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# SpectraMATE 25

## Product Description



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**SpectraMATE 25** is a high performance, ***thick-film*** trivalent conversion coating for electro-plated zinc.

**SpectraMATE 25** produces a slightly iridescent, ***multicolor*** finish which is unique among high corrosion trivalent chromate processes.

**SpectraMATE 25** is an easy to use ***one part system*** that does not require multiple starter, adjuster or replenisher type additives.

**SpectraMATE 25** is ***chelator-free*** and does not rely on chelate ligand technology making it waste treatment friendly.

# SpectraMATE 25

## Color Spectrum



# SpectraMATE 25

## Color Spectrum

### **CLEAR/BLUE**

A clear/blue finish is an indication of a very thin chromate film. A clear/blue chromate film is less likely to achieve the high corrosion protection. A blue color is achieved by short immersion times, low operating temperatures, pH and low SpectraMATE 25 concentrations.

### **YELLOW**

A yellow finish is an indication of a chromate film with moderate thickness. A yellow chromate film can consistently achieve moderate corrosion protection.

### **RED**

A red finish is an indication of a chromate film with good thickness. A red chromate film can consistently achieve high corrosion protection.

### **GREEN**

A green finish is an indication of a chromate film with excellent or high thickness. A green chromate will consistently exceed expected corrosion protection.

# SpectraMATE 25

## Product Performance



# SpectraMATE 25

## Product Performance

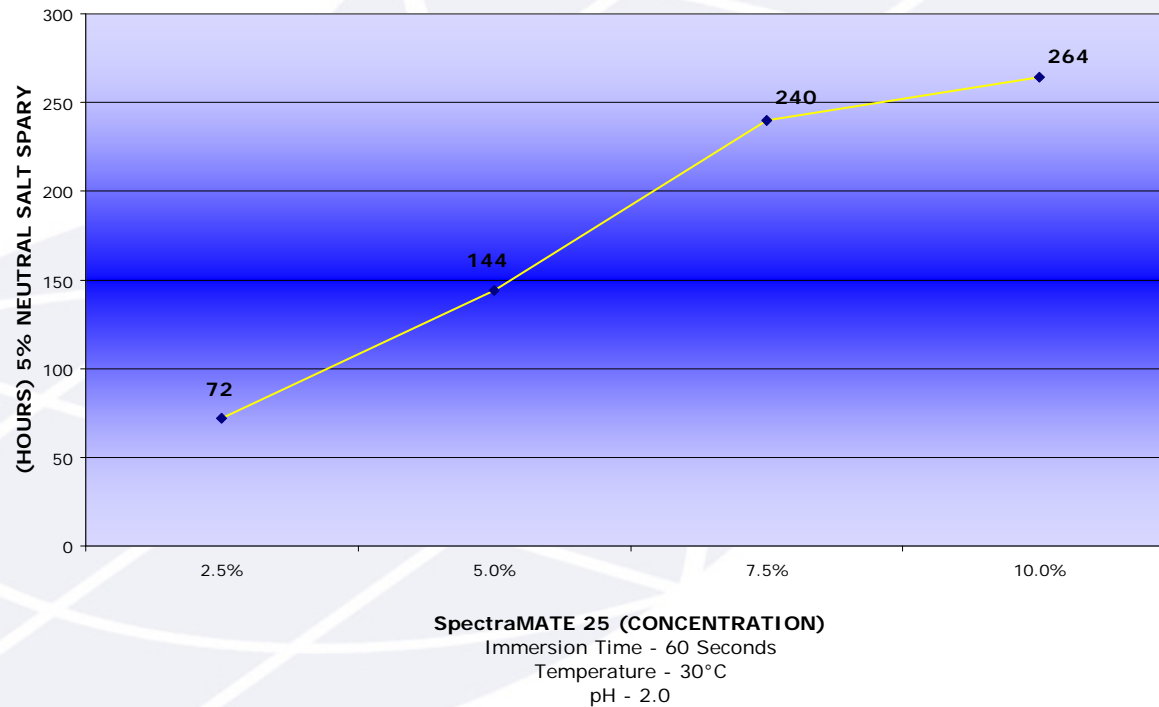
- SpectraMATE 25** provides a finish that consistently exceeds **250 hours of neutral salt spray** to white corrosion products without the aid of a top coat or sealer.
- SpectraMATE 25** operates at a wider and more user-friendly pH range than conventional trivalent chromates.  
**(pH 1.4 to 3.4)**
- SpectraMATE 25** operates at **low to ambient temperatures**, thus eliminating the added cost and inconvenience of heating as with conventional thick-film trivalent technologies.



# SpectraMATE 25

## Product Performance

### Effect of Concentration on Salt Spray Protection

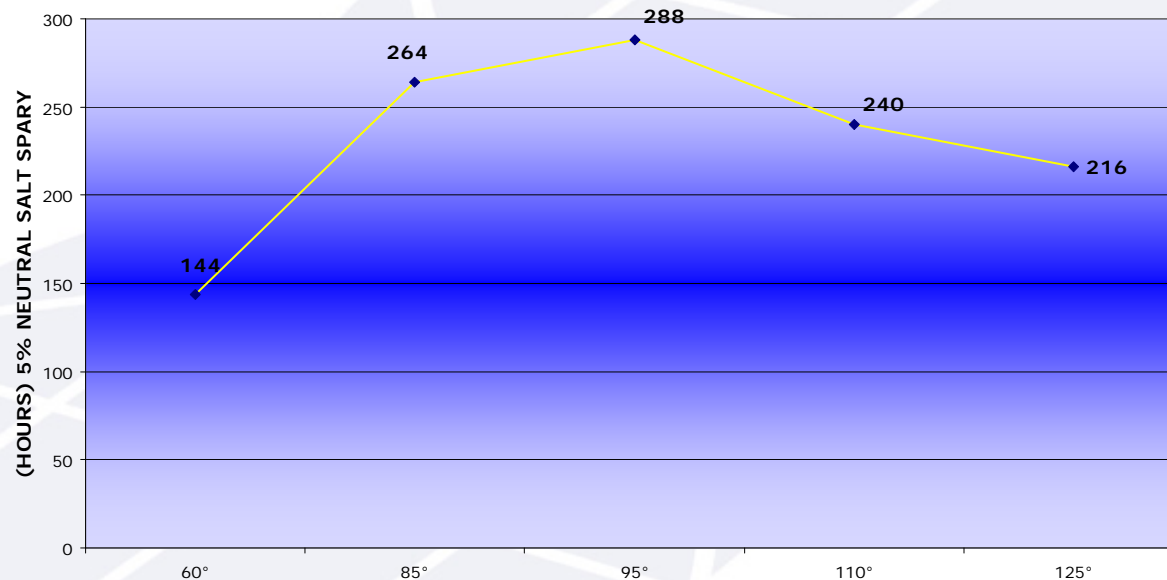




# SpectraMATE 25

## Product Performance

### Effect of Temperature on Salt Spray Protection



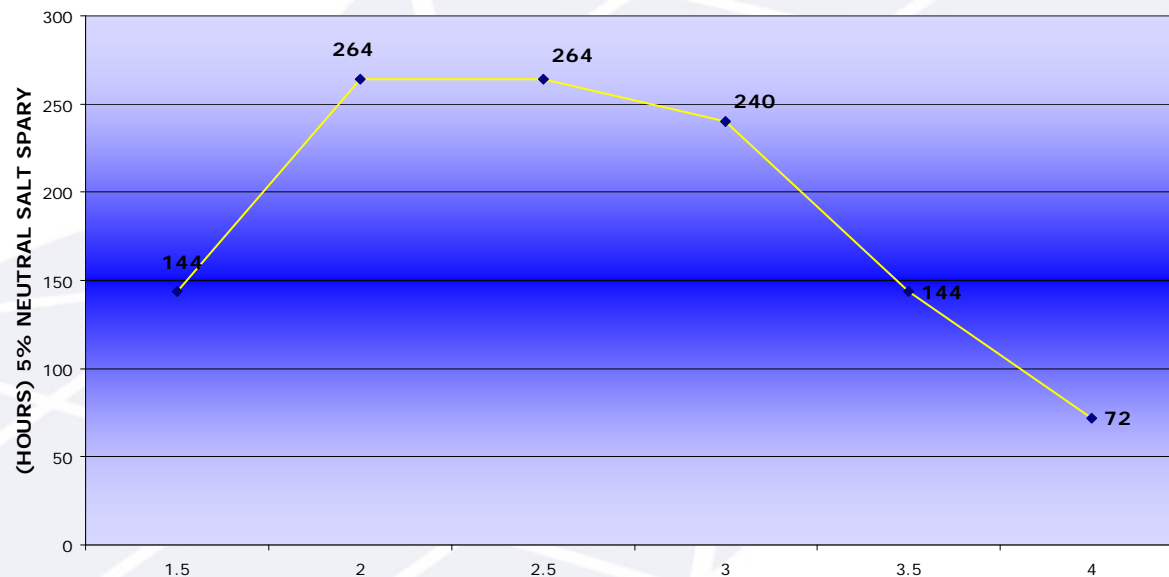
**SpectraMATE 25 (TEMPERATURE °C)**

Immersion Time - 60 Seconds  
Concentration - 10.0% by volume  
pH - 2.0

# SpectraMATE 25

## Product Performance

### Effect of pH on Salt Spray Protection

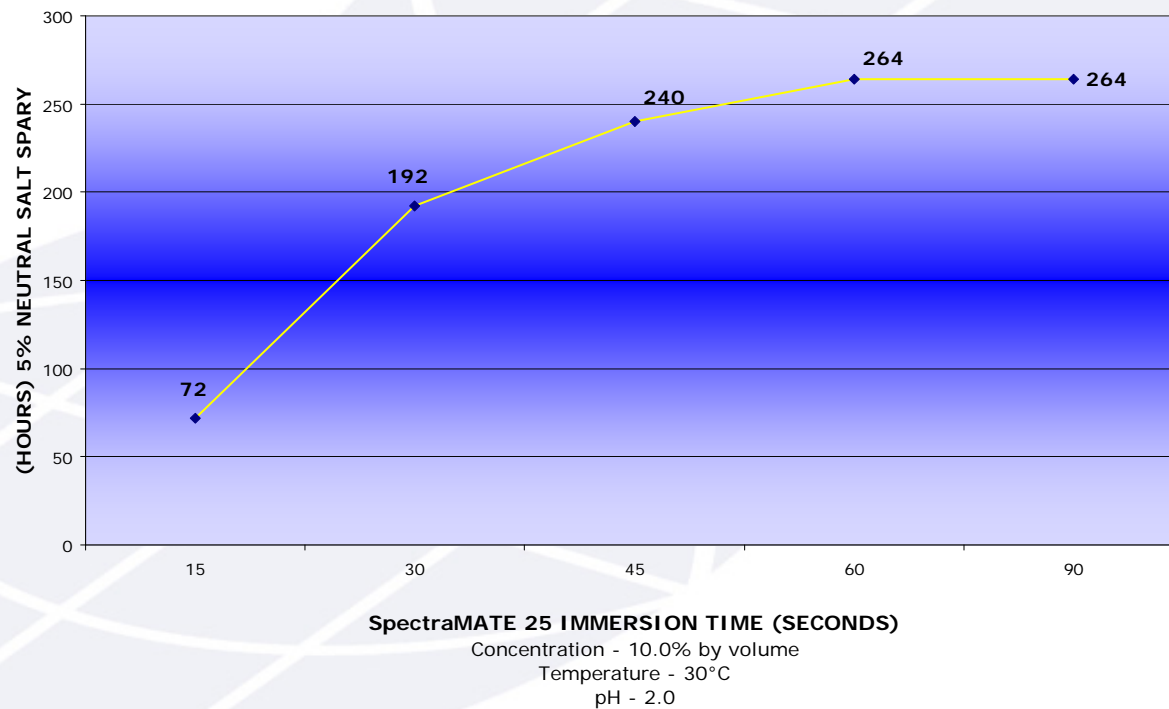


**SpectraMATE 25 (pH)**  
Immersion Time - 60 Seconds  
Concentration - 10.0% by volume  
Temperature - 30°C

# SpectraMATE 25

## Product Performance

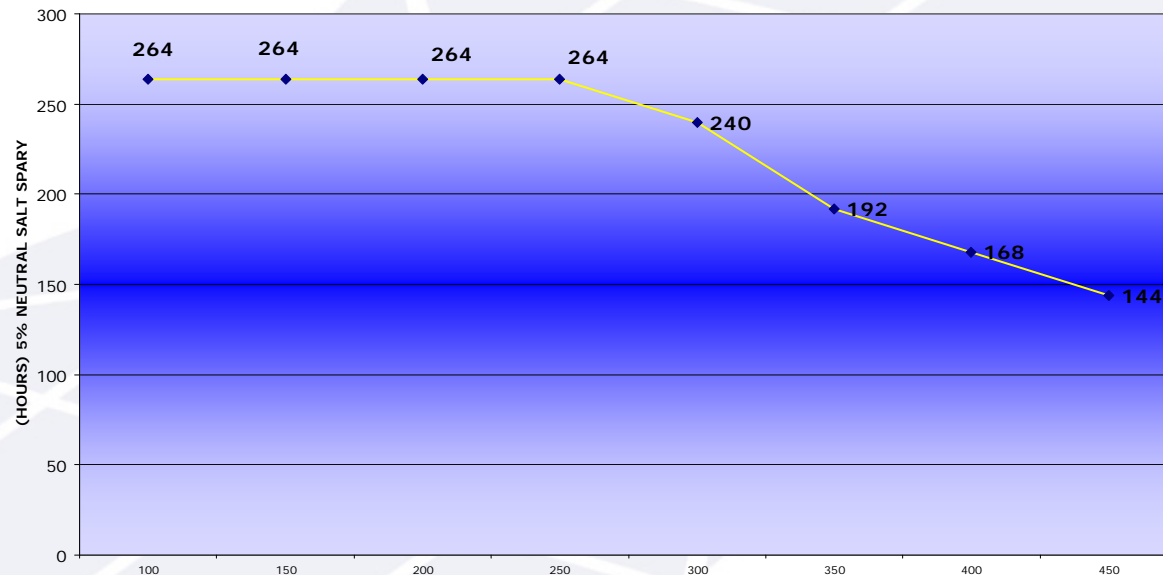
### Effect of Dwell Time on Salt Spray Protection



# SpectraMATE 25

## Product Performance

### Effect of Iron on Salt Spray Protection



#### SpectraMATE 25 IRON CONTAMINATION (mg/L)

Concentration - 10.0% by volume

Temperature - 30°C

Immersion Time - 60 Seconds

pH - 2.0

# SpectraMATE 25

## Solution Life

The solution life of SpectraMATE 25 is significantly effected by the build up or introduction of ***iron contamination***. Although SpectraMATE 25 is more tolerant to iron contamination, care should still be taken to reduce the build-up of iron in the working solution.

Cleaning the bottom of the ***SpectraMATE 25 solution for fallen parts*** will greatly reduce the build up of iron contamination in the working solution. As iron concentrations exceed 350 ppm, the consistency of color and corrosion protection will be effected. The reduction in consistency of color and corrosion protection can vary depending on the working parameters of the SpectraMATE 25 solution.

# SpectraMATE 25

## Solution Life

Cleaning the bottom of the ***nitric acid bright dip for fallen parts*** will also prevent the drag-in of dissolved iron into the SpectraMATE 25 solution.

Increasing ***up-time*** for rack application or introducing ***up-barrel rotation*** in barrel application for the nitric acid pre-dip and SpectraMATE 25 working solution is recommended to increase the solution life and reduce the consumption rate of SpectraMATE 25.

# SpectraMATE 25

## Consumption Rate





# SpectraMATE 25

## Consumption Rate

The following is based on the consumption of SpectraMATE 25 **ONLY** when applied over one square decimeter of electro-plated zinc.

***0.025 to 0.075 mL SpectraMATE 25 per dm<sup>2</sup>***

The above range of 0.025 to 0.075 mL SpectraMATE 25 does factor in temperature, dwell time, pH and concentration.

95% to 98% of the consumption of all hexavalent and trivalent chromate technologies are based on drag-out. To reduce the consumption of the SpectraMATE 25, reducing the drag-in/drag-out rate is highly recommended.

# SpectraMATE 25

## Competitive Advantages



# SpectraMATE 25

## Competitive Advantages

### **TOLERANCE TO IMPURITIES**

Iron contamination tolerance has increased from 100 ppm with the first generation high corrosion chromate technologies to greater than 350 ppm with the new SpectraMATE 25 process.

### **COATING PROPERTIES**

SpectraMATE 25 has been specially formulated to produce a thick-film, self-healing conversion coating at ambient temperatures unlike the SurTec and Dipsol processes.

Due to the self-healing properties, parts can be processed in-line with both rack and barrel applications requiring no additional equipment or tanks.

### **VERSATILITY**

Operates at a wide concentration, temperature and pH range, allowing for more consistent color and corrosion protection. The SpectraMATE 25 process will be more forgiving to the always changing plating environment.

# DuraLIFE Technology

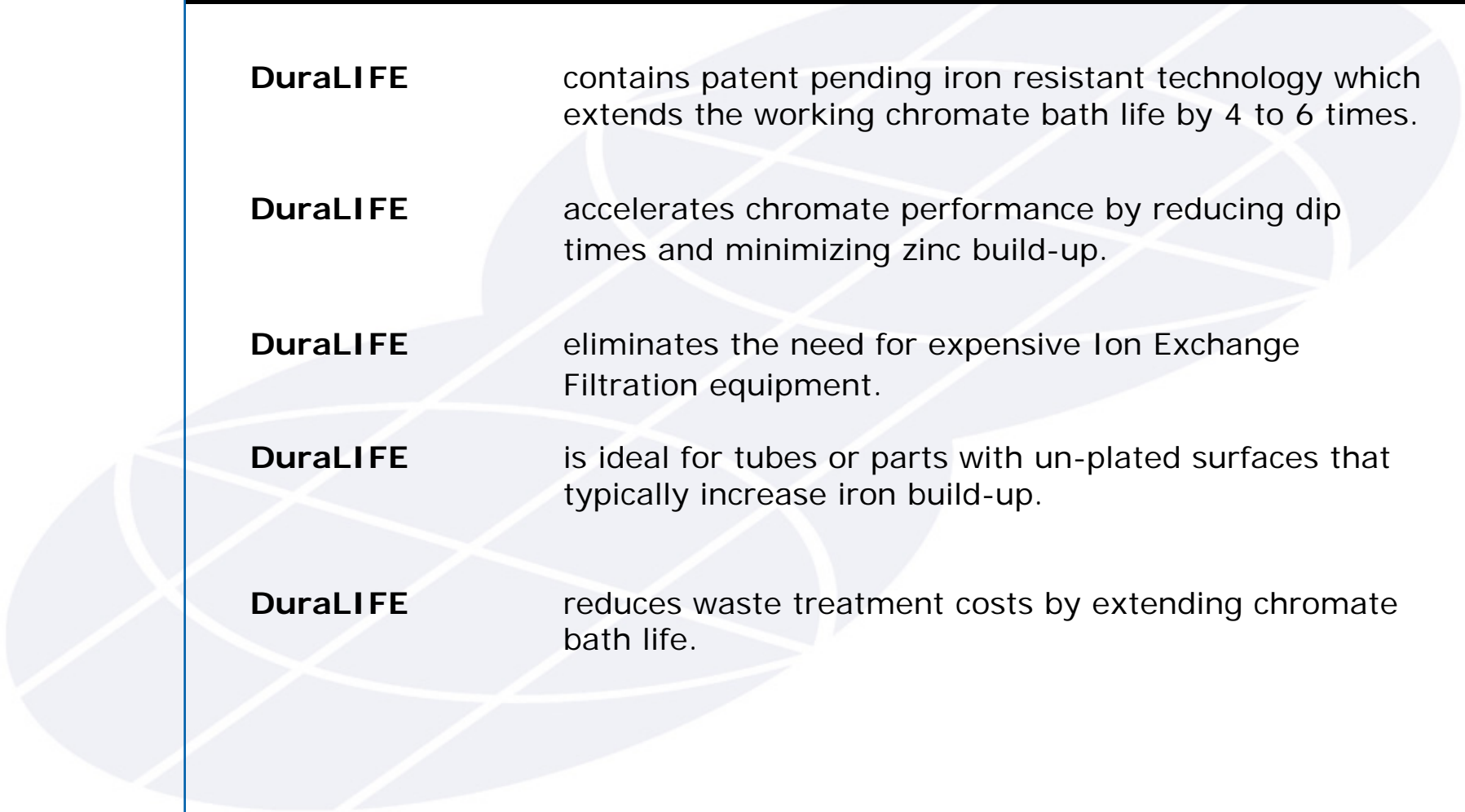
## Product Description

**GOODBYE IRON BUILD-UP**



# DuraLIFE Technology

## Product Description

- 
- |                 |   |
|-----------------|---|
| <b>DuraLIFE</b> | contains patent pending iron resistant technology which extends the working chromate bath life by 4 to 6 times. |
| <b>DuraLIFE</b> | accelerates chromate performance by reducing dip times and minimizing zinc build-up.                            |
| <b>DuraLIFE</b> | eliminates the need for expensive Ion Exchange Filtration equipment.  |
| <b>DuraLIFE</b> | is ideal for tubes or parts with un-plated surfaces that typically increase iron build-up.                      |
| <b>DuraLIFE</b> | reduces waste treatment costs by extending chromate bath life.  |

# DuraLIFE Technology

## Product Description

### **DuraLIFE**

is formulated into Columbia Chemical's high corrosion trivalent chromates during the blending process.

### **DuraLIFE**

does not reduce the amount of corrosion resistance provided by TRI-V 120, TRI-V 121, or SpectraMATE 25 when formulated into these products.

# DuraLIFE Technology

## Product Performance

**GOODBYE IRON BUILD-UP**

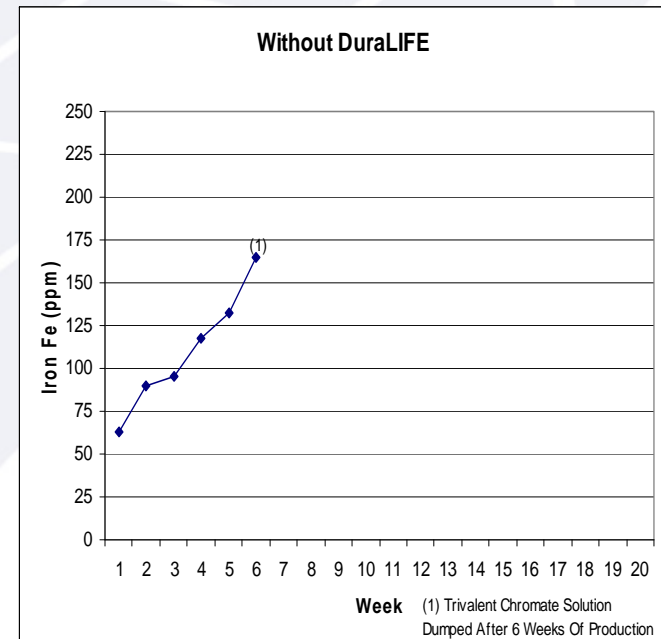
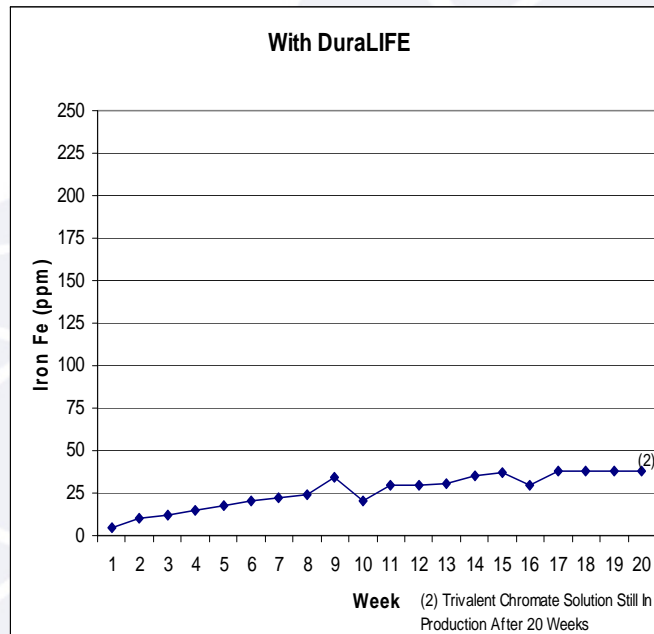




# DuraLIFE Technology

## Product Performance

### Typical Iron Inhibition in a Rack application



# DuraLIFE Technology

## Competitive Advantages

- DuraLIFE** provides reduced operating costs for high output, low drag-out rack lines by extending the operating life of the trivalent chromate solution.
- DuraLIFE** increases plating output by reducing the production down time associated with dumping and rebuilding trivalent chromate solutions.
- DuraLIFE** is an economical option for controlling iron contamination when compared to expensive Ion Exchange Filtration equipment
- DuraLIFE** can be used in Barrel applications where parts with deep recesses and other hard to plate areas are frequently encountered.



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