



# COLDIP® MIDNIGHT 1500

TECHNICAL DATA  
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## COLDIP® MIDNIGHT 1500

### TRIVALENT BLACK LIQUID PASSIVATE

- COLDIP® MIDNIGHT 1500 is an easy-to-use trivalent black process.
- COLDIP® MIDNIGHT 1500 provides a consistent black appearance.
- COLDIP® MIDNIGHT 1500 works well over acid chloride zinc (both ammoniated and non-ammoniated systems), cyanide zinc, alkaline cyanide-free zinc and zinc-iron/cobalt alloy deposits.
- COLDIP® MIDNIGHT 1500 contains three additives which allow for maximum color control.

## OPERATING PARAMETERS

	<u>RANGE</u>	<u>OPTIMUM</u>
Temperature:	85 - 115° F (30 - 45° C)	115° F (45° C)
pH:	1.5 - 2.2	2.1
COLDIP® MIDNIGHT 1500A:	6 - 10% by volume	8%
COLDIP® MIDNIGHT 1500B-CS:	3 - 5% by volume	4%
COLDIP® MIDNIGHT 1500C-LS:	1 - 2% by volume	1.25%
Dip Time:	40 - 90 seconds	60
Agitation:	Air	
Filtration:	As needed	

NOTE: There is a slight sulfur odor when using COLDIP® MIDNIGHT 1500. **Adequate ventilation is recommended.**

## SOLUTION MAKEUP

1. Fill tank with water to 35% of final volume.
2. Add 8%/volume of the COLDIP® MIDNIGHT 1500A and stir.

3. Add water to 50% of final volume.
4. Add 4%/vol of the COLDIP® MIDNIGHT 1500B-CS and stir.
5. Add water to 90% of final volume.
6. Add 1.25%/vol of the COLDIP® MIDNIGHT 1500C-LS and stir.
7. Adjust to final volume with water and stir.
8. Check pH and if it is not in range then adjust with dilute Nitric Acid.

## MAINTENANCE ADDITIONS

### REPLENISHMENT ADDITIONS

COLDIP® MIDNIGHT 1500A: Add back at approximately 4 - 8 mL/sq ft (Optimum 6 mL/sq ft)

COLDIP® MIDNIGHT 1500B-CS: Add back at approximately 0.5 - 3.0 mL/sq ft (Optimum 1.5 mL/sq ft)

COLDIP® MIDNIGHT 1500C-LS: Add back at approximately 1.6 - 3.2 mL/sq ft (Optimum 2.3 mL/sq ft)

### pH

High pH: slowly adjust with Nitric acid within optimum range.

Low pH: slowly adjust with Caustic Soda Liquid 50% to optimum range.

## ANALYTICAL PROCEDURE

### COLDIP® MIDNIGHT 1500A

The use of X-Ray Fluorescence or Atomic Absorption analysis is recommended to determine the working concentration of COLDIP® MIDNIGHT 1500A. COLDIP® MIDNIGHT 1500A is the chrome component in the COLDIP® MIDNIGHT 1500 process.

### PROCEDURE

Using standard X-Ray Fluorescence or Atomic Absorption techniques, determine g/L of chrome in the working passivate solution.

CALCULATION: Atomic Absorption Only

$\text{g/L chrome} \times 1.60 = \% \text{ COLDIP® MIDNIGHT 1500A}$

### COLDIP® MIDNIGHT 1500B-CS

The use of X-Ray Fluorescence or Atomic Absorption analysis is recommended to determine the working concentration of COLDIP® MIDNIGHT 1500B-CS. COLDIP® MIDNIGHT 1500B-CS contains cobalt in the COLDIP® MIDNIGHT 1500 process.

## PROCEDURE

Using standard X-Ray Fluorescence or Atomic Absorption techniques, determine g/L of cobalt in the working passivate solution.

CALCULATION: Atomic Absorption Only

$\text{g/L cobalt} \times 3.20 = \% \text{ COLDIP}^{\circ} \text{ MIDNIGHT 1500B-CS}$

Reminder:  $\text{ppm} \div 1,000 = \text{g/L}$

## **COLDIP<sup>®</sup> MIDNIGHT 1500C-LS**

COLDIP<sup>®</sup> MIDNIGHT 1500C-LS contains the blackening agent in the COLDIP<sup>®</sup> MIDNIGHT 1500 process. It is controlled by the color of the passivate film.

## *HELPFUL HINTS*

### **ACID PRE-DIP**

A Nitric acid or Hydrochloric pre-dip of 0.2% - 0.5% by volume is recommended prior to the working COLDIP<sup>®</sup> MIDNIGHT 1500 passivate to polish the zinc deposit and to extend the life of the passivate solution.

## *HANDLING & STORAGE*

Columbia Chemical recommends referring to the specific product Safety Data Sheets for safety, handling, and storage precautions.

## *NON-WARRANTY*

The data contained 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 assume responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.