



Penetrant Professor Approved

## Product Data Sheet

# FP-921

## Fluorescent Penetrant



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

FP-921 is approved to AMS-2644 as a fluorescent (Type 1); Methods “A”, and “C”; sensitivity level 1 water washable inspection penetrant. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FP-921 is applied by immersion, spray, or wipe on. It is approved for low sensitivity aerospace applications.

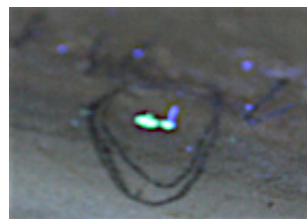
FP-921 is listed on the Qualified Products List for AMS-2644. It meets the requirements of AMS-2647, ASME Boiler and Pressure Vessel Code Section V, ASTM E-165, and ASTM E-1417, for penetrant inspection materials. It is low in sulfur and halogens and is safe for use on all metal surfaces.

### Guide to METHOD “A” 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 FP-921 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. Wash part; water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi); if a hydro-air nozzle is used, limit pressure to < 172kPa (< 25 psi). Distance > 30cm (> 12 inches). Wash time- only long enough to remove surface fluorescence under UV-A (black light) .
- 5\*. Dry part; temperature not to exceed 71°C (160°F), time - only long enough to dry surface.
6. Apply dry powder developer, form “a” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
- 6A\*. If water based developer form “c”(D-78B) is used it is applied by immersion or spray, prior to step 5 drying.
7. Wait a minimum of 10 minutes before inspection. Maximum time is 1 hour for form “d ” (non aqueous) and maximum 4 hours for form “a” (dry powder). If times are exceeded, clean part and reprocess.
8. 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).

### Guide to METHOD “C” (wipe off) 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 FP-921 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. Moisten cloth with E-59, E-59A, R-503 or R-504 and wipe penetrant from surface. Do not spray remover on surface to remove penetrant, as sensitivity will be impaired. Water may be used to wipe FP-921 from the surface, but the surface must be dried before developer is applied.
5. Apply dry powder developer D-72A by dusting, or non aqueous developer D-70 by spraying.
6. Wait a minimum of 10 minutes before inspection.
7. Inspect under 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 footcandles).



Fluorescent Penetrant Indication on Aluminum Extrusion



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### Typical Physical Properties

Form: clear yellow green viscous liquid  
 Density: 969 g/L  
 Flash Point: > 93°C (> 200°F)  
 Viscosity 8.4 mm<sup>2</sup>/s  
 Water Tolerance:> 20 %  
 Water Content: < 1 %  
 Fluorescent Brightness: (AMS-2644 requirement > 65 %) 80.0%  
 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%)  
 Sodium content: < 100 ppm (0.01%)  
 Sulfur content: < 100 ppm (0.01%)  
 Mercury: none  
 VOC's: 0 g/L  
 Ozone layer depleting substances: none  
 PCB's: none

### Product Availability

6 x 1 pint (0.4L) can with dauber  
 1 gallon (3.7L) can  
 5 gallon (18.9L) pail  
 55 gallon (208L) drum

#### NSN #

1 gallon 6850-01-263-6490  
 55 gallon 6850-01-263-4055

### Specifications

**ISO 3452**  
**SPOP-82**  
**AMS-2644**  
**ASTM E-165**  
**BAC 5423 GE P3TF2**  
**Snecma sensibilité S2**  
**ASME B&PV code Sec. V**  
**HONEYWELL EMS 52309**

**RPS-702**  
**R-R CSS-232**  
**AMS-2647**  
**ASTM E-1417**



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