

Document Type: Troubleshooting Chart
Metal: Rhodium
Product Code: RH2M
Description: Ultrabright rhodium for bath
Color: White
Chemical Type: Acidic



Problem	Possible Cause	Solution
Poor adhesion, blistering, flaking	Inadequate oxide removal	Remove all oxides through sufficient means allowable by local legislation
	Surface not neutralized after acid dip	Increase acidity in/or replace neutralization solution
	Poor surface preparation	Preform water-break test on hull cell to identify problem source
Rough deposit	Organic contamination	Preform proper carbon filtration and restore organic brilliant compound to 100% optimum concentration
	Metallic contamination	Preform metallic analysis by the means of AAS or ICP to inspect for possible contaminants. If present, refine bath or preform dummy plating if applicable
	Excessive current	Reduce amp/dm ²
	Polishing compound present on surface	Increase time in ultrasonic cleaning at 60°C
	Sulfuric acid content lowering [g/l]	Inspect concentration via chemical titration. Add sulfuric acid to reach optimum levels
Poor Efficiency	Metal concentration depleting	Preform metallic analysis by the means of AAS or ICP. Add pre-calibrated replenisher to restore Rh metal to optimum levels.
	Sulfuric acid content rising [g/l]	Neutralization solution insufficiently rinsed or intermittent rinsing tanks contain drag in – Inspect acidic concentration of rinsing tanks via chemical titration and/or make rinsing improvements.
	Organic brilliant compound overloaded	Preform proper carbon filtration and restore organic brilliant compound to 90% optimum concentration
Black or brown spots	Current density too high	Reduce amp/dm ²
	Sulfuric acid content low [g/l]	Inspect concentration via chemical titration. Add sulfuric acid to reach optimum levels
	Poor surface preparation	Preform water-break test on hull cell to identify problem source
	Electrolyte over heated	Inspect heat with an external measuring device
Yellowing surface	Organic brilliant compound overloaded	Preform proper carbon filtration and restore organic brilliant compound to 90% optimum concentration
	Metallic contamination	Preform metallic analysis by the means of AAS or ICP to inspect for possible contaminants. If present, refine bath or preform dummy plating if applicable
	Incomplete surface coverage	Increase heat, voltage, or time of plating cycle
Burning in high current density areas	Inadequate wetting agent	Inspect foam development on the surface of the solution after deposition. If decreasing, add 1 ml per liter of designated wetting agent
	Current density too high	Reduce amp/dm ²
	Poor agitation	Increase bath agitation
Raising pH	Drag-in of alkaline of previous steps	Increase acidity in/or replace neutralization solution
	Chlorine introduced to electrolyte	Inspect introduction of tap water into the solution – use purified water rinses prior to electrolyte introduction

Problem	Possible Cause	Solution
Dull surface/Large Grain Size	Inadequate oxide removal	Remove all oxides through sufficient means allowable by local legislation
	Organic brilliant compound out of balance	Preform proper carbon filtration and restore organic brilliant compound to 100% optimum concentration – Or Preform proper hull cell test to evaluate quantity of organic additives if bath size is applicable
	Poor surface preparation	Preform water-break test on hull cell to identify problem source
Grey Deposit	Organic contamination	Preform proper carbon filtration and restore organic brilliant compound to 100% optimum concentration
	Metallic contamination	Preform metallic analysis by the means of AAS or ICP to inspect for possible contaminants. If present, refine bath or preform dummy plating if applicable
	Incomplete surface coverage	Increase heat or time of plating cycle
	Current density too low	Increase amp/dm ²
Loss of luminosity	Metal concentration depleting	Preform metallic analysis by the means of AAS or ICP. Add pre-calibrated replenisher to restore Rh metal to optimum levels.
	Sulfuric acid content rising [g/l]	Insufficiently rinsed following Neutralization or intermittent rinsing tanks contain drag in – Inspect acidic concentration of rinsing tanks via chemical titration and/or make rinsing improvements.
	Organic brilliant compound depleted	Preform proper carbon filtration and restore organic brilliant compound to 100% optimum concentration – Or Preform proper hull cell test to evaluate quantity of organic additives if bath size is applicable
Chipping or flaking deposit	Metallic substrate not suitable for deposition	Preform metal strike prior to rhodium deposition
	Poor surface preparation	Preform water-break test on hull cell to identify problem source in pre-steps
	Inadequate oxide removal	Remove all oxides through sufficient means allowable by local legislation
Metal or organic precipitation	Cross Contamination	Neutralization not preformed or acidity is too low
	Rising pH	Increase acidity in/or replace neutralization solution