

## Chrome plating process achieves cost reduction through zero liquid discharge

A global manufacturer of automotive components was faced with rising costs related to waste disposal from a chrome plating process used in a plant in Poland. The plant manufactures shock absorbers for passenger vehicles. The plating of the shocks adds corrosion resistance, increased surface hardness, and improves cleaning ability and overall appearance.

### Project Goals:

- 1) Reduce waste disposal costs
- 2) Reuse the chromium oxide back in the working bath
- 3) Provide materials of construction (MOC) suitable to handle aggressive chromic acid without corrosion issues



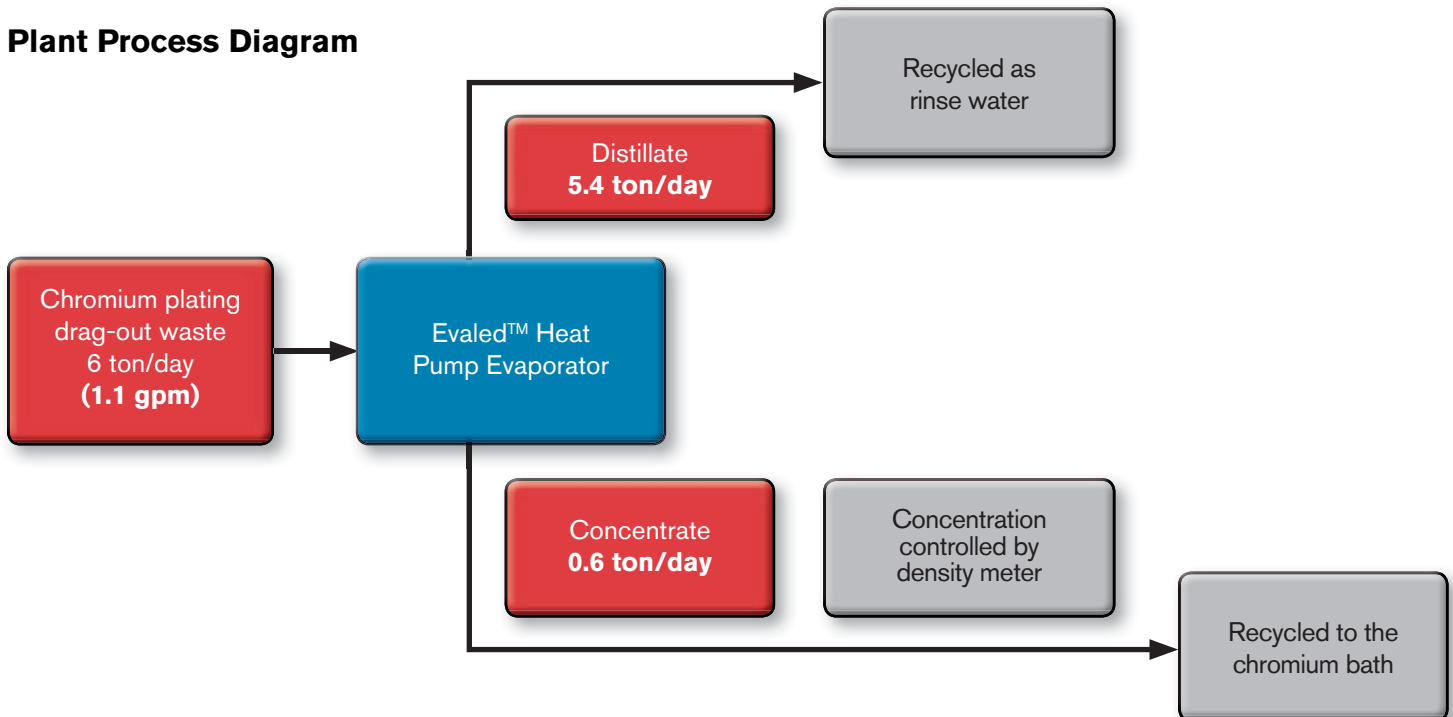
### Project Summary

**PAY BACK**  
▪ About 1 Year

**DISTILLATE RECOVERED**  
▪ ~ 90%

**CONCENTRATION FACTOR**  
▪ 10x

### Plant Process Diagram



# Plant Analysis

Parameters	Unit of Measure	Waste In	Distillate Out	Concentrate Out
Iron	mg/L	150-200	<0.1	-
Conductivity	µS/cm	<25000	<200	-
TS at 105° C	%	1	-	-
pH		1-2	3.6	-
Density	g/mL	1.006	-	1.5
Cr6+	g/L	3.5 - 5	<0.02	30

Technology Type	Material	Footprint (ft <sup>2</sup> )
PC Forced Circulation E 6000 KT	Heat exchanger: Silicon carbide and PVDF Boiling vessel and other wetted parts: Austenitic stainless steel coated with ECTFE	88.26

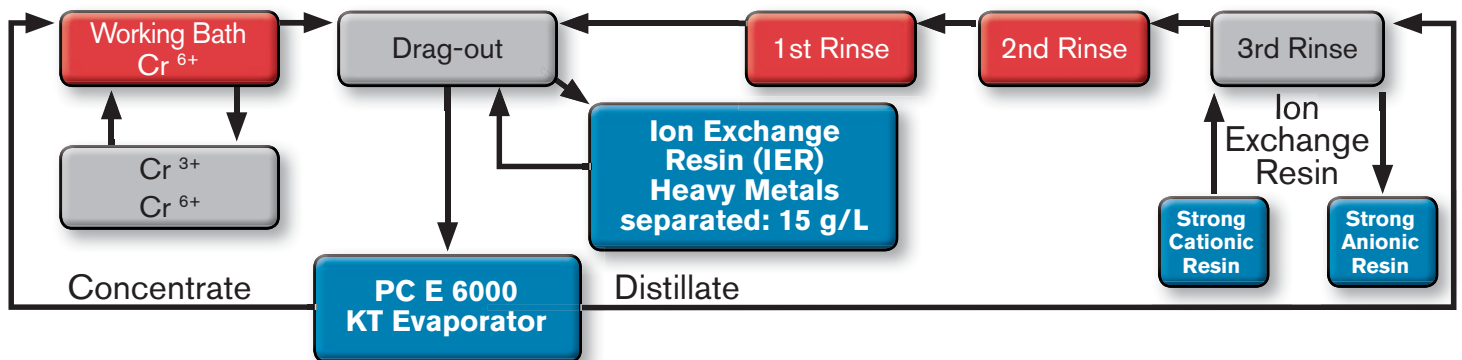
## Results



## The Solution Achieved:

Pay-Back	About 1 Year
Distillate Recovered	~ 90%
Concentration Factor	~ 10x

- Complete ZLD, waste water reduction 100%
- Concentrate recycled to the chromium bath (Bath concentration adjusted by adding either chromic anhydride or demineralized water)
- Galvanic line OPEX reduction



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\* This case study is provided by Veolia Water Technologies of Italy. PRAB is an authorized North American distributor of the Evaled™ vacuum evaporation technology.



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