Abphos 800Z

Heavy Zinc Phosphate Treatment

Description

An immersion zinc phosphate process designed to produce heavy, corrosion resistant coatings on ferrous metals. Coating weights of up to 30 g/m^2 can be achieved.

Features

- Produces a dense, even crystalline deposit.
- Very effective surface preparation for organic coatings, improves adhesion.
- A single additive process.
- High tolerance for iron in solution.
- Low sludging properties.
- Prevents under-paint corrosion.

Product Code

ABPH/800Z.

SG

1.62 $\pm$ 0.1 kg/l at 15^{o}C.

Equipment

Conventional immersion processing equipment may be used. The Abphos 800Z tank should be constructed of stainless steel (Type 316). Preferred heating is with stainless steel, steam-heated panels or gas burners in flame tubes. Sufficient space should be left between the bottom of the heaters and the base of the tank, so that sludge settlement has a minimal effect on heat transfer.

Initial Fill

A new solution is normally made up to 3 - 4% (v/v) of Abphos 800Z in water. Before processing production work, new solutions should be worked in with steel wool or scrap iron.

Application

The process sequence is:

1. Clean with e.g. Target AB10 (**TARG/AB10**) alkaline cleaner, using 40 g/l at 75^{o}C for 2 – 20 min.
2. **Rinse** with cold, overflowing water.
3. When rust, scale or oxides are present, the use of an inhibited **acid pickle** should be employed, using e.g. hydrochloric acid 50% (v/v) plus 2% (v/v) Target AB40I (**TARG/AB40I**).
4. **Rinse** with cold, overflowing water**.**
5. Abphos 800Z **dip** for 10 – 30 min.
6. **Rinse** with cold, overflowing water**.**
7. **Seal** with e.g. 5-10% (v/v) Abseal Sil-X (**ABSE/SIL-X**) rinse.

Control Points

Normal operating conditions for Abphos 800Z solutions are as follows:

Total Acidity (TA)	40 points.
Free Acidity (FA)	6.5 points.
Temperature	75^o - 85°C.
Immersion Time	10 - 30 min.

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Analytic Control

Abphos 800Z solutions are controlled by determination of: total acidity (TA); free acidity (FA); and iron concentration.

Total Acidity (TA)
Pipette 10 ml of the phosphate solution into a conical flask.
Add 2 - 3 drops of phenolphthalein indicator and titrate with 0.1 M sodium hydroxide - colour change is clear to pink.
Each (ml) of 0.1 M sodium hydroxide required = points TA.

Free Acidity (FA)
Pipette 10 ml of the phosphate solution into a conical flask.
Add 2 - 3 drops Bromo Phenol Blue indicator and titrate with 0.1 M sodium hydroxide - colour change is yellow to blue.
Each (ml) of 0.1 M sodium hydroxide required = points FA.

Iron Content
Pipette 5 ml of phosphate solution into a conical flask.
Add approx. 1 ml of a 50/50 mix of sulphuric acid and phosphoric acid.
Titrate with 0.02 M (0.1 N) potassium permanganate to a pink end point that persists for at least ten seconds.
Each (ml) of 0.02 M (0.1 N) potassium permanganate required = 1 g/l of Iron Content.

Process Control

For optimum results, the solution should be maintained within the following limits:

Total Acid	30 - 55 points.
Free Acid	5 - 9 points.
Ratio FA:TA	1:6 - 1:7
Iron	2 - 8 g/l.

Under normal circumstances, analytical control of Abphos 800Z solutions need only be by TA determination. Provided that correct operating procedures are adhered to, FA and iron concentration will be self-regulating. An addition of 1 litre of Abphos 800Z per 1000 litres of solution will increase the TA by 1 point.

Tank Maintenance

Sludge, which is a by-product of the phosphating reaction, should be removed from the tank on a regular basis. This is best achieved by decanting the clear solution into a holding tank and discarding the remaining slurry. Any build-up of scale should be removed from the heaters and tank sides before pumping the clear solution back. After bringing the solution up to working temperature, the normal operating strength should be restored by addition of Abphos 800Z.

Rinsing

Rinse the work thoroughly in a tank fitted with a weir and continuously overflowed with mains water.

Drying

For most reliable results, the work should be dried in an indirect-fired oven at 70° - 125°C.

Shelf Life

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

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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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