



PRODUCT DATA SHEET

ZR-10B ZyglO Hydrophilic Emulsifier

Effective March 6, 1997

Supercedes January 4, 1995

General Description

ZR-10B is a biodegradable, pinkish, slightly viscous liquid. ZR-10B is a 100% active concentrate which is diluted in water when used as an emulsifier for ZyglO PE penetrants. ZR-10B is very low in sulfur, chlorine, and sodium content.

Utilization of ZR-10B Hydrophilic Emulsifier affords such advantages as: minimization of fluorescent background on rough surfaces, minimization of bleed-out from hollow parts, reduced consumption of expendable materials, ease of use in close loop systems and reduced effluent pollutants. ZR-10B Hydrophilic Emulsifier yields the most reliable and reproducible test results due to its controlled ZyglO PE penetrant removal.

Composition

ZR-10B is composed of hexylene glycol and surface active agents.

Safety

1. ZR-10B is intended for industrial use by qualified personnel only.
2. Do not smoke or eat while using NDT materials. Wash hands thoroughly after use. Protective hand wear is recommended to prevent drying of skin. If ZR-10B solution is sprayed, avoid breathing mist, either by using adequate ventilation or by wearing respirator with mist filter.
3. Material Safety Data Sheets available upon request.

Typical Properties (Not a Specification)

Color:	Pinkish Red
Viscosity @ 100°F:	36.8 to 44.9 cs
Flash Point:	Greater than 200°F (93°C) P.M.C.C.
Density @ 60°F:	8.25 lbs./gallon
Water Tolerance:	Infinite
Corrosion:	Non-corrosive per MIL-I-25135
Sulfur:	Less than 1000 ppm
Chlorine:	Less than 1000 ppm
Sodium:	Less than 100 ppm
Fluorine:	Less than 50 ppm

Pre-Rinse

The pre-rinse step is recommended before the application of a hydrophilic emulsifier like ZR-10B. Pre-rinse is a water spray employed to mechanically reduce the film of PE penetrant on a part before entering the emulsifier bath. This process step prolongs the emulsifier bath life by lowering the amount of penetrant contaminating the bath. The pre-rinse and hydrophilic emulsifier process are ideally suited for closed loop low pollution systems.

Application and Emulsification

ZR-10B concentrate is diluted in water before it is used as an emulsifier/remover. The hydrophilic emulsifier is generally employed as a spray or an immersion dip. The concentration used will determine the amount of contact time required to remove the surface penetrant.

Spray Method

If the spray method of emulsifier application is used, an injector or metering pump is used to control the concentration. The general spray concentration range is 0.1% to 0.5% remover. Higher concentrations up to 5% may be used but care is required to avoid over removal. Spray removal should be employed under blacklight illumination to control removal of penetrant from the surface. A clean water rinse is recommended to eliminate emulsifier/penetrant residues.

Immersion Method

If the immersion dip method is employed the general concentration range is 5% to 33% remover to water. The recommended concentration range is 20% to 33% which optimizes remover activity, bath life, economics and process rate. **If compliance with MIL-I-25135 and MIL-STD-6866 is required, the maximum allowable ZR-10B concentration is 20%.** The penetrated part is immersed in the bath, which is gently agitated by mechanical or air means. The length of time the part is in the bath will vary with the concentration of the bath, the type penetrant being used, specification requirements and the desired results. At 20% concentration the immersion contact time generally ranges between 30 - 180 seconds. The immersion dip is followed by a clean water spray to remove any penetrant/emulsifier residues.

The use of foam, created by heavy agitation of the emulsifier bath, as a remover method is possible. The foam will act as a remover, however it is not as effective overall for maximum performance. The foam does not enter hollow parts as readily as the liquid immersion and will therefore be less effective.

Concentration Control

The concentration of hydrophilic remover baths can be monitored using a refractometer and the charts provided (Figures 1 and 2). The water content of the bath can also be determined using the procedure described in ASTM D-95.

Specification Compliance

MIL-I-25135	ASTM E 1417	Boeing BAC 5423 PSD 6-46 or 8-4
MIL-STD-271	McDonnell Douglas PS-21202	AECL
MIL-STD-2132	Garrett EMS 52309	AMS 2647
ASME B & PV code, Sec. V	General Electric P3TF2	Pratt & Whitney PMC 4355-2
ASTM E 165	General Electric P50YP107	

Packaging 5 gallon pail, 20 gallon drum, 55 gallon drum