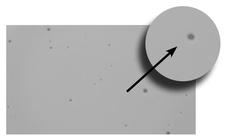
LIQUID COATINGS
TROUBLESHOOTING GUIDE

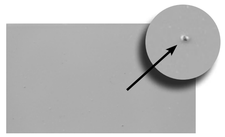
FISHEYES

PROBLEM	CAUSE	PREVENTION
A surface depression or crater in the wet finish film — fisheyes are caused by repulsion of the wet finish by a surface contaminate such as oil or silicone materials	▪ Unclean surface ▪ Incompatibility between primer and topcoat ▪ Silicone contamination	▪ Clean surface with appropriate solvent, chemicals, or mechanical cleaning process ▪ Use alternate primer or alternate paint system ▪ Locate source of contamination and eliminate it. Check wipers, belt dressings, lubricating greases and oils, hand creams



CONTAMINATION

PROBLEM	CAUSE	PREVENTION
Foreign particles embedded in paint film (dirt, hair, etc. in paint)	▪ Inadequate cleaning of the surface to be painted ▪ Dirty spraying environment ▪ Inadequate air filtration or unfiltered air entering the booth ▪ Dirty or unsuitable work clothes that contain dust, lint, or fibers ▪ Particles from deteriorated air supply lines ▪ Dirty spray gun	▪ Thoroughly blow off and wipe the surface to be painted ▪ Maintain a clean working area ▪ Install proper air filters ▪ Repair or replace defective air lines ▪ Properly clean and maintain spray equipment

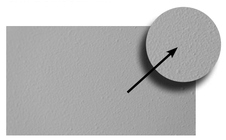


RUNS AND SAGS

PROBLEM	CAUSE	PREVENTION
Defects in a dried film caused by an excessive amount of material being applied, usually in an uneven manner, so that a portion of the material flows down in an irregular or curtained effect	▪ Over-reduction or by using too slow of a solvent ▪ Application of a coat that is too heavy ▪ Uneven distribution of spray coating	▪ Use appropriate faster solvent or lower amount of reduction, consistent with the general nature and temperature of the surface to be coated ▪ Increase air pressure; decrease paint pressure; move spray gun more rapidly; increase gun-to-work distance; use multiple passes ▪ More careful application by proper handling of spray gun, adjust spray pattern of spray gun

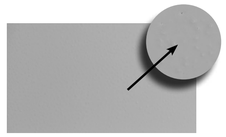
DRY SPRAY

PROBLEM	CAUSE	PREVENTION
Paint particles do not flow out to form a smooth film	▪ Caused by the partial drying of the liquid coating prior to reaching the surface to be coated	▪ Move closer to part ▪ Reducer material ▪ Increase fluid flow



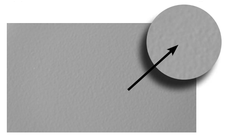
PINHOLING

PROBLEM	CAUSE	PREVENTION
A defect caused by rapid solvent loss, which creates tiny holes in the finish that penetrate to the underlying surface. Pinholes may or may not have raised edges	▪ Solvent selection or reduction ▪ Inadequate flash time ▪ Force dry oven ▪ High solids coating with too heavy of a film build ▪ Too low of atomization pressures for tips being used ▪ Excess trapped air incorporated into the paint prior to application ▪ Loose fittings on the paint intake tube, adding air into the paint	▪ Reducing solvent selection ▪ Increase flash time ▪ Reduce temperature in oven ▪ Control film thickness. ▪ Increasing atomization air ▪ Decrease tip size or replace tips ▪ Reduce mixing speeds that incorporate air ▪ Make sure all fittings are appropriately tightened and seals are properly fit



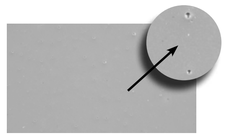
ORANGE PEEL

PROBLEM	CAUSE	PREVENTION
Pebbled film surface similar in appearance to the skin of an orange	▪ Use of improper solvent for prevailing temperature conditions ▪ Improper handling of spray equipment ▪ Application of a film that is too thing, not allowing proper flow ▪ Too high in viscosity at application	▪ Choose a solvent which will allow greater flow ▪ Adjust air pressure and fluid flow and be sure that gun is held at proper distance from work ▪ Apply heavier coating ▪ Reduce to proper application viscosity



SOLVENT POPPING

PROBLEM	CAUSE	PREVENTION
A paint defect characterized by raised bumps in the surface — caused by solvent vapor forming within the paint after it has begun to skin-over. The resulting vapor pressure raises the paint surface at its weaker spots	▪ Thinner/reducer evaporating too fast for spraying conditions ▪ Too much air movement causing surface to "skin over" before solvents evaporate	▪ Select recommended thinner/reducer based on temperature, humidity, and air movement ▪ Restrict air movement over the surface being painted



Sherwin-Williams liquid coatings offer durable and economical solutions that can be used in a variety of application settings. With a full portfolio of solvent and water-based options, Sherwin-Williams offers product solutions that meet a wide range of performance, VOC, and application needs. Our liquid coatings provide you with full performance and maximum flexibility across a complete color palette.

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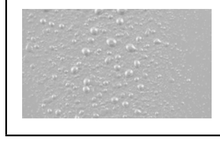
LOSS OF ADHESION TO SUBSTRATE

PROBLEM	CAUSE	PREVENTION
Loss of adhesion on scribe	▪ Inadequate cleaning ▪ Certain types of metal such as galvanized iron, cadmium, and zinc are difficult surfaces	▪ Revisit pretreatment system. Contact supplier. A quick test is the "waterbreak free" test. Cold water is poured over the part — if the water film is continuous, there is a good chance the surface is clean. Caution should be taken, however, due to many surfactants that cause a water-break-free condition, even though the surface may still be soiled ▪ If normal methods of metal preparation do not overcome adhesion difficulties, then send full particulars, with samples of metal, to your Sherwin-Williams representative

BLISTERING

PROBLEM	CAUSE	PREVENTION
The formation of blisters in paint films by the local loss of adhesion and lifting of the film from the underlying substrate	▪ Moisture trapped beneath the paint film due to: » Improper dry time after wet sanding » Contaminated air lines » Spraying in extreme high humidity conditions ▪ Trapped solvents from applying wet heavy coats with insufficient flash time between coats ▪ Improper dry time of undercoats before topcoating ▪ Painting over grease, oil, or rust	▪ Apply materials according to product recommendations, allowing sufficient flash time between coats ▪ Allow undercoats to thoroughly dry/cure before topcoating ▪ Clean and prep substrate using recommended products and procedures



WATER SPOTTING

PROBLEM	CAUSE	PREVENTION
Circles with raised edges or whitish spots resembling the various shapes of water droplets appear on the surface of the paint film	▪ Allowing water to come into contact with a finish that is not thoroughly dried/cured	▪ Do not allow water to come into contact with newly painted finish ▪ Store inside longer after coating parts ▪ Verify mix ratio and cure conditions

SCRATCHING OR MARRING

PROBLEM	CAUSE	PREVENTION
Slight incisions, breaks, tears, or indentations on the surface caused by abrasive friction	▪ Film not completely dried ▪ Film not cured – catalyzed coating may be under catalyzed	▪ Allow for more complete air-drying or baking ▪ Check for proper ratio of paint to catalyst