receives proper atomization

2. Craters or Fish Eyes	
Paint has holes or craters in the continuous film	
Potential Cause	Resolution
Contamination in the paint	Test fresh paint with off-line equipment, convert if good; test system paint in a different environment; adjust with crater eliminating additive
Poor part cleaning	Ensure cleaning process is running normally; ensure cleaning rags are changed often
Overspray from other products on the line	Increase distance between incompatible products; increase booth air flow; increase paint robustness with additives
Contamination in the painting environment	Test system paint in a different environment; remove contaminant from the system; adjust with crater-eliminating additive
Equipment maintenance introduced contaminant	Clean/flush equipment until cratering is gone
Application process has changed to allow more flow of the coating	Change the process to have a drier application so product has less flow
New items introduced to environment	Remove new items; different gloves, new cleaners or even personal products like perfumes and deodorants

3. Poor Cure	
Paint mars or is tacky after full bake	
Potential Cause	Resolution
Oven is not hot enough	Adjust oven to the correct temperature
Isocyanate blend ratio is off	Confirm ratio is correct
Catalyst was not added at correct level	Add catalyst to increase paint cure rate; remove pot-life extender from formulation
Paint will not cure at preferred oven settings	Add catalyst to increase paint cure rate; remove pot-life extender from formulation
Paint hit with too much slow solvent	Increase speed of solvent blend
Used wrong solvent for reduction	Switch to a fresh container of paint; work off mis-hit paint slowly in good paint

4. Rough Appearance	
Paint has a rough appearance, similar to an orange	
Potential Cause	Resolution
Poor atomization	Lower fluid flows or increase atomization air pressure
Paint is too thick	Add fast solvent to the paint for adequate break-up
Paint temperature is low	Increase paint temperature to ambient conditions
Used wrong solvent for reduction	Switch to a fresh container of paint. Work off mis-hit paint slowly in good paint
Paint needs increased flow on part	Add small amount of tail solvent, too much will cause sags
Needle/nozzle/tip bad	Change the needle, nozzle or tip so the paint receives proper atomization

5. Dirt	
Paint has defect that rises from surface or disrupts it	
Potential Cause	Resolution
Poor cleaning before starting to paint	Ensure that parts are clean before entering the paint booth
Contamination in the paint	Test fresh paint with off-line equipment, convert if good; test system paint in a different environment
Overspray from other products on the line	Increase distance between products; improve booth air flow
Contamination in the painting environment	Test system paint in a different environment; remove contaminant from the process
Equipment maintenance introduced contaminant	Clean/flush equipment until dirt is gone; flushing lines can cause previous material in lines to come loose so use a large amount of good flush solvent
Overhead line equipment is dirty	Clean overhead line to minimize falling dirt
Booth air is contaminated	Ensure booth air is filtered adequately before entering the application area; ensure booth air balance is correct so only filtered air enters booth

6. Incorrect Gloss	
Paint has incorrect gloss, high or low	
Potential Cause	Resolution
Poor atomization	Lower fluid flows or increase atomization air pressure
Isocyanate blend ratio is off	Confirm ratio is correct
Ensure paint is completely mixed	Agitate paint container to ensure all of the solids are in suspension; switch to a recently agitated container of paint
Used wrong solvent for reduction	Switch to a fresh container of paint; work off mis-hit paint slowly in good paint
Paint flows too much on part	Add fast solvent or increase atomization pressure so paint sprays drier
Needle/nozzle/tip bad	Change the needle, nozzle or tip so the paint receives proper atomization

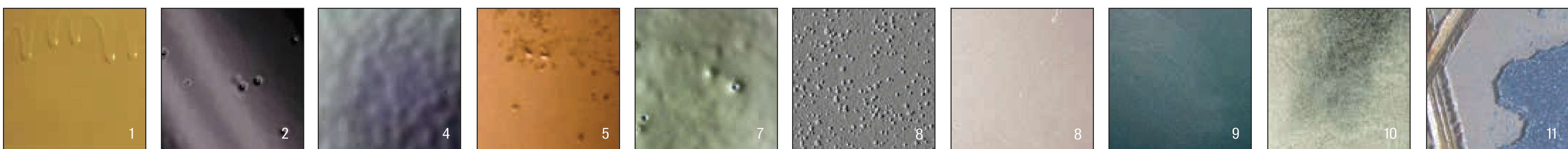
7. Popping/Air Entrapment	
Paint contains bubbles, some have popped on the surface	
Potential Cause	Resolution
Paint film too thick	Lower fluid flows or increase applicator speed
Oven heats painted parts too fast	Lower the oven temperature; slow the air temperature ramp-up speed; add tail solvent to the paint to hold the surface open longer; increase flash time before oven
Substrate is hot during paint application	Decrease part temperature before paint application; add tail solvent to the paint to hold the surface open longer
Ambient temperature is outside normal range	Revise paint solvent blend based on temperature: slow solvent for hot temperatures and fast solvent for cold temperatures
Ambient humidity is too low	If humidity cannot be controlled, adjust solvent blend
Used wrong solvent for reduction	Switch to a fresh container of paint; work off mis-hit paint slowly in good paint
Atomization pressure is too low	Reset atomization and fan pressures to normal settings

8. Overspray Melt-in	
Paint has dirt that is the same color as main coating	
Potential Cause	Resolution
Touching up low-film areas too long after the original paint coating is applied	Decrease time between painting and wet touch-up; add slow solvent to the paint to hold the surface open longer; if urethane, add pot-life extender
Booth air flow draws overspray to painted areas	Paint areas upstream of booth air flow first, top and opposite sides first
Part temperature is too high	Decrease part temperature; add slow solvent to the paint to hold surface open longer
Used incorrect solvent (too fast) for reduction	Switch to a fresh container of paint; work off mis-hit paint slowly in good paint
Paint temperature is too high	Control temperature of paint kitchen and paint lines
Ambient temperature is too high	Control temperature of booth; change solvent reduction as ambient temperature changes

9. Telegraphing	
Paint surface shows defect from previous layer	
Potential Cause	Resolution
Sanding/rework of previous layer too course	Use a finer grit sandpaper for final substrate preparation
Paint layer is too thin	Increase film to specification
Used wrong solvent for reduction	Switch to a fresh container of paint; work off mis-hit paint slowly in good paint
Paint needs to flow less on part	Increase speed of reducing solvent
Wrong additive package used	Ensure correct additives are in paint; additives that decrease flow will hide telegraphing
Needle/nozzle/tip bad	Change the needle, nozzle or tip so the paint receives proper atomization

10. Mottling/Striping	
Paint has different color and/or gloss in different areas	
Potential Cause	Resolution
Paint film build varies on part	Change pathing and trigger points to get even film
Paint viscosity is too low (dry mottle)	Add slow solvent or more unreduced paint to the system
Paint viscosity is too high (wet mottle)	Add fast solvent to get a drier spray
Paint temperature is low (wet mottle)	Increase paint temperature
Used incorrect solvent for reduction	Switch to a fresh container of paint; work off mis-hit paint slowly in good paint
Atomization air is too low (wet mottle)	Return atomization and fan pressures to standard settings
Atomization air is too high (dry mottle)	

11. Poor Adhesion	
Paint does not have adhesion to previous paint layers or substrate	
Potential Cause	Resolution
Poor cleaning before starting to paint	Ensure that parts are clean before entering the paint booth
Contamination in the paint	Test fresh paint with off-line equipment, convert if good; test system paint in a different environment
Part reworked too many times	Limit the number of times a part can be reworked
Contamination in the painting environment	Test system paint in a different environment; remove contaminant from the process
Equipment maintenance introduced contaminant	Clean/flush equipment until contaminant is gone



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