

# DEVECO Acid Zinc Chloride Troubleshooting Chart

Problem	Possible Cause	Solution
<b>Dullness in LCD area (1 to 20 ASF)</b>	High pH	Check and lower with 50% Hydrochloric Acid
	Low ammonia or chloride	Analyze and adjust into range
	Low Brightener	Run Hull Cell. Add 0.05% increments to optimize deposit
	High operating temperature	Lower to recommended range
	High Iron Contamination (>100 PPM)	Hydrogen Peroxide treat. Add ¼ - ½ pint 35% H <sub>2</sub> O <sub>2</sub> per 1000 gal. Dilute H <sub>2</sub> O <sub>2</sub> at least 3:1 with water. The precipitated Ferric Hydroxide is filtered out
	High Brightener	Contact Deveco representative
<b>Dull or poor coverage in MCD to LCD area</b>	High operating temperature	Lower to recommended range
	High pH	Check and lower with 50% Hydrochloric Acid
	Low wetter	Run Hull Cell. Add 1% increments to optimize deposit
	Low Brightener	Run Hull Cell. Add 0.05% increments to optimize deposit
<b>Dull deposit in entire current density range</b>	High operating temperature	Lower to recommended range
	Low Brightener	Run Hull Cell. Add 0.05% increments to optimize deposit
	Poor surface preparation	Improve cleaning, pickling and/or rinsing.
	No response to brightener, may indicated organic contamination	Circulate solution through a carbon filter or batch carbon treat
	Bath has high temp & low cloud pt. (< 115 F)	Add 1 – 2% Deveco Zinc Clarifier, and/or Cool solution to proper operating temp.
	High pH	Check and lower with 50% Hydrochloric Acid
<b>Burning and/or soft spongy deposits in the High Current Density area</b>	Over-addition of Hydrogen Peroxide	Leave air agitation on to help dissipate the H <sub>2</sub> O <sub>2</sub> . Add up to 100 mls Brightener/100 gals solution.
	Low Zinc metal	Analyze and adjust into range
	Low ammonia, boric acid or chloride	Analyze and adjust into range
	pH too high or too low	Check and slowly add 50% HCl to lower it or 45% KOH to raise it.
	Brightener too high. Wetter extremely high or too low.	Run Hull cell and adjust as needed.
	Work too close to anodes, poor agitation	Check and adjust racking and air patterns
	Low operating temperature	Raise temperature above 65 F
Current density is too high	Check the rectifier and check the calculation	
<b>Poor throwing power No deposit in LCD area</b>	Low Chlorides	Analyze and adjust into range
	Low Wetter	Run Hull Cell. Add 1% increments to optimize deposit. Up to 3% total.
	High Zinc metal	Lower to 2.5 oz/gal Zinc
	Over-addition of Hydrogen Peroxide	Leave air agitation on to help dissipate the H <sub>2</sub> O <sub>2</sub> . Add up to 100 mls Brightener/100 gals solution.
	High pH	Check and lower with 50% Hydrochloric Acid
	Chromium contamination (>200 PPM)	Add 1.0 oz Sodium Hydrosulfite/100 gal soln for every 100 PPM of chrome in solution.
	High Brightener	Reduce brightener additions or cut the bath per Hull cell tests.

# DEVECO Acid Zinc Chloride Troubleshooting Chart

Problem	Possible Cause	Solution
HCD areas darker after nitric dip or chromate dip.	High Iron contamination (> 100 PPM) High organic contamination.	Check tank bottom of tank for parts. Hydrogen Peroxide treat. Add ¼ - ½ pint 35% H <sub>2</sub> O <sub>2</sub> per 1000 gal. Dilute H <sub>2</sub> O <sub>2</sub> at least 3:1 with water. The precipitated Ferric Hydroxide is filtered out
Black staining in LCD areas after chromating	High Metallic contamination Copper > 5 PPM Lead > 5 PPM Cadmium > 10 PPM	LCD dummy the bath at 2 – 5 ASF for 8 – 12 hours. Or zinc dust treat at 1 lb zinc/1000 gallons of solution to remove 10 PPM trace metals. Filter out the zinc particles so they don't redissolve into the bath,
White staining or poor chromate appearance	High Additives	Reduce wetter and brightener adds
	Poor rinsing	Dump and rebuild rinses. Add ½ fl oz./gallon Hydrochloric Acid to the first rinse after zinc plating. Use 2 oz/gal Citric Acid dip in place of nitric acid.
Cloudy turbid solution	Brightener too high or wetter too low	Run Hull Cell test Add 1% increments of wetter to optimize deposit.
	High pH	Check pH and lower with 50% HCl
	Filter not working properly	Check intake, discharge and pressure.
	High temperature	Lower to recommended range.
	Cloud point below 100 °F	Add 1 – 2% Deveco Zinc Clarifier.
	High Iron contamination	Check tank bottom of tank for parts. Hydrogen Peroxide treat. Add ¼ - ½ pint 35% H <sub>2</sub> O <sub>2</sub> per 1000 gal. Dilute H <sub>2</sub> O <sub>2</sub> at least 3:1 with water. The precipitated Ferric Hydroxide is filtered out
	High Chlorides	Analyze and adjust to range.
Brittle zinc plating	High Brightener	Reduce brightener additions or cut the bath per Hull cell tests.
Rough deposit	Filter not working properly.	Check intake, discharge and pressure.
	Low anode area	Check anode baskets or anode slabs.
	Anode particles	Check anode bags for tears and/or holes. Filter solution
	Poor rinsing and/or cleaning	Improve rinsing, cleaning and/or pickling
	Low wetter	Run Hull Cell test Add 1% increments of wetter to optimize deposit.
	Chrome contamination (>200 PPM)	Add 1.0 oz Sodium Hydrosulfite/100 gal soln for every 100 PPM of chrome in solution. Filter solution.
Poor adhesion of zinc	Poor cleaning	Check for proper preparation and cleaning of work.