Mi-Phos™ Z-100

Product Code: 2202008
Revised Date: 03/21/2006

Mi-Phos™ Z-100
Zinc Phosphate For Iron, Steel And Galvanized Steel
(Spray Or Immersion)

Mi-Phos™ Z-100 is a chemically formulated liquid concentrate which, when mixed in the recommended proportions with water and operated within a specific temperature range, will produce on iron, steel and galvanized surfaces (by spray or immersion), a uniform, fine grain crystalline zinc phosphate coating.

Mi-Phos™ Z-100 is inhibited to keep the build-up of iron to a minimum and retard sludging. The zinc phosphate coating applied is also a darker color than the coating applied by the usual type of zinc phosphate processing.

Mi-Phos™ Z-100 is a very stable solution and the production bath is maintained at the proper operating limits by addition of new **Mi-Phos™ Z-100** concentrate determined by simple chemical tests.

PROCESSING PROCEDURE

Cleaning (removal of oils, grease, soils, etc.) is necessary prior to phosphating in **Mi-Phos™ Z-100** solution. Many variations of cleaning procedure 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, for either spray or immersion, is as follows:

1. Clean (see above explanation)
2. Rinse
3. Phosphate
4. Rinse
5. Chromic Acid Dip or Sealer (formulated product available)
6. Dry
7. Oil or wax Dip (as required)

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EQUIPMENT REQUIRED

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™ Z-100 phosphating solution.

CONCENTRATION OF MI-PHOS™ Z-100 SOLUTION

For immersion applications, a new **Mi-Phos™ Z-100** solution is made up as a 2% to 4% by volume solution. for example: 3 gallons of **Mi-Phos™ Z-100** concentrate are mixed with 97 gallons of water to make up a 100 gallon working solution which will be approximately a 30 point solution. The operating temperature should be approximately 140°F. and up and an immersion time of 5 to 30 minutes, depending upon the weight of the coating required and ultimate chemical requirements of the coating.

For spray applications, a new **Mi-Phos™ Z-100** solution is made up as a 2 to 3% by volume solution. For example: 2 gallons of **Mi-Phos™ Z-100** concentrate are mixed with 98 gallons of water to make up a 100 gallon working solution which will be approximately a 20 point solution. The operating temperature should be approximately 135°F. and up and a spray time of approximately 45 seconds to 2 minutes is used, depending upon the weight of the coating required.

OPERATING RANGES OF MI-PHOS™ Z-100 PHOSPHATING SOLUTION

	Immersion	Spray
Concentration:	2% to 4% by vol.	2% to 3% by vol.
Temperature:	140°F. and up	135°F. to 145°F.
Strength:	3% by vol. (30 pts.approx)	2% by vol. (20 pts.approx)
Operating Range:	19 to 40 pts.(35opt.)	19 to 30 points
Acid Ratio:	Ratio of Total Acid	Ratio of Total Acid

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	to Free Acid should preferably range from 6.5:1 to 8:1	to Free Acid should preferably range from 6.5:1 to 8:1
Iron Content	6 grams/liter, max.	6 grams/liter, max.
Additives	Use nitrite additive for steel, none for galvanize	Use nitrite additive for steel, none for galvanize

A 1% by volume addition of **Mi-Phos™ Z-100** concentrate will raise the total acid point concentration approximately 10 points.

METHOD OF MAKING ADDITIONS & TESTING OF SODIUM NITRITE IN MI-PHOS™ Z-100

When sodium nitrite is used as an additive during processing of steel, the amount of additions to be made, procedure to be used in making these additions, and method of testing is as follows:

Sodium nitrite can be used as an accelerator when processing steel in the **Mi-Phos™ Z-100** phosphating solution. When a new **Mi-Phos™ Z-100** phosphating solution is made up, sodium nitrite can be added to the solution at the rate of 1-1/2 ounces of sodium nitrite per 100 gallons of phosphating solution. The sodium nitrite should be dissolved in water before making additions of it to the **Mi-Phos™ Z-100**phosphating solution. A stock solution of sodium nitrite can be made up by mixing 2 pounds of sodium nitrite per gallon of water. In these proportions, 6 fluid ounces of the sodium nitrite solution would contain 1-1/2 ounces of sodium nitrite. When sodium nitrite is added to the phosphating solution, it should be evenly distributed and mixed thoroughly.

Sodium nitrite in the **Mi-Phos™ Z-100**is gradually lost and, therefore, must be replenished. Additions should be made about once a day prior to processing work. If the **Mi-Phos™ Z-100** phosphating solution has been allowed to stand overnight, or is used intermittently, sodium nitrite should be maintained between 0.5 to 2.5 ml. of potassium permanganate titrating solution described as follows:

1. Take a 25 ml. sample of the **Mi-Phos™ Z-100** phosphating solution and cool to room temperature.

2. Add 20 to 30 drops of 50% sulfuric acid.

3. Titrate with a 0.042 N KMn 04 (potassium permanganate) to a persistent pink end point.

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NOTE: Maintain sodium nitrite content between 0.5 to 2.5 ml. (0.042 N potassium permanganate)

PRECAUTIONS:

DANGER...ACID...CAUSES BURNS... Avoid contact with skin, eyes and clothing. Wear goggles and protective clothing.

In case of contact, flush skin and eyes with plenty of water for at least 15 minutes. For eyes, contact physician immediately. Flush spillage thoroughly with water.

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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