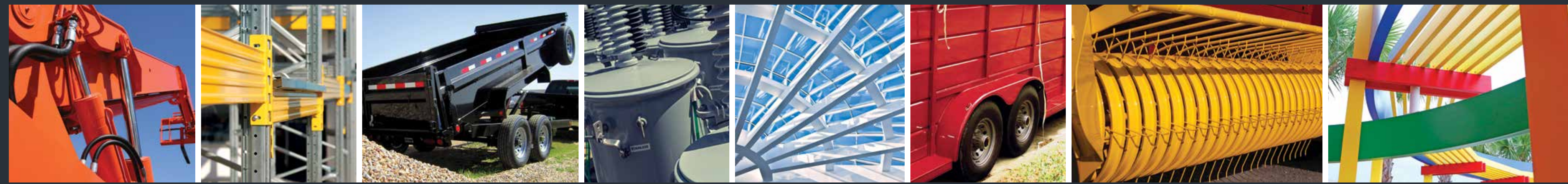


POWDER COATINGS TROUBLESHOOTING GUIDE



POWDER FEED – POOR FLUIDIZATION		
PROBLEM	CAUSE	REMEDY
FLUIDIZED BED: no air circulation through the powder paint; no surface air circulation	Insufficient air pressure	<ul style="list-style-type: none"> Check air supply. Increase air pressure to fluidizer
	Inefficient container membrane; does not allow correct fluidization	<ul style="list-style-type: none"> Check fluidizing membrane for plugged pores from oil in air supply Check that the agglomerates tube in the carton is free of agglomerate; turn on the vibrator
	Agglomeration: Lumps in the powder caused by humidity or heat	<ul style="list-style-type: none"> Mix the powder manually before operating
RAT-HOLING: The powder coating does not fluidize evenly and forms volcanoes and air holes	Powder level in hopper too low	<ul style="list-style-type: none"> Add powder until hopper is 60-70% full when fluiding air is on
	Packed or moist powder	<ul style="list-style-type: none"> Manually stir powder with paddle or clean, dry air. If powder is moist, add fluidising additive
	Problem with membrane	<ul style="list-style-type: none"> Check bottom of bed for obstructions, plugged pores or damage to membrane
DUSTING: Powder blowing out of hopper	Excessive air pressure on the fluidizer	<ul style="list-style-type: none"> Adjust air regulator to lower pressure to fluidizer
	Powder too fine	<ul style="list-style-type: none"> Decrease the recovery powder and increase the virgin powder Contact your Sherwin-Williams representative to have the particle size distribution checked

POWDER FEED – TRANSPORT HOSES AND CONNECTED PUMP		
PROBLEM	CAUSE	REMEDY
POOR POWDER FEED	Damaged feed hoses. Avoid hoses that are too long, kinked or flattened	<ul style="list-style-type: none"> Repair or replace as needed Avoid sharp bends
DISCONTINUOUS FLOW OR INTERRUPTION OF THE FLOW	Insufficient air pressure or volume	<ul style="list-style-type: none"> Check air supply. Ensure adequate air supply is constant
	Kinked powder hoses	<ul style="list-style-type: none"> Check powder feed hoses
	Pump, venturi tubes, hoses or guns clogged with powder	<ul style="list-style-type: none"> Adequately clean each area of passage of the powder coating Check air supply for oil or moisture, which causes powder compaction
	High humidity in powder application area	<ul style="list-style-type: none"> Check and adjust humidity as needed
IMPACT FUSION: Fusion of powder in pipes and guns	Excessive buildup	<ul style="list-style-type: none"> Clean and replace parts
	Air pressure	<ul style="list-style-type: none"> Turn air settings down on pumps and guns
	Oil or moisture in air supply	<ul style="list-style-type: none"> Check air supply for clean, dry air
	Worn venturi tubes	<ul style="list-style-type: none"> Replace as needed
	Powder too fine	<ul style="list-style-type: none"> Reduce recovery: change the ratio between virgin and recovery Contact your Sherwin-Williams representative to have the particle size distribution checked

APPLICATION BOOTH		
PROBLEM	CAUSE	REMEDY
POWDER COMES OUT FROM SPRAY BOOTH (Inadequate air flow through booth)	Broken or clogged filter cartridges	<ul style="list-style-type: none"> Clean or replace filters Check air pressure Check for moisture/oil in air supply
	Final filters clogged	<ul style="list-style-type: none"> Check cartridges for leakage. Repair or replace as needed

POWDER APPLICATION		
PROBLEM	CAUSE	REMEDY
DIFFICULTY PENETRATING FARADAY CAGE AREAS	Insufficient grounding for materials	<ul style="list-style-type: none"> Check grounding of parts. All contact areas must be free of powder buildup and other insulating materials
	Excessive voltage	<ul style="list-style-type: none"> Decrease voltage setting so that the surfaces closest to the gun do not repel powder
	Powder flow too low	<ul style="list-style-type: none"> Increase powder flow rate
	Nozzle not adapted	<ul style="list-style-type: none"> Adjust powder spray pattern and choose the right nozzle to penetrate the recesses
INADEQUATE POWDER THICKNESS OR COVERAGE	Electronic equipment not providing high enough KV	<ul style="list-style-type: none"> Make sure high voltage source is on. Recheck electrical continuity throughout Replace missing or broken electrode Clean electrode insulated by powder buildup or impact fusion Reduce gun to part distance
	Poor grounding	<ul style="list-style-type: none"> Check ground from part to track. All contact areas must be free of all insulating materials
	Powder flow too high	<ul style="list-style-type: none"> Do not force too much powder through the electrostatic cloud
	Excessive air pressure blowing the painted pieces	<ul style="list-style-type: none"> Reduce air setting and/or increase gun to part distance
	Powder attracted to adjacent parts	<ul style="list-style-type: none"> Reduce the number of hanging pieces and increase the distance
	Excessive moisture in powder application area. High moisture in air will tend to dissipate the charge on the powder particles	<ul style="list-style-type: none"> Control the humidity in the powder application area
INADEQUATE SPRAYING	Worn spray gun parts	<ul style="list-style-type: none"> Replace worn feed tubes, venturi pump, deflectors and covers
	Impact fusion on guns	<ul style="list-style-type: none"> Clean areas of concern
	Powder flow too low	
BACK IONIZATION: Powder is repelled from part	Gun positioned too close	<ul style="list-style-type: none"> Change gun placement
	Poor grounding	<ul style="list-style-type: none"> Check ground
	KV/uA are too high	<ul style="list-style-type: none"> Reduce voltage and/or uA settings
	Excessive powder thickness	<ul style="list-style-type: none"> Reduce coating thickness



At Sherwin-Williams, powder is not just a technology.

Sherwin-Williams powder coatings offer the breadth and flexibility you need for your finishing requirements, with a wide assortment of in-stock colors and textures, as well as special effect finishes and custom colors available just-in-time.

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POWDER APPEARANCE		
PROBLEM	CAUSE	REMEDY
GLOSS TOO LOW	Incompatibility between powders	<ul style="list-style-type: none"> Clean application equipment before switching to a different powder
	Micro-pinholing from outgassing	<ul style="list-style-type: none"> Check substrate for cleanliness and porosity Check powder and substrate for moisture
	Overcuring of parts	<ul style="list-style-type: none"> Check oven temperature and dwell time
GLOSS TOO HIGH	Undercured	<ul style="list-style-type: none"> Increase cure temperature or dwell time in oven
SMOOTH POWDER PAINT	Back ionization	<ul style="list-style-type: none"> Increase distance from the gun to the part
	Excessive KV settings	<ul style="list-style-type: none"> Reduce voltage micro amps
EXCESSIVE ORANGE PEEL	Film thickness out of design range	<ul style="list-style-type: none"> Adjust film thickness as needed
	Excessive KV settings	<ul style="list-style-type: none"> Reduce voltage and/or micro amps
CONTAMINATION: Other colors in cured film	Poor clean-up between color changes	<ul style="list-style-type: none"> Clean feed and spray systems thoroughly
OFF COLOR	Insufficient oven programming	<ul style="list-style-type: none"> Check exhaust vent fans
	Oven dwell time too long, or excess oven temperature	<ul style="list-style-type: none"> Ensure parts are not in oven longer than desired Lower oven temperature
	Variations in film thickness, which result in poor opacity in the areas where film build is difficult	<ul style="list-style-type: none"> Re-examine application procedures
	Powder	<ul style="list-style-type: none"> Check with your Sherwin-Williams representative
FILM THICKNESS TOO LOW	Improper application	<ul style="list-style-type: none"> Re-examine application procedures
	Air flow in booth disturbing spraying	<ul style="list-style-type: none"> Consult your equipment supplier
	Inconsistent powder flow	<ul style="list-style-type: none"> Check that the powder flow is correct without interruption
PINHOLING ON COATING SURFACE	Air being trapped in porous surfaces	<ul style="list-style-type: none"> De-gass parts before applying powder
	Film thickness too high	<ul style="list-style-type: none"> Bake at a slower rate (lower temperature for longer time)
	Guns too near to the pieces	
PULL-AWAY, VOIDS OR CRATERING	Poor metal preparation or dry off	<ul style="list-style-type: none"> Check pre-treatment system, dry-off oven and part damage

PHYSICAL PROPERTIES OF THE FINISH		
PROBLEM	CAUSE	REMEDY
POOR HARDNESS OR ABRASION RESISTANCE	Undercured	<ul style="list-style-type: none"> Increase oven temperature or extend cure time in oven
POOR ADHESION	Poor cleaning of parts	<ul style="list-style-type: none"> Check pretreatment system Check substrate for changes
	Undercured	<ul style="list-style-type: none"> Increase oven temperature or extend cure time in oven
POOR PROTECTION FOR CORROSION OR CHEMICAL RESISTANCE	Poor cleaning	<ul style="list-style-type: none"> Check pretreatment system
	Inadequate film thickness	<ul style="list-style-type: none"> Adjust application process to ensure specified thickness
	Undercured	<ul style="list-style-type: none"> Increase oven temperature or extend cure time in oven
POOR FLEXIBILITY AND/OR IMPACT RESISTANCE	Undercured	<ul style="list-style-type: none"> Increase oven temperature or extend cure time in oven
	Poor cleaning	<ul style="list-style-type: none"> Check pretreatment system
	Excessive film thickness	<ul style="list-style-type: none"> Adjust application process to ensure specified thickness