Mi-Phos™ Z-P

Product Code: 2202002
Revised Date: 03/20/2006

Mi-Phos™ Z-P
For Paint Bonding Or Light Weight Phosphate Coatings

Mi-Phos™ Z-P is a chemically formulated concentrate which, when mixed in the recommended proportions with water, will produce on iron and steel surfaces, a fine, uniform crystalline zinc phosphate coating with a coating weight of 40 to 300 milligrams per square foot.

Mi-Phos™ Z-P is used to produce phosphate films to be used as a bond or undercoat for paints, enamels, etc. The phosphate coating provide a tenacious bond and prevents flaking, peeling or chipping. It also provides a corrosion resistant undercoat and prevents undercoat corrosion. **Mi-Phos™ Z-P** can also be used for the light weight phosphate coatings as a corrosion resistant film in itself. If a heavier coating is required, Mi-Phos™ Z-2 is recommended.

PROCESSING PROCEDURE

Cleaning (removal of oils, greases, soils, etc.) is necessary prior to phosphating in **Mi-Phos™ Z-P** solution. Many varieties of cleaning procedures can be used, depending upon specific requirements for the phosphate coating, available space, and type of work to be processed and can be determined prior to setting up the final processing cycle. Our Sales Engineers and Research Laboratory facilities are available for assisting and cooperating for customer requirements.

The basic phosphating procedure, therefore, would be:
1. Clean (see above explanation)
2. Water rinse
3. Phosphate (**Mi-Phos™ Z-P**)
4. Water rinse
5. Mi-Phos™ Sealer C or CP
6. Dry

The metal surface is now ready for subsequent painting. However, if the phosphating coating is to be used as a corrosion resistant finish in itself, an oil or wax dip should be applied to the phosphated metal surface.

Mild steel tanks can be used for cleaning, rinsing, chromic acid and oil or wax dips. If acid pickling is required in the cycle (phosphoric acid is recommended) mild steel, lined with PVC or Koroseal, can be used--or ceramic ware such as crocks, etc. A stainless steel or a mild steel tank with stainless steel liner should be used for the Mi-Phos™ phosphating solution.

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CONCENTRATION OF MI-PHOS™ Z-P SOLUTION

A new **Mi-Phos™ Z-P** solution is made up as a 3% to 5% by volume solution and operated at a temperature of 130-190°F., depending upon the weight or the thickness of a phosphate coating required. A 4% by volume solution is used ordinarily for a phosphate film to be used as an undercoating for paint and an immersion time of three to five minutes. A 4-1/2 to 5% by volume solution should be used for spray applications and a dwell time of 20 seconds to 2 to 3 minutes should be used.

A 4% to 5% by volume solution is required when light weight phosphate coatings are to be used as a finish itself. An immersion time of five minutes plus is recommended.

In order to make up a 4-1/2% by volume solution, 4-1/2 gallons of **Mi-Phos™ Z-P** are used with 95-1/2 gallons of water to make up a 100 gallon phosphating solution.

A 4-1/2% by volume solution would have the following concentration of total acid and free acid.

Free Acid 6.0 pts.
Total Acid 36.3 pts.

A ratio of total acid to free acid between 6:1 and 6.6:1 -- 6:1 would be the optimum range and would maintain the solution within production limits.

OPERATING RANGES OF MI-PHOS™ Z-P PHOSPHATING SOLUTION

Concentration	3% to 5% by volume
Temperature	130-190°F.
Strength	4-1/2% by volume = 36 points (approx.)
Operating Range	24 to 60 points (36 optimum)
Acid Ratio	Ratio of Total Acid to Free Acid should preferably range from 6:1 to 6. 6:1
Coating Weight	40 to 300 mg/sq.ft.

A 1% by volume addition of **Mi-Phos™ Z-P** concentrate will raise the total acid point concentration approximately 8 points.

CAUTION: DANGER....STRONG OXIDANT....CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.

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Flush spillage thoroughly with water. Avoid contact with skin, eyes and clothing. Wear protective clothing and goggles. In case of contact, flush skin and eyes with plenty of water for at least 15 minutes. For eyes, call a physician immediately.

Read and understand OSHA SAFETY DATA SHEET and WARNING label on drum for this product.

CHEMICAL CONTROL PROCEDURE FOR MI-PHOS™ Z-P

1. **TOTAL ACID**

   10 ml sample of working bath add 3-5 drops phenolphthalein indicator. Add 0.1N sodium hydroxide to a permanent pink color.

2. **FREE ACID**

   10 ml sample of working bath add 3-5 drops bromphenol blue add 0.1N sodium hydroxide solution to a deep reddish-blue color.

   Range: Approximately 4.0 ml.

   Normally the Free Acid is stable, however, to lower Free Acid, small additions of sodium carbonate are used.

3. **FREE ACID/TOTAL ACID RATIO:**

   Best operating range of this bath is 1 to 6.0 to 1 to 6.6.

   THIS IS A TEMPORARY CONTROL PROCEDURE

WARRANTY

THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.

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