



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-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-2644. It meets the requirements of ASME Boiler and Pressure Vessel Code Section V, 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

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.

7. Apply non aqueous developer, D-70, form "e", by spraying.

7A*. If water based developer form "c" is used, it is 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" (non aqueous), maximum 2 hours for form "c" (aqueous). If times are exceeded, clean part and reprocess. Use illumination of >1100 lux/m² (>100 foot candles) to inspect.



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





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E-50 Emulsifier

Typical Physical Properties

- Form: clear liquid
- Density: 781 g/L
- Flash Point: > 62.2°C (>144°F)
- Viscosity 1.6 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: < 100 ppm (0.01%)
- Fluoride content: < 50 ppm (0.005%)
- Sulfur content: < 100 ppm (0.01%)
- Mercury: none
- VOC's: 684 g/L
- Ozone layer depleting substances: none
- PCB's: none

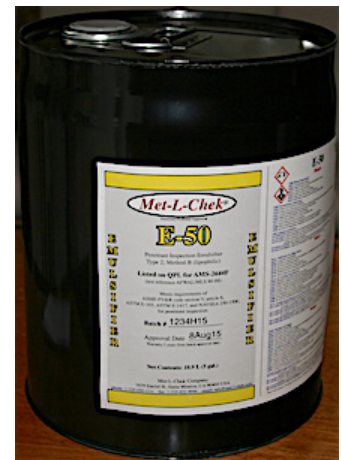
The warranty shelf life of the product is 5 years from date of batch approval.

Specifications

- AMS-2644
- ASTM E-165
- ISO-3452
- ASME B & PV code sec V
- ASTM E-1417

Product Availability

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



GHS Information



Danger

GHS Hazard Statements:

- H227:** Combustible liquid.
- H304:** May be fatal if swallowed and enters airways.
- H315:** Causes skin irritation.
- H318:** Causes serious eye damage.
- H336:** May cause drowsiness or dizziness.
- H412:** Harmful to aquatic life with long lasting effects.

GHS Precautionary statements:

- P102:** Keep out of reach of children.
- P210:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P261:** Avoid breathing dust/fumes/gas/mist/vapors/spray.
- P264:** Wash skin thoroughly after handling.
- P271:** Use only outdoors or in well-ventilated area.
- 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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