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# Zinc-Chro-SHIELD OS

A High Performance Organic Sealer  
TECHNICAL DATA  
2-7-18

## Zinc-Chro-SHIELD OS

Zinc-Chro-SHIELD OS provides extended corrosion protection to passivated zinc and zinc-alloy finishes.

Zinc-Chro-SHIELD OS provides a self-healing mechanism to trivalent passivated surfaces.

Zinc-Chro-SHIELD OS provides over 350 hours of salt spray protection over high performance trivalent chromates to less than 5% white corrosion.

Zinc-Chro-SHIELD OS is used as a final rinse, so there is no additional equipment required.

Zinc-Chro-SHIELD OS operates at room temperature to 140° F (60° C).

Zinc-Chro-SHIELD OS has very low viscosity and produces very thin coatings making it suitable for both rack and barrel operations.\*

*\*Zinc-Chro-SHIELD OS reduces adhesion for paint, powder and e-coat, and reduces electric conductivity.*

## OPERATING PARAMETERS

	<u>RANGE</u>	<u>OPTIMUM</u>
Zinc-Chro-SHIELD Concentration:	3% to 100% by volume	7-12% by volume rack 10-20% by volume barrel
Dip Time:	15-45 seconds	30 seconds
pH	*** 10.0-11.0	
Temperature:	60° to 140° F (16° - 60° C)	
Drying Temperature	120° to 140° F (50° - 60° C)	

**De-ionized water is recommended for make-up, city water may reduce tank life.**

**\*\*\*- Adjust pH up using Ammonium hydroxide or Sodium Hydroxide**

## **TYPICAL APPLICATION ZINC:**

1. Plate
2. Rinse
3. Passivate
4. Rinse
5. Zinc-Chro SHIELD OS
6. Dry

## **REPLENISHMENT**

**Zinc-Chro-SHIELD OS working solutions can be replenished using either of two methods:**

### METHOD 1: REPLENISHMENT BY ANALYSIS

#### **pH:**

Use a electronic pH meter or pH paper to measure the pH at least twice per shift.

#### **Refractive Index:**

%/vol Zinc-Chro-SHIELD OS= (Refractive Index) X 8.3

#### **Titration Procedure:**

1. Pipette a 50 ml. sample of working sealant solution into a 250 ml. Erlenmeyer flask.
2. Add 5 drops of Bromophenol Blue indicator solution to the flask.
3. Titrate with 0.1N Sulphuric acid from a blue to a permanent yellow.

**FACTOR:** (mls. of 0.1 N Sulphuric Acid-1.1) X 2.45= % Zinc-Chro-SHIELD OS in dip tank

### METHOD 2: REPLENISHMENT BY DRAGOUT DETERMINATION

**Example:** The drag-out per day for an average barrel plating tank is 5% by volume. If the plating tank is 5 times the size of the final rinse tank, the final rinse tank will lose 25% by volume per day. Since the optimum initial charge of Zinc-Chro-SHIELD is 5% by volume (10 gallons for a 200-gallon tank), then 25% of this initial charge or 2.5 gallons must be added each day (along with water to keep the total volume at 200 gallons).

The drag-out per day for an average rack plating tank is 1% by volume. Using the same calculation as above for a 200-gallon final rinse tank and plating tank 5 times its size, the final rinse will lose 5% by volume per day. This means that ½ gallon of Zinc-Chro-SHIELD must be added each day.

**Note:** A technical representative from Columbia Chemical can help you determine the addition requirements for your particular plating operation.

## **EQUIPMENT**

### **TANKS**

Polypropylene, PVC, carbon steel and stainless steel tanks may be used.

### **HEAT AND COOLING SUPPLY**

Plain steel or stainless steel.

## **HANDLING AND SAFETY**

**CAUTION:** Zinc-Chro-SHIELD OS contains alkaline ingredients which are corrosive to skin and eyes. Protective clothing such as impervious gloves, aprons, boots and chemical goggles should be worn when handling this material. In case of accidental contact, flush immediately with fresh water. Remove contaminated clothing and wash before wearing again. For eye contact, flush with fresh water for 15 minutes and seek medical attention immediately. Avoid breathing mists and vapor.

**FREEZABILITY:** As with most chemical products, it is preferable that freezing be avoided. However if freezing should occur during transportation or storage, directions for handling the products covered in this technical data sheet are as follows:

If Zinc-Chro-SHIELD OS freezes, simply allow the container to completely thaw and bring to room temperature of 70-75°F/ 21-24°C. Thoroughly mix to bring back to original condition.

## **NON-WARRANTY**

The data in this bulletin is believed by Columbia Chemical Corp. to be accurate, true, and complete. Since, however final methods of use of this product are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin, nor can we assure any responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.