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# COLDIP MIDNIGHT 1500

## TRIVALENT BLACK LIQUID PASSIVATE

4-8-19

## COLDIP MIDNIGHT 1500

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

### SOLUTION MAKEUP:

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

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

### SOLUTION MAKEUP PROCEDURE:

- 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 and stir.
- 5) Add water to 90% of final volume.
- 6) Add 1.25%/vol of the COLDIP MIDNIGHT 1500C and stir.
- 7) Adjust to final volume with water and stir.
- 8) Check pH, if it is not in range then raise with dilute Sodium Hydroxide or lower with Nitric acid or Hydrochloric acid.

## **SOLUTION MAINTENANCE:**

### Replenishment Additions:

COLDIP MIDNIGHT 1500A:	Add back at approximately 4 – 8 ml/sq.ft. (Optimum 6ml/sq.ft.)
COLDIP MIDNIGHT 1500B:	Add back at approximately 0.5 – 3.0 ml/sq.ft. (Optimum 1.5ml/sq.ft.)
COLDIP MIDNIGHT 1500C:	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.

## **ADDITIONAL OPERATING INSTRUCTIONS**

### **ACID PRE-DIP**

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

## **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 1**

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

CALCULATION: Atomic Absorption Only

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

## ***ANALYTICAL PROCEDURE: COLDIP MIDNIGHT 1500B***

The use of X-Ray Fluorescence or Atomic Absorption analysis is recommended to determine the working concentration of COLDIP MIDNIGHT 1500B. COLDIP MIDNIGHT 1500B 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

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

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

## ***COLDIP MIDNIGHT 1500C***

COLDIP MIDNIGHT 1500C contains the blackening agent in the COLDIP MIDNIGHT 1500 process. It is controlled by the color of the passivate film.

## ***HANDLING AND STORAGE***

**CAUTION:** COLDIP MIDNIGHT 1500 is corrosive and contains chromium compounds and strong mineral acids. Contact with the skin or eyes should be carefully avoided. Protective clothing and eye shields or goggles should be worn when handling COLDIP MIDNIGHT 1500.

In case of contact, flush with large amounts of water. Remove contaminated clothing. For more detailed handling and storage instructions, please refer to the SDS.

**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 COLDIP MIDNIGHT 1500 freezes, warm to 95°-105°F / 35°-41°C in a warm water bath. Thoroughly mix until precipitates are completely dissolved.

## ***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.