Paintbond 400Z

Zinc/Nickel Phosphate Treatment

Description

A treatment producing a microcrystalline structured zinc/nickel phosphate coating on both zinc and steel surfaces. Produces a coating weight of 2 – 3 g/m^2.

Features

- Apply by spray or dip.
- Excellent anticorrosion and paint adhesion characteristics.
- The coating meets Def Stan 03-11/13 Class III and BS-EN-ISO-9717.
- Fine coatings – good adhesion and flexibility under paint, powder and CED.
- Easy to control in use.
- Concentrated product for economy.
- Low sludging – low maintenance costs.

Product Code

MP0217.

SG

1.51 $\pm$ 0.1 kg/l at 15^{o}C.

Coverage

Consumption will depend on bath losses through drag-out and overspray. As a guide the following range has proved reliable:

Spray: 7 – 12 m^2/kilo of Paintbond 400Z
Dip: 75 –100 m^2/kilo of Paintbond 400Z

Equipment

The plant should be constructed of stainless steel for maximum life. PVC or high-density polypropylene can be used for the spray risers and jets. Whirl jet nozzles should be used in the phosphate stage - the first and last rings may be Vee jet nozzles. Vee jet nozzles should be used in the other stages.

Initial Fill

Fill the bath with mains water. For every 1000 litres of bath:

Dipping:

- Add 40 litres of Paintbond 400Z.
- Warm to operating temperature and stir thoroughly.
- Just before commencing treatment, add 0.6 litres of PB Toner Solution Z (**MP0228**).

Spraying:

- Add 30 litres of Paintbond 400Z, turn on pumps and slowly add 5 litres of PB Alkaline Adjuster 1 (**MP0225**). Circulate through the spray jets for 5 min.
- Warm to operating temperature while circulating through the spray jets.
- Just before commencing treatment, add 0.6 litres of PB Toner Solution Z (**MP0228**).

Note: sludge is generated as a by-product and will need periodic removal from jets and plant.

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Application

The process sequence is normally:
1. Degrease with Absol MP (**ABSO/MP**)
2. Cold water rinse.
3. Phosphate with Paintbond 400Z (see **Analytic Control** below).
4. Rinse - normally 2 stages (see **Rinsing** below).
7. Dry-off (see **Drying** below).

Control Points

	Dip	Spray
Total Acidity Pointage	30 – 35 ml	25 – 30 ml
Free Acidity Pointage	6 – 7 ml	1.7 – 2.5 ml
Acid Ratio	5:1	12:1 – 15:1
Accelerator Pointage	1 – 3 ml	1 – 3 ml
Time:	2 – 5 min	1 – 2 min
Temperature	65° – 75°C	55° – 65°C
Spray Pressure	n/a	0.8 – 1.0 bar

Analytic Control

The finest coatings are produced by regular small additions of chemicals via dosing and control equipment. This keeps the bath within its operating parameters. Manual testing should be done 4 times per shift to confirm this quality is being maintained.

1. **Total Acidity (TA):** measure 10 ml of cooled Paintbond 400Z solution into a flask and add 4 – 6 drops of Phenolphthalein Indicator. Titrate with 0.1 M sodium hydroxide until the colour changes from colourless to a permanent pink.
   Replenishment: Add 1.25 litres Paintbond 400Z per 1000 litres of bath for each ml the titration is below the operating level.

2. **Free Acidity (FA):** measure 10 ml of cooled Paintbond 400Z solution into a flask and add 4 – 5 drops of Bromophenol Blue Indicator. Titrate with 0.1 M sodium hydroxide solution until the colour changes from yellow to greenish blue.
   To reduce the free acidity by 0.25 points, add approximately 600 ml of PB Alkaline Adjuster 1 (**MP0225**) per 1000 litres of bath.

3. **Accelerator**: measure 50 ml of cooled Paintbond 400Z solution into a flask. Carefully add 10 ml of 50% sulphuric acid and mix. Slowly titrate with 0.1 M Potassium Permanganate until the pink colour persists for at least 15 seconds.
   Replenishment: to raise the accelerator concentration by 1 point, add 150 ml of PB Toner Solution Z (**MP0228**) or 30 g of PB Toner crystals (**MP0227**) per 1000 litres of bath.

   Note: PB Toner Solution Z (**MP0228**) continuously degrades with time and temperature, as well as being consumed by the zinc phosphating process. It is better therefore to continuously add PB Toner Solution Z slowly by means of a small metering pump.

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Rinsing

The work should be thoroughly rinsed with water from a tank fitted with a weir and continuously overflowed with mains water to keep the contamination low. For spray, the clean water is better introduced over the work through the last spray riser. A second final rinse is essential, heated to aid drying.
Improved corrosion resistance can be gained by using demineralised water alone or, demineralised water containing PB Seal Zr (**MP0231**). This rinse is not normally overflowed but should be dumped regularly.

Notes:
(i) For Def Stan 03-11, refer to contract details, as extra rinsing requirements may be specified.
(ii) Please contact Trimite for advice if local mains water exceeds a conductivity of 150 microsiemens, as this water may be unsuitable for a final rinse, and deionised water should be used.

Drying

For most reliable results, the work should be dried in an indirect-fired oven, with good air movement, at 125°C.

Tank Maintenance

Paintbond 400Z forms some sludge in normal use that will need periodic removal from the tank. Daily inspection for blockages of the spray jets is recommended. Blocked jets should be removed for cleaning.
Periodic desludging can be achieved by:

- allowing the bath to stand, to settle the sludge.
- decant the supernatant clear liquor into a rinse tank.
- remove the sludge and dispose of via a waste contractor.
- return the supernatant liquor and make up to working level with water, measure the Pointage, and adjust proportionally referring to **Initial Fill** section.

Shelf Life

2 years from date of manufacture when correctly stored in unopened containers.

Storage

The product should be stored in cool, dry, frost-free conditions, in sealed containers.

Health & Safety

Refer to the product's Safety Data Sheet and safety advice on the product label before use.

Technical Support

For technical support in using this product, please contact:
e: birminghamtech@trimite.com, or
t: 0121 554 7000.

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