

## ZYGLO<sup>®</sup> ZP-5B WATER SUSPENDIBLE DEVELOPER

### CLASSIFICATION

- *Form c, Water Suspendible Developer*

### GENERAL DESCRIPTION

Zygro<sup>®</sup> ZP-5B is a white powder developer which is to be dispersed into water. It disperses quickly to form an opaque white suspension, but must be continually agitated during use to ensure uniformity of mix as developer will settle out on standing. ZP-5B forms a uniform white coating which enhances fluorescent indications formed by Zygro<sup>®</sup> penetrants. At higher concentration, ZP-5B forms an opaque white coating which provides contrasting background for Spotcheck<sup>®</sup> indications.

### COMPOSITION

Zygro<sup>®</sup> ZP-5B is composed of inert mineral pigments, surface active agents, and corrosion inhibitors.

### TYPICAL PROPERTIES (Not a specification)

Typical Properties	ZP-5B
pH of Bath	10.3
Density	2.3 lbs/gal
Flash Point	None
Corrosion	Meets Requirements of AMS 2644
Sulfur	<1.0%
Chlorine	<1.0%
NPE-Free	Yes

## METHOD OF APPLICATION

Zygro<sup>®</sup> ZP-5B can be applied by immersion dip, spray or flow on techniques. If the immersion dip application is used, care must be taken to avoid transferring excess penetrant into the developer bath. Complete removal of surface penetrant will prolong the developer bath life. The developer bath temperature should not exceed 120°F.

If the spray or flow on techniques are used, care should be taken to avoid foaming as foam bubbles will cause holes in the developer film when they break. Use Magnaflux<sup>®</sup> ZAF-2 Anti-foam if necessary. The developer is applied after the surface penetrant has been removed. For best results forced warm air drying (140°F/60°C) is recommended. The test piece should be removed from the dryer once developer is dry, as prolonged drying will not enhance performance and can bake developer making post inspection removal difficult.

In Zygro<sup>®</sup> fluorescent penetrant applications, cracks will appear as bright yellow green lines, porosity as spots. A general greenish developer film indicates incomplete removal of surface penetrant. In Spotcheck<sup>®</sup> visible dye applications, cracks will show as vivid red indications against the white contrasting background formed by developer.

The developer film can be washed off with water spray. If the coating has been baked on or does not wash completely, brushing should be employed along with the water spray.

## DEVELOPER BATH PREPARATION

ZP-5B's recommended use concentration range is one half (0.5) to one (1.0) pound per gallon of water, when used for fluorescent inspection. For whiter coating for Spotcheck<sup>®</sup> applications, use between one (1.0) to two (2.0) pounds per gallon. The developer tank should be cleaned before the developer bath is made up. Fill the tank with the appropriate amount of water and slowly add ZP-5B powder to the water while stirring bath. Without continuous agitation the developer particles will settle out of solution and must be re-suspended before processing begins. The concentration can be monitored using a hydrometer (refer to the table below) or by taking a known volume of the bath, evaporating off the water and then weighing the residue.

Concentration	Specific Gravity @ 70°F
0.50 lbs/gal	1.035
0.75 lbs/gal	1.052
1.00 lbs/gal	1.065
1.25 lbs/gal	1.085
1.50 lbs/gal	1.098
2.00 lbs/gal	1.120

Density measurement of aqueous suspensions to check concentration is not very accurate but is provided as a convenient guide to estimate concentration of bath. Mix until particles are fully dispersed before measurement.

**SPECIFICATION COMPLIANCE:** AMS 2644, MIL-STD-271, ASTM E 1417, MIL-STD-2132, Boeing BAC-5423 PSD 6-46 or 8-4, AMS-2647, Garrett EMS 52309, ASME B & PV Code, Sec. V, General Electric P3TF2, ASTM E165, AECL.

**PACKAGING**

25 Lb. Container