

Luster-On Products

Technical Data Sheet

LUSTER-ON 1515

Zinc Brightener System for Conventional Medium Cyanide and Low Cyanide Solutions

I. GENERAL DESCRIPTION

Luster-On 1515 is a full range zinc brightener that will produce bright level deposits over a wide range of operating conditions. Luster-On 1515 is designed for use in both barrel and still operations. It may be used with conventional, mid and low cyanide formulations. Deposits produced by Luster-On 1515 exhibit excellent throwing and covering power, and may be easily chromated. Luster-On 1515 is more tolerant of higher temperature operation than aldehyde type brighteners. The brilliant deposits and economy of operation make Luster-On 1515 an outstanding zinc brightener.

**READ MATERIAL SAFETY DATA SHEET ON THIS PRODUCT BEFORE
USING**

II. RECOMMENDED PLATING SOLUTION COMPOSITION

1. Low Cyanide Formulation:

| | <u>PREFERRED</u> | <u>RANGE</u> |
|-------------------------------|------------------|----------------|
| Zinc Metal | 1.5 oz/gal | 1.0-2.0 |
| Sodium Cyanide | 2.5 oz/gal | 1.5-3.5 |
| Caustic Soda | 10.5 oz/gal | 10-11.5 |
| Ratio: Sodium Cyanide/Zinc | 1.7:1 | 1.2:1 to 1.8:1 |

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LUSTER-ON 1515 (continued)**II. RECOMMENDED PLATING SOLUTION COMPOSITION** (continued)

| | | | |
|----|----------------------------------|------------------|--------------|
| 2. | <u>Mid Cyanide Formulation:</u> | <u>PREFERRED</u> | <u>RANGE</u> |
| | Zinc Metal | 2.5 oz/gal | 2-3 |
| | Sodium Cyanide | 6.25 oz/gal | 5-7.5 |
| | Caustic Soda | 11.3 oz/gal | 10.0-12.0 |
| | Ratio: Sodium Cyanide/Zinc | 2.5:1 | 2.2:1-2.5:1 |
| 3. | <u>Full Cyanide Formulation:</u> | <u>PREFERRED</u> | <u>RANGE</u> |
| | Zinc Metal | 4.6 oz/gal | 4.0-5.3 |
| | Sodium Cyanide | 12.0 oz/gal | 10.7-16.0 |
| | Caustic Soda | 12.0 oz/gal | 10.7-13.3 |
| | Ratio: Sodium Cyanide/Zinc | 2.6:1 | 2.5:1-2.8:1 |

III. SOLUTION MAKE-UP:

| | | | |
|----|---------------------------------|---------------------|---------------|
| 1. | <u>Low Cyanide Formulation:</u> | <u>lbs/100 gals</u> | <u>oz/gal</u> |
| | Zinc Cyanide | 17 | 2.7 |
| | Sodium Cyanide | 1-1/2 | 0.25 |
| | Caustic Soda | 65 | 10.5 |
| | Luster-On 1515 | 0.5 gals | 0.5% by vol. |

III. SOLUTION MAKE-UP (Cont.)

2. Mid Cyanide Formulation:

| | <u>lbs/100 gals</u> | <u>oz/gal</u> |
|----------------|---------------------|---------------|
| Zinc Cyanide | 28 | 4.5 |
| Sodium Cyanide | 15-1/2 | 2.5 |
| Caustic Soda | 70 | 11.3 |
| Luster-On 1515 | 0.5 gals | 0.5% by vol. |

3. Full Cyanide Formulation:

| | <u>lbs/100 gals</u> | <u>oz/gal</u> |
|----------------|---------------------|---------------|
| Zinc Cyanide | 52 | 8.3 |
| Sodium Cyanide | 32 | 5.1 |
| Caustic Soda | 75 | 12.0 |
| Luster-On 1515 | 0.5 gals | 0.5% by vol. |

In approximately one-half the total volume of solution, dissolve the necessary amount of caustic soda followed by the sodium cyanide, and then zinc cyanide. Bring the solution volume up to operating level, and allow to cool to room temperature before adding brightener. Add required amount of Luster-On 1515 Brightener, mix thoroughly, and sample for analysis.

IV. OPERATING CONDITIONS:

| | |
|-------------------------|---------------------------|
| Cathode Current Density | 2-60 amps/ft ² |
| Temperature | 65-105° F. |
| Anode to Cathode Ratio | 1.5:1 to 2:1 |
| Anodes | 99.99% Zinc |
| Efficiency | 65-85% |

LUSTER-ON 1515 (Cont.)

V. SOLUTION MAINTENANCE:

Small additions of Luster-On 1515 at regular intervals are preferred to assure consistently good results. Luster-On 1515 is consumed at the rate of approximately 2 quarts per 10,000-ampere hours, depending upon operating conditions and drag-out. Excessive brightener additions can result in overdosing and a gradual reduction in brightness.

VI. EFFECTS OF SOLUTION COMPONENTS:

1. Zinc Metal:

Low concentrations of zinc metal will result in a reduction in the efficiency of the solution, and a reduction in covering power. High concentrations of zinc metal will result in loss of brightness.

2. Sodium Cyanide:

Sodium Cyanide complexes the metal in solution, which helps form fine grained bright deposits. The ratio of cyanide to zinc should be maintained in the range of 1.2:1 to 1.8:1 for low cyanide formulations, 2.2:1 to 2.5:1 for mid cyanide formulations and in the range of 2.5:1 to 2.8:1 for full cyanide formulations. Within these recommended ranges, lower ratios are preferred for rack operation and higher ratios are preferred for barrel operation. Selection of a desired ratio for the type of solution and operation will determine the best possible sodium cyanide for a given zinc metal concentration. Excessively high ratios of cyanide to zinc will result in decreased throwing power. An excessively low ratio will result in burning at high current densities.

3. Caustic Soda:

Concentrations of caustic soda below recommended ranges will result in loss of conductivity and reduced solution efficiency. Excessively high concentrations of caustic soda will result in a decrease in the bright plating range and an increase in metal concentration.

LUSTER-ON 1515 (Cont.)

VI. EFFECTS OF SOLUTION COMPONENTS

4. Luster-On 1515:

Daily additions of Luster-On 1515 are made to maintain the brightener level of the plating solution. Hull Cell tests will aid in keeping the brightener in the optimum range for maximum brightness. The usual addition rate is 2 quarts per 10,000-ampere hours. An excess of this addition rate can result in overdosing. Use of insoluble anode area may cause a brightener imbalance, which results in burning at high current density areas. Luster-On 1515 Basic, per recommendations from the Luster-On customer service laboratory, is used as the primary brightener until the imbalance is corrected.

5. Purifier:

The use of sulfide purifiers is NOT recommended with the 1515 brightener system. Such purifiers will result in excessive brightener consumption and possible brightener imbalances. Experience indicates that the routine use of purifiers is not necessary. Should a situation exist which requires the use of a purifier, Luster-On Products furnishes a non-sulfide purifier suitable for use with this system.

VII. CONVERSION OF EXISTING BATHS:

Luster-On 1515 is compatible with most existing brightener systems. Before attempting conversion however, it is recommended that a sample of the plating solution be submitted to the Luster-On customer service laboratory for recommendations.

VIII. PACKAGE:

5, 15, and 55 gallon non-returnable plastic containers.

IX. STORAGE:

Store in closed container at moderate temperatures. Protect from freezing.

X. DISPOSAL:

Treatment and disposal should be in accordance with Federal, State and Local Regulations.

LUSTER-ON 1515 (Cont.)

XI. HANDLING PRECAUTIONS:

Luster-On 1515 is a mildly alkaline industrial product. Do not get in eyes. Avoid skin

contact. Do not take internally. Exercise normal safety precautions to prevent skin and eye contact.

XII. FIRST AID:

FOR EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

FOR SKIN CONTACT: Wash the affected area thoroughly with soap and water. Wash contaminated clothing before re-use.

Solutions of Luster-On 1515 in a caustic soda and sodium cyanide plating solution require the same precautions and first aid as a caustic and cyanide solution.

KEEP OUT OF REACH OF CHILDREN

This product is sold for industrial use only. Our suggestions for its use are based upon tests and procedures, which from experience, we believe to be reliable. Since the use is beyond our control, neither we nor our distributors can assume responsibility, either expressed or implied, for the results and/or for any violation of any patents or any claims resulting from such use.

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