



Penetrant Professor Approved



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).



E-57 Method B Emulsifier

Fluorescent Penetrant Indications Type 1, Method B, Level 2, form "a"





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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 mm²/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

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

The warranty shelf life of the product is 5 years from date of batch approval.

Specifications

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



GHS Information



Danger

GHS Hazard Statements:

H315: Causes skin irritation.
H318: Causes serious eye damage.
H412: Harmful to aquatic life with long lasting effects.

GHS Precautionary statements:

P102: Keep out of reach of children.
P261: Avoid breathing dust/fumes/gas/mist/vapors/spray.
P264: Wash skin thoroughly after handling..
P273: Avoid release to the environment.
P280: Wear protective glove/clothing/eye protection/face protection.
P284: In case of inadequate ventilation wear respiratory protection.



GHS response statements:

IF INHALED: Remove person to fresh air and keep comfortable for breathing, get medical advice/attention if you feel unwell.
IF ON SKIN: Wash with plenty of water. If skin irritation occurs, get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easily to do. Continue rinsing, get medical attention.
IF SWALLOWED: Immediately call a poison center/doctor/physician. Do Not induce vomiting.
IF ON CLOTHING: Take off contaminated clothing and wash it before reuse.

Transport:

DOT- not regulated < 450 L or 119 Gal containers
 IATA- not regulated
 IMDG- not regulated

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