



Penetrant Professor Approved

Product Data Sheet

E-57

Emulsifier



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

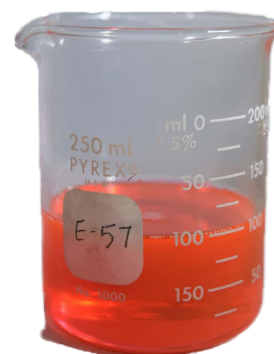
**E-57** is a Method B (lipophilic) inspection penetrant emulsifier approved to **AMS-2644** for use with **FP-94**, **FP-93A(M)**, **FP-95A(M)**, and **FP-97A(M)** fluorescent (**Type 1**) post emulsifiable penetrants. Method B emulsifiers are used either by immersion or flow on. The emulsifier is used 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/cm<sup>2</sup> @ 15 inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).

**E-57** Method B Emulsifier





Penetrant Professor Approved

# Product Data Sheet E-57 Emulsifier



### Typical Physical Properties

Form: clear reddish orange viscous liquid  
 Density: 906 g/L  
 Flash Point: > 93°C (> 200°F)  
 Viscosity 31.8 mm<sup>2</sup>/s  
 Water content: 2.8%  
 Water tolerance: 11.2%  
 Corrosion of aluminum: none  
 Corrosion of carbon steel: none  
 Corrosion of magnesium: none  
 Corrosion of stainless steel: none  
 Corrosion of titanium: none  
 Chloride content: < 200 ppm (0.02%)  
 Fluoride content: < 50 ppm (0.00%)  
 Sulfur content: < 200 ppm (0.02%)  
 Mercury: none  
 VOC's: 0 g/L  
 Ozone layer depleting substances: none  
 PCB's: none

### Specifications

**AMS-2644** ASME B & PV code Sec V  
**ASTM E-165** ASTM E-1417  
**ISO-3452** NAVSEA 250-1500

### Product Availability

1 gallon (3.7L) metal can  
 5 gallon (18.9L) metal pail  
 55 gallon (208L) metal drum

### NSN # 's

1 gallon	6850-01-268-6709
1 gallon	6850-01-268-8617
1 gallon	6850-01-272-1847
5 gallon	6850-01-268-6710
5 gallon	6850-01-268-7122
5 gallon	6850-01-265-6712
5 gallon	6850-01-263-6708
55 gallon	6850-01-267-6707
55 gallon	6850-01-268-6711
55 gallon	6850-00-782-2737
55 gallon	6850-01-268-6713



BEFORE USING ANY OF THESE PRODUCTS, YOU MUST BECOME COMPLETELY FAMILIAR WITH THE INFORMATION CONTAINED IN MCGEAN'S SAFETY DATA SHEETS. All information contained therein or in this document regarding handling, personal protection, and other safety measures must be followed during use. McGean presents the information herein without warranty and disclaims any liability, including any consequential, special, or indirect damages, arising from its use and misuse. Because the use, the conditions of use, product or product composition, and/or applicable laws may differ from one location to another and/or may change with time, the purchaser and/or user is solely responsible for determining whether the product is appropriate for use. McGean recommends use of this product solely in commercial processes which are specified by McGean and which do not violate any third-party patent rights or any laws or regulations or otherwise adversely impact human health and the environment. Users must make their own investigations and determine the suitability of the product for their particular purposes. McGean does not guarantee the accuracy of any data provided by its suppliers. MCGEAN MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE EXCEPT AS EXPRESSLY STATED IN THE SELLER'S SALES CONTRACT OR SALES ACKNOWLEDGEMENT FORM. USE OF ANY MCGEAN PRODUCT IS AT THE USER'S RISK.

### Contact Us

United States  
 McGean  
 Phone: +1-216-441-4900  
 Fax: +1-216-441-1377

United Kingdom  
 McGean UK  
 Phone: +44-1902-456563  
 Fax: +44-1902-457443

Singapore  
 McGean Singapore  
 Phone: +65-6863-2296  
 Fax: +65-6863-2297