



Penetrant Professor Approved

Product Data Sheet
E-57
Emulsifier



Met-L-Chek Company manufactures a complete line of emulsifiers used in the fluorescent (**Type 1**) and visible (**Type 2**) dye penetrant inspection process. All Met-L-Chek Company emulsifiers are qualified to **AMS-2644** and are sold under the **Met-L-Chek®** and **Pen-Chek®** trademarks. Met-L-Chek Company products are manufactured under license in The Netherlands by NDT Europa.

E-57 is a Method B (lipophilic) inspection penetrant emulsifier approved to **AMS-2644** for use with **FP-94**, **FP-93A(M)**, **FP-95A(M)**, and **FP-97A(M)** fluorescent (**Type 1**) post emulsifiable penetrants. Method B emulsifiers are used either by immersion or flow on. The emulsifier is used as supplied. The penetrant covered part is immersed into the emulsifier and then removed and allowed to drain from 30 seconds to 3 minutes depending upon the part surface roughness. The emulsifier will render the PE penetrant water washable during the dwell time. This step is then followed by a wash step in the Method B process.

E-57 is listed on the Qualified Products List for **AMS-2644**. It meets the requirements of **ASME Boiler and Pressure Vessel Code Section V**, **ASTM E-165**, and **ASTM E-1417**, and for penetrant inspection materials.

Guide to METHOD “B” (lipophilic)
Processing per **ASTM E-1417**

1. Part must be clean, dry and at a temperature of 4.4° - 52°C (40° - 125°F) before penetrant is applied.
2. Apply **Type 1** penetrant using spray, immersion, or wipe on.
3. Wait a minimum of 10 minutes; 20 minutes if temperature is 4.4° - 10°C (40-50°F).
4. Immerse part in and out of Method B emulsifier, or flow on emulsifier; drain time < 3 minutes.
5. Wash part; water temperature 10° - 38°C (50° - 100 °F). Water pressure < 275kPa (< 40 psi); if a hydro-air nozzle use limit pressure to < 172kPa (<25 psi). Distance >30cm (>12 inches). Wash time- only long enough to remove surface fluorescence under UV-A .
- 6*. Dry part; temperature not to exceed 71°C (160°F), time - only long enough to dry surface.
7. Apply dry powder developer, form “a”, by dusting, or non aqueous developer, form “d”, by spraying.
- 7A*. If water based developers forms “b or c” are used they are applied by immersion or spray, prior to step 6 drying.
8. Wait a minimum of 10 minutes before inspection. Maximum time is 1 hour for form “d” (non aqueous), maximum 2 hours for forms “b & c” (aqueous), and maximum 4 hours for form “a” (dry powder). If times are exceeded, clean part and reprocess.
9. Use UV-A illumination of >1000 μw/cm² @ 15 inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).

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