

# Luster-On Products

## Technical Data Sheet

### **LUSTER-FOS 2900**

#### **CALCIUM MODIFIED, FINE GRAINED ZINC PHOSPHATE**

#### **I. GENERAL DESCRIPTION**

Luster-Fos 2900 is a calcium modified, liquid zinc phosphate material primarily designed to establish fine grained coatings on steel surfaces. Luster-Fos 2900 is an exceptional tool in a prepaint treatment operation. Coating weights in the range of 300 to 600 mg/ft<sup>2</sup> are recommended to insure corrosion resistance and excellent paint adhesion.

Luster-Fos 2900 can also provide heavyweight coatings on steel in the range of 1,000 - 1,500 mg/ft<sup>2</sup>. These coatings provide absorbent properties for supplemental treatments such as rust preventative oils.

Properly applied, Luster-Fos 2900 meets the requirements of the following Federal and Military Specifications: TT-C-490 (Type I), and Mil-P-16232,(Type Z).

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

#### **II. TYPICAL CYCLE**

##### **A. PRE-PAINT IMMERSION**

1. Clean - Luster-On 242
  - Concentration - 6 - 10 oz./gal.
  - Temperature - 160 - 180°F.
  - Time - 3 - 5 min.
2. Rinse.
3. Phosphate - Luster-Fos 2900
  - Concentration - 2% v/v (with 0.15% Luster-Fos 2711).
  - Temperature - 170-190°F.
  - Time - 5-10 min

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## LUSTER-FOS 2900

### II. TYPICAL CYCLE (Continued)

#### A. PRE-PAINT IMMERSION (Continued)

4. Rinse.
5. Sealer (Dependent on paint process).

#### B. PRE-PAINT SPRAY

1. Clean - Luster-On 243S
  - Concentration - 5-10% v/v.
  - Temperature - 140-170°F.
  - Time - 1-3 min.
2. Rinse.
3. Phosphate - Luster-Fos 2900
  - Concentration - 2% v/v (with 0.15% Luster-Fos 2711).
  - Temperature - 170-190°F.
  - Time - 2-7 mins.
4. Rinse.
5. Sealer (Dependent on paint process).

#### C. HEAVYWEIGHT IMMERSION

1. Clean - Luster-On 242
  - Concentration - 6-10 oz./gal.
  - Temperature - 160-180°F.
  - Time - 3-5 min.
2. Rinse.
3. Phosphate - Luster-Fos 2900
  - Concentration - 4% v/v.
  - Temperature - 180-200°F.
  - Time - 5-10 min.
4. Rinse.
5. Sealer - Luster-Fos 900, 940, 960 or Rust Preventative Oils.

#### D. HEAVYWEIGHT SPRAY

1. Clean - Luster-On 243S
  - Concentration - 5-10% v/v.
  - Temperature - 140-170°F.
  - Time - 1-3 min .
2. Rinse.

## LUSTER-FOS 2900

### II. TYPICAL CYCLE (Continued)

#### D. HEAVYWEIGHT SPRAY (Continued)

3. Phosphate - Luster-Fos 2900  
Concentration - 4% v/v.  
Temperature - 170-190°F.  
Time - 3-7 min.
4. Rinse.
5. Sealer - Luster-Fos 900, 940, 960 or Rust Preventative Oils.

### III. BATH MAKE-UP

- A. Fill tank 3/4 full with water.
- B. Add recommended amount of Luster-Fos 2900.
- C. Fill tank to operating level with water - mix thoroughly.
- D. While the solution is still cool, add 10 pounds of clean steel scrap or steel wool per 100 gallons of solution and bring temperature to 140 to 160°F **MAXIMUM**.
- E. After 30 minutes, check iron content. (Should be 0.2%, -- 4.4 ml in titration.)
- F. When iron content reaches 0.2%, remove scrap steel or steel wool.
- G. Titrate Total Acid.
- H. If Total Acid is within range, bring temperature to operating conditions and begin work.
- I. If Total Acid is low, adjust as necessary and begin work.

If an old or used Luster-Fos 2900 solution is to be discarded, save about 10 to 20% to be added to the new solution. This will normally bring the iron content within range and processing may start immediately.

### IV. OPERATING CONDITIONS

Concentration	Free Acid	Total Acid	FA/TA Ratio	Iron
2% by vol.	1.8 - 2.3 ml	10.5 - 13 ml	1:5.8 - 1:7.2	0.2 - 0.5%
3% by vol.	2.8 - 3.3 ml	15.5 - 18 ml	1:5.5 - 1:6.4	0.2 - 0.5%
4% by vol.	3.8 - 4.3 ml	20.5 - 23 ml	1:5.4 - 1:6.1	0.2 - 0.5%
5% by vol.	4.8 - 5.3 ml	25.5 - 28 ml	1:5.3 - 1:5.8	0.2 - 0.5%

Temperature - 170-190°F.  
Time - 2-10 min.

## **LUSTER-FOS 2900**

### **V. HELPFUL HINTS**

Normally, only the Total Acid is titrated to control zinc phosphate solutions. Free Acid titrations should be employed for "trouble-shooting" and checking bath conditions. Maintain iron content in the range of 0.2 to 0.5% by volume (4.4 ml to 11.0 ml titration). Normally, only one titration per day is necessary. Avoid boiling - causes increase in sludge build-up. Equipment should be large enough to sustain production. Periodically, tank should be de-sludged.

### **VI. EQUIPMENT**

Tanks should be T-304 Stainless Steel; 1/4" black iron steel tanks may be used. Steam heating coils should be T-304 or T-316 Stainless Steel. Electric coils must be stainless steel, T-316, preferred.

### **VII. DISPOSAL**

Neutralize and waste treat in accordance with Federal, State and Local Regulations.

### **VIII. STORAGE**

Keep container closed when not in use. Keep from freezing - will restore after thawing.

### **IX. PACKAGE**

55 gallon steel, poly-lined drums.

### **X. SAFETY AND HANDLING PRECAUTIONS**

**CAUTION! HIGHLY ACIDIC INDUSTRIAL PRODUCT  
CONTAINING FLUORIDES.**

**DANGER!! CAUSES SEVERE BURNS THAT MAY OR MAY NOT BE  
IMMEDIATELY PAINFUL OR VISIBLE. HARMFUL IF  
SWALLOWED OR INHALED.**

Avoid contact with eyes, skin and clothing. Wear safety goggles, rubber gloves, and other suitable protective clothing when handling. Use with adequate ventilation. Avoid inhalation of mist or vapor.

## LUSTER-FOS 2900

### X. SAFETY AND HANDLING PRECAUTIONS (Continued)

#### **DO NOT TAKE INTERNALLY.**

Avoid contact with glass, ceramic or concrete. In case contact is made, rinse surface promptly and thoroughly with water. Avoid contact or mixing with materials containing Chlorine. Before opening container, loosen closure slowly to relieve any pressure build-up. Keep container closed when not in use. Store in a cool place out of direct sunlight at temperatures below 120°F.

#### **FIRST AID IN CASE OF CONTACT**

**EYES:** Immediately flush with cool water for 15 to 30 minutes. Hold eyelids apart while flushing to insure contact of water with all surfaces of eyes and lids. Get immediate medical attention.

**SKIN:** Immediately flush with large quantities of cool water until all acid is removed, paying particular attention to skin under the nails. Immediately remove contaminated clothing and shoes. Wash clothing and shoes before reuse. Get immediate medical attention.

**IF SWALLOWED:** Rinse out mouth thoroughly with water. Give water to drink without delay. Follow with milk or 2 ounces of Milk of Magnesia. Get immediate medical attention.

**IF INHALED:** Remove from exposure. Get medical attention, if warranted.

### **KEEP OUT OF REACH OF CHILDREN**

#### **FOR INDUSTRIAL USE ONLY**

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 violation of any patents or any claims resulting from such use.

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**Rev:** 08/22/95

# LUSTER-FOS 2900

## CONTROL PROCEDURE

### TOTAL ACID

1. Pipet 5 ml of the solution into a 250 ml Erlenmeyer flask.
2. Add about 50 ml of water and 5 to 6 drops of phenolphthalein indicator.
3. Titrate using 0.1N Sodium Hydroxide solution to first permanent pink color.
4. The number of milliliters of Sodium Hydroxide represents the Total Acid Number.

### FREE ACID

1. Pipet 5 ml of the solution into a 250 ml Erlenmeyer flask.
2. Add about 50 ml of water and 5 to 6 drops of Bromophenol Blue Indicator.
3. Titrate using 0.1N Sodium Hydroxide solution. The color will change from yellow to green then to blue. The first permanent blue color is the endpoint.
4. The number of milliliters of Sodium Hydroxide represents the Free Acid Number of the solution.

### IRON CONTENT

1. Pipet 5 ml of the solution into a 250 ml Erlenmeyer flask.
2. Add about 50 ml of water and about 1-2 ml of 10 % Sulfuric Acid solution.
3. Titrate using 0.042N Potassium Permanganate solution until pink endpoint persists for 15 seconds.

### CALCULATION

ml of Permanganate x 0.047 = % iron