

## **TECHNICAL DATA SHEET**

### **METFIX MN P- 410**

#### **( MANGANESE PHOSPHATE IMMERSION COATING )**

Metfix MN P- 410 is formulated to produce a non-metallic, oil absorptive. Crystalline, black/dark-gray Manganese Iron phosphate coating on steel and iron surfaces to reduce wear on articles as liners, camshafts, piston rings and prevent galling of moving parts.

#### **SALIENT FEATURES:**

- Increases lubrication due to oil absorptive coating.
- Coating weight obtained is 750 – 3000 mg/sq.ft. ( IS 3618-1966 class A1)
- Provides high corrosion resistance with oils.
- Due to porous base oil gets absorbed easily which prevents friction between the parts and prevents the direct mating of surfaces.

#### **BATH MAKE-UP:**

Clean the tank thoroughly before making up the solution. Be sure all grease, rust and scale is removed prior to making the phosphating solution.

- Fill up the tank to half of its capacity with cold water.
- Add Metfix MN P- 410, 7 -10 liters per 100 liter of bath solution.
- Make - up to its operating level with cold water and mix it by stirring.
- Heat the bath to 60 – 70°C..
- Carry – out ageing by introducing 20 – 25 gms of cleaned steel wool per 100 liters of bath solution for 10-20 minutes.
- Heat the bath to its operating temperature.
- Start phosphating.

### **OPERATING CONDITIONS:**

Concentration of Metfix MN P– 410	7-10% v/v
Operating Temperature	95 – 99°C
Immersion Time	10 – 30 minutes
Pointage	40-55

### **MAINTENANCE:**

For optimum results and maximum solution life the Metfix MN P– 410 bath solution be maintained on the basis of regular analysis using the analytical procedure outlined under the heading “ Control”.

### **SLUDGE:**

During the operation of Metfix MN P– 410 sludge, a natural by – product of the chemical reaction, is formed slowly. This sludge will settle to the bottom of the tank and should not be stirred up while the parts are being processed otherwise dusty coatings may result.

This solution should be desludged periodically preferably once or twice a month.

### **PROCESS CYCLE & TIME:**

- Degreasing                      5 – 10 minutes
- Water rinse                      15 – 30 seconds
- Water rinse                      15 – 30 seconds
- Pickling / derusting            5 – 10 minutes  
(Hcl / H<sub>2</sub>SO<sub>4</sub>)
- Rinsing                              15 – 30 seconds
- Rinsing                              15 – 30 seconds
- Conditioning                      1-3 minutes(optional)
- Phosphatising                    5 – 10 minutes
- Rinsing                              15 – 30 seconds
- Rinsing                              15 – 30 seconds
- Sealing                              1 – 3 minutes
- Drying                              1 – 4 minutes

**EQUIPMENT:**

Selection of equipment such as type of tanks, size of tanks, type of heating and handling devices etc, depends on the production rate and type of components.

**HANDLING AND SAFETY PRECAUTIONS:**

Metfix MN P- 410 is acidic in nature. rubber gloves and aprons should be worn while handling. In case of contact with skin, flush with plenty of cold water.

**WASTE DISPOSAL:**

Solution of Metfix MN P- 410 are acidic and contain manganese metal. Consult experts with regard to waste disposal regulations and process.

**CONTROL:****METFIX MN P- 410 CONCENTRATION:**

Pipette out 10 cc of bath solution, add 5 drops of phenolphthalein indicator, well titrate against 0.1 N Sodium Hydroxide till colour changes to permanent pink.

The No. of ccs of Sodium Hydroxide corresponds to "Total Acid Pointage".

For each point below 40 add "175 - 200 cc" of Metfix MN P- 410 per 100 liters of bath.

**FERROUS IRON CONCENTRATION:**

Pipette out 10 cc of bath solution in to a conical flask, add 1 – 2 cc of 50 % sulphuric Acid to it. Titrate against 0.1 N potassium Permanganate colour change from colourless to pink, persisting for atleast 15 seconds.

$0.1N \text{ Potassium permanganate required} \times 0.056 = \% \text{ of Ferrous Iron.}$

When ferrous iron concentration reaches 0.4% ( i.e. 0.1N Potassium Permanganate ) reading =7 cc ( Bath should be partially or completely discarded ).

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