



PENETRANT PROFESSOR APPROVED

PRODUCT DATA SHEET

E-50 Emulsifier

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3/09



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-2644E** 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-50 is a Method B (lipophilic) inspection penetrant emulsifier used with **VP-31A** red visible (**Type 2**) penetrant. It is designed to be sprayed onto the post emulsifiable penetrant to render the penetrant water washable. It is a fast acting emulsifier so very short contact time with the penetrant is required. Some users apply the emulsifier by brush and flow on techniques but these methods are not as efficient as spray. **E-50** emulsifier is ideal for use on rough castings and other metal surfaces which tend to retain penetrant readily, which causes high background and difficulty in evaluating indications.

E-50 is listed on the Qualified Products List for **AMS-2644E**. It meets the requirements of **ASME Boiler and Pressure Vessel Code**, **ASTM E-165**, and **ASTM E-1417**, for penetrant inspection materials.

E-50 is effective in rendering most light oily soils water washable and has been used as a pre-wash cleaner for tough to clean surfaces. It has found use as a concrete cleaner for the removal of oily residues. The emulsifier is applied, allowed to soak in for a few minutes, and then washed off with water spray.

Guide to METHOD "B" (lipophilic) processing per ASTM E-1417-05

1. Part must be clean, dry and at a temperature of 4.4°-52°C (40°- 125°F) before penetrant is applied.
2. Apply **VP-31A** 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. Spray on **E-50** emulsifier, or flow on; drain time < 2 minutes.
5. Wash part; water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi). Distance >30cm (>12 inches). Wash time- only long enough to remove surface color .
6. Dry part; temperature not to exceed 71°C (160°F), time - only long enough to dry surface.
7. Apply nonaqueous developer, form "e", by spraying.
- 7A. If water based developers forms "b & 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 "e" (nonaqueous), maximum 2 hours for forms "b & c" (aqueous). If times are exceeded, clean part and reprocess. Use illumination of >1100 lux/m² (>100 foot candles).



Visible penetrant indications of porosity on weld and stress cracks on metal clamp.





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Typical Physical Properties

Form: clear liquid
Density: 780 g/L
Flash Point: > 62.2°C (>144°F)
Viscosity 1.7 mm²/s
Fluorescence: none
Corrosion of aluminum: none
Corrosion of carbon steel: none
Corrosion of magnesium: none
Corrosion of stainless steel: none
Corrosion of titanium: none
Chloride content: < 250 ppm (0.025%)
Fluoride content: < 100 ppm (0.01%)
Sulfur content: < 250 ppm (0.025%)
Mercury: none
VOC's: 774 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

Specifications

AMS-2644E
ASME B & PV code 07 sec V
ASTM E-165
ASTM E-1417

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

Transport: DOT: Bulk - Cleaning compound, not regulated in containers less than 119 gallons (450L).

Hazards Flammable liquid & vapor

See MSDS for detailed health, safety, and disposal information.

Classification: **NFPA Health-1, Flammability-2, Reactivity-0.**

EU- unknown

WHMIS(Canada) B3,D2B (bulk)

Human health hazards: Eye irritant. Vapors may cause drowsiness or dizziness.

First aid measures

Eyes: Check for contact lenses and remove. Flush eyes with clean water holding eyelids open. Seek medical attention.

Skin: Remove contaminated clothing. Wash exposed area with soap and water. Apply moisturizing lotion. Launder clothing before reuse. Clean shoes before reuse.

Swallowing: Do not induce vomiting. Small amounts are not expected to cause significant harm, call a physician.

Inhalation: Remove to fresh air.

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