

ZP-14A

Water Soluble Developer

ZP-14A developer is used to complete the liquid penetrant inspection process. ZP-14A is mixed with water. The tank does not require agitation once the ZP-14A is prepared. Following application, the part is dried with warm air. Advantages include bright and highly defined indications, and can be cleaned with water. ZP-14A is recommended for use with ZL-2C, ZL-27A and ZL-37 post-emulsifiable penetrants.

ZP-14A is listed on the QPL SAE AMS 2644 Qualified Product List.



BENEFITS

- Bright, highly-defined indications
- Can be cleaned off with water
- Even, uniform coverage

APPLICATIONS

Defect location: open to surface

Ideal for:

- Castings
- Forgings

Defect examples:

- Cracks
- Porosity

SPECIFICATION COMPLIANCE

- AECL
- AMS 2644
- AMS 2647
- ASME
- ASTM E1417
- ASTM E165
- Boeing BAC 5423 PSD 6-46 or 8-4
- GE P3TF2
- MIL-STD-2132
- MIL-STD-271
- QPL SAE AMS 2644

PROPERTIES

Density	37 lb./ft. ³ (593 kg/m ³)
NPE-Free	Yes

USE RECOMMENDATIONS

NDT Method	Penetrant Testing
Form(s)	b
Recommended Concentration Range	1 to 2 lb/gal 119 to 239 g/L
Usage Temperature	40 to 125°F / 5 to 52°C
Storage Temperature	50 to 86°F / 10 to 30°C

PREPARATION INSTRUCTIONS

Developer tank should be clean before developer bath is mixed. Fill the tank with the appropriate amount of water and slowly add the appropriate amount of developer powder to the water while stirring or agitating bath until it is completely dissolved. Once the powder is dissolved, agitation is not required to keep the developer particles suspended. To speed up bath preparation, warm water can be used, however developer bath temperature should never exceed 120°F / 48°C.

Developer powder is dusty and use of a simple filter mask may be desirable during handling.

INSTRUCTIONS FOR USE

ZP-14A developer bath can be applied by immersion dip, spray or flow-on techniques, with immersion being the preferred method. If the immersion dip application is used, care must be taken to avoid transferring 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 / 48°C. If spray or flow-on techniques are used, care should be taken to avoid foaming as foam bubbles will create holes in the developer film. Use ZAF-2 anti-foaming additive if necessary.

Developer bath is applied after the surface penetrant has been removed. Complete coverage of the part is essential to quality inspection. The application time is only long enough to cover the part completely. Additional contact with the developer bath may result in reduced sensitivity due to removal of penetrant from shallow discontinuities by detergent action. For best results, forced warm air drying (140°F / 60°C) is recommended after

developer application. Once the developer is dry, the part should be removed from the dryer to prevent degrading the penetrant's visibility.

Maintenance Recommendations:

Developer bath concentration can be monitored using a hydrometer or by taking a known volume of the bath, evaporating off the water and then weighing the residue. When using a hydrometer, refer to the density concentration chart provided below.

PACKAGING

20 lb / 9.07 kg pail 01-3381-75

50 lb / 22.6 kg pail 01-3381-89



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Density vs. Concentration

