



ABPHOS 800Z

ZINC PHOSPHATE IMMERSION PROCESS

ABPHOS 800Z is a specially developed immersion zinc phosphate process designed to produce heavy, corrosion-resistant coatings on ferrous metals. Coating weights of up to 30g per square metre may be comfortably achieved. The dense, even, crystalline deposit produced is ideal for use with organic protectives. The unique formulation of ABPHOS 800Z provides a single additive process, exhibiting a high tolerance for iron in solution, coupled with low sludging characteristics.

OPERATING INSTRUCTIONS

BATH PREPARATION

(A) BATH PREPARATION

ABPHOS 800Z solutions are easily prepared. 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.

(B) BATH OPERATION

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

Total Acidity (TA) - 40 points.

Free Acidity (FA) - 6.5 points.

Temperature - 75-85° C.

Immersion Time - 10 - 30 mins.

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.

PROCESS SEQUENCE

- (1) CLEANING -- e.g. TARGET AB10 - alkaline cleaner (40g/litre at 75° C for 2 - 20 mins).
- (2) RINSING -- Cold, overflowing water rinse.
- (3) PICKLING -- When rust, scales or oxides are present, the use of an inhibited acid pickle should be employed e.g. hydrochloric acid - 50% (v/v) plus 2% (v/v) TARGET AB40i.
- (4) RINSING -- Cold overflowing water rinse.
- (5) RINSING -- Cold overflowing water rinse.



- (6) PHOSPHATING -- ABPHOS 800Z, 10 - 30min.
- (7) RINSING -- Cold overflowing water rinse.
- (8) SEALING -- e.g. TARGET ABSEAL, chromate seal - 0.2ml/litre.

PROCESS ANALYSIS

ABPHOS 800Z solutions are controlled by determination of total acidity, (TA), free acidity, (FA), and iron concentration.

• Total Acid (TA)

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

• Free Acid (FA)

1. Pipette 10mls of the phosphate solution into a conical flask.
2. Add 2 - 3 drops Bromo Phenol Blue indicator and titrate with 0.1N sodium hydroxide (colour change yellow-blue). Each ml of 0.1N Sodium Hydroxide required = points FA.

• Iron Content

1. Pipette 5mls of phosphate solution into a conical flask.
2. Add approx. 1ml of a 50/50 mix of sulphuric acid and phosphoric acid.
3. Titrate with 0.1N potassium permanganate to a pink end point, that persists for at least ten seconds. Each ml of 0.1N potassium permanganate required = 1g/litre iron.

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

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. 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.

HANDLING & SAFETY PRECAUTIONS

ABPHOS 800Z is strongly acidic. When handling, avoid contact with eyes, skin, and clothing. In case of eye contact irrigate with copious amounts of water or normal saline solution. Seek qualified medical assistance without delay. In case of skin contact, remove contaminated clothing and drench skin thoroughly with water. (Launder clothing before re-use.) For more comprehensive information consult the ABPHOS 800Z Health & Safety Data Sheet.

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
ABPHOS 800Z	ABPH/800Z/25

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