



Penetrant Professor Approved



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (Type 1) and visible (Type 2) dye penetrant inspection process. All Met-L-Chek Company penetrants 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.

FBP-912 is approved to AMS-2644 as a fluorescent (Type 1); Methods “A”, and “C”; sensitivity level 2 water washable inspection penetrant. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FBP-912 is applied by immersion, spray, or wipe on. It is approved for medium sensitivity aerospace applications.

FBP-912 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.

FBP-912 is a special oil and solvent free formulation which utilizes biodegradable components, and is VOC free.

Guide to METHOD “A” processing per
ASTM E-1417

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 FBP-912 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

1. Part must be clean, dry and at a temperature of 4.4°-52°C (40°- 125°F) before penetrant is applied.
2. Apply FBP-912 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 FBP-912 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).



FBP-912
fluorescent penetrant indications
on aluminum extrusion



Penetrant Professor Approved

FBP-912

Fluorescent Penetrant

Typical Physical Properties

Form: clear yellow green viscous liquid
Density: 973 g/L
Flash Point: > 93°C (> 200°F)
Viscosity 25.4 mm²/s
Water Tolerance:> 20 %
Water Content: < 1 %
Fluorescent Brightness: (AMS-2644 requirement > 80 %) 102.9%
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

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
ISO 3452
R-R CSS-232

AMS-2647
ASTM E-1417
R-R RPS-702

Product Availability

1 gallon (3.7L) plastic bottle
5 gallon (18.9L) plastic jug with our spout
55 gallon (208L) plastic drum

NSN #

1 gallon 6850-01-267-7987
5 gallon 6850-01-263-2261
55 gallon 6850-01-263-2262



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:** Rinse mouth Do Not induce vomiting. Get medical attention if feeling unwell.
- IF ON CLOTHING:** Take off contaminated clothing and wash before reuse.

Transport:

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

Met-L-Chek Company, 1639 Euclid Street, Santa Monica, California, 90404, U.S.A.

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FBP-913 is approved to AMS-2644 as a fluorescent (Type 1); Methods “A”, and “C”; sensitivity level 3 water washable inspection penetrant. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FBP-913 is applied by immersion, spray, or wipe on. It is approved for high sensitivity aerospace applications.

FBP-913 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.

FBP-913 is a special oil and solvent free formulation which utilizes biodegradable components, and is VOC free.

Guide to METHOD “A” processing per
ASTM E-1417

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 FBP-913 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

1. Part must be clean, dry and at a temperature of 4.4°-52°C (40°- 125°F) before penetrant is applied.
2. Apply FBP-913 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 FBP-913 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).



FBP-913
fluorescent penetrant indications
on shrink cracks



Penetrant Professor Approved

FBP-913

Fluorescent Penetrant

Typical Physical Properties

Form: clear yellow green viscous liquid
 Density: 975 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 26.4 mm²/s
 Water Tolerance:> 20 %
 Water Content: < 1 %
 Fluorescent Brightness: (AMS-2644 requirement > 90 %) 127.3%
 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

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
 ISO 3452
 R-R CSS-232

AMS-2647
 ASTM E-1417
 R-R RPS-702

Product Availability

1 gallon (3.7L) plastic bottle
 5 gallon (18.9L) plastic jug with our spout
 55 gallon (208L) plastic drum

NSN

1 gallon 6850-01-263-8430
 5 gallon 6850-01-263-2263
 55 gallon 6850-01-263-4056



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:** Rinse mouth Do Not induce vomiting. Get medical attention if feeling unwell.
- IF ON CLOTHING:** Take off contaminated clothing and wash before reuse.

Transport:

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

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FBP-911 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. FBP-911 is applied by immersion, spray, or wipe on. It is approved for low sensitivity aerospace applications.

FBP-911 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.

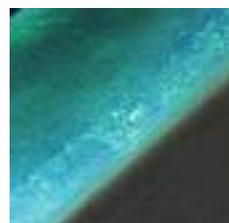
FBP-911 is a special oil and solvent free formulation which utilizes biodegradable components, and is VOC free.

Guide to METHOD “A” processing per
ASTM E-1417

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 FBP-911 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

1. Part must be clean, dry and at a temperature of 4.4°-52°C (40°- 125°F) before penetrant is applied.
2. Apply FBP-911 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 FBP-911 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).



Fluorescent Penetrant Indication
on
Aluminum Extrusion



Penetrant Professor Approved

FBP-911

Fluorescent Penetrant

Typical Physical Properties

Form: clear yellow green viscous liquid
 Density: 969 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 25.7 mm²/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

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
 ISO 3452

AMS-2647
 ASTM E-1417

Product Availability

1 gallon (3.7L) plastic bottle
 5 gallon (18.9L) plastic jug with our spout
 55 gallon (208L) plastic drum

NSN

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



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:** Rinse mouth Do Not induce vomiting. Get medical attention if feeling unwell.
- IF ON CLOTHING:** Take off contaminated clothing and wash before reuse.

Transport:

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

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FBP-914 is approved to AMS-2644 as a fluorescent (Type 1); Methods “A”, and “C”; sensitivity level 4 water washable inspection penetrant. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FBP-914 is applied by immersion, spray, or wipe on. It is approved for ultra high sensitivity aerospace applications.

FBP-914 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.

FBP-914 is a special oil and solvent free formulation which utilizes biodegradable components, and is VOC free.

Guide to METHOD “A” processing per
ASTM E-1417

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 FBP-914 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

1. Part must be clean, dry and at a temperature of 4.4°-52°C (40°- 125°F) before penetrant is applied.
2. Apply FBP-914 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 FBP-914 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).

FBP-914
fluorescent penetrant indications





Penetrant Professor Approved

FBP-914

Fluorescent Penetrant

Typical Physical Properties

Form: clear yellow green viscous liquid
 Density: 977 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 26.7 mm²/s
 Water Tolerance:> 20 %
 Water Content: < 1 %
 Fluorescent Brightness: (AMS-2644 requirement > 95 %) 124.4%
 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

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
 ISO 3452

AMS-2647
 ASTM E-1417

Product Availability

1 pint (0.4L) can with dauber
 1 gallon (3.7L) plastic bottle
 5 gallon (18.9L) plastic jug with our spout
 55 gallon (208L) plastic drum

NSN

5 gallon 6850-01-263-2264
 55 gallon 6850-01-263-4057



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: Rinse mouth Do Not induce vomiting. Get medical attention if feeling unwell.
- IF ON CLOTHING: Take off contaminated clothing and wash before reuse.

Transport:

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

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Penetrant Professor Approved

Product Data Sheet

FLP-1

Fluorescent Penetrant

1
10/2015



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (**Type 1**) and visible (**Type 2**) dye penetrant inspection process. Met-L-Chek Company penetrants 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.

FLP-1 is a special water based fluorescent (**Type 1**) penetrant concentrate designed for through leak testing and general metal working surface flaw detection. It is free of petroleum solvents and oils, making it safe for use on many plastics that may be attacked by more traditional inspection penetrants.

FLP-1 being a water based penetrant may be diluted with water to fit the inspection needs. The most common dilutions are 1:1 and 3:1, water to **FLP-1**. For through leak testing or to enhance hydrostatic leak detection dilutions of 1000:1 have been used successfully. The use of developer **D-70** will enhance flaw detection.

FLP-1 is low in Sulfur, Chlorine, Fluorine and other Halogens, making it safe for use on Titanium and high Nickel alloys.

Guide to METHOD "A" processing

1. Part must be clean, dry and at a temperature of 4.4°-52°C (40°- 125°F) before penetrant is applied.
2. Apply **FLP-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. Gently wash part; water temperature 10°-38°C (50°-100 °F). Water pressure low, 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 **D-72A** by dusting, or non aqueous developer **D-70** by spraying.
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 $\mu\text{W}/\text{cm}^2$ @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

Guide to METHOD "C"(wipe off) processing

1. Part must be clean, dry and at a temperature of 4.4°-52°C (40°- 125°F) before penetrant is applied.
2. Apply 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 **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 **FLP-1** from the surface, but the surface must be dried before developer is applied.
5. Apply non aqueous developer **D-70**, by spraying.
6. Wait a minimum of 10 minutes before inspection.
7. Use UV-A illumination of >1000 $\mu\text{W}/\text{cm}^2$ @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).

Through Leak Method

For through leak testing the penetrant is applied to one side of the component and then developer is applied to the opposite side. Thickness of the component will effect the dwell time which may range from 10 minutes to 2 hours.



Penetrant Professor Approved

FLP-1 Fluorescent Penetrant

Typical Physical Properties

Form: clear orange green liquid
Density: 1.025 K/L
Flash Point: none
Viscosity 4.7 mm²/s
Water tolerance: 100%
Corrosion of aluminum: none
Corrosion of carbon steel: none
Corrosion of magnesium: none
Corrosion of stainless steel: none
Corrosion of titanium: none
Chloride content: < 500 ppm (0.05%)
Fluoride content: < 100 ppm (0.01%)
Sulfur content: < 500 ppm (0.05%)
Mercury: none
VOC's: 0 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

ASTM E-165

ASTM E-1417

Product Availability

1 gallon (3.7L) plastic bottle
5 gallon (18.9L) plastic jug with our spout
55 gallon (208L) plastic drum



FLP-1 diluted 3 parts water to 1 part penetrant

GHS Information



Danger

GHS Hazard Statements:

- H302** Harmful if swallowed.
- H315** Causes skin irritation.
- H318** Causes serious eye damage.
- H373** May cause damage to organs (kidney) through prolonged or repeated exposure if swallowed.
- 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 before reuse.

Transport:

- DOT- not regulated
- IATA- not regulated
- IMDG- not regulated

Met-L-Chek Company, 1639 Euclid Street, Santa Monica, California, 90404, U.S.A.

Phone: 310-450-1111, Fax: 310-452-4046, Email: info@met-l-chek.com, Web: www.met-l-chek.com



Penetrant Professor Approved

Product Data Sheet

FP-93A(M)

Fluorescent Penetrant

1
112015



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (Type 1) and visible (Type 2) dye penetrant inspection process. All Met-L-Chek Company penetrants 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.

FP-93A(M) is approved to AMS-2644 as a fluorescent (Type 1); Methods “B”, “C”, and “D”; sensitivity level 2 post emulsifiable inspection penetrant. It is approved with Method “B” emulsifier E-57 and Method “D” emulsifier E-58D. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FP-93A(M) is applied by immersion, spray, or wipe on. FP-93A(M) meets requirements for medium sensitivity aerospace applications.

FP-93A(M) 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 “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 FP-93A(M) 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 E-57 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 used 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” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
7A*. If water based developers forms “b “(D-76B) or “c”(D-78B) 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 @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).

Guide to METHOD “D” (hydrophilic) 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-93A(M) 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. Pre-rinse part with water. Water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi);only long enough to remove bulk of surface penetrant. This step may be skipped when emulsifier is applied by spray.
5. Immerse part in gently agitated E-58D emulsifier diluted to 17-20%. for 30 seconds to 2 minutes depending upon part roughness For spray applications emulsifier concentration should be 1-5% and spray contact for less than 2 minutes.
6. Wash part; water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi); if a hydro-air nozzle used limit pressure to < 172kPa (<25 psi). Distance >30cm (>12 inches). Wash time- only long enough to remove surface fluorescence under UV-A .
7*. Dry part; temperature not to exceed 71°C (160°F), time - only long enough to dry surface.
8. Apply dry powder developer, form “a” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
8A*. If water based developers forms “b” (D-76B) or “c”(D-78B) are used they are applied by immersion or spray, prior to step 6 drying.
9. 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.
10. Use UV-A illumination of >1000 μw/cm² @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).



Fluorescent Penetrant Indications Type 1 (FP-93A(M), Method B (E-57), Level 2, form “a” (D-72A).



Penetrant Professor Approved

FP-93A(M)

Fluorescent Penetrant

Typical Physical Properties

Form: yellow green liquid
Density: 915 g/L
Flash Point: > 93°C (> 200°F)
Viscosity 5.9 mm²/s
Fluorescent Brightness:(AMS-2644 requirement > 80 %) 84.6 %
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

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

NSN #

1 gallon	6850-01-268-8616
5 gallon	6850-01-268-6694
5 gallon	6850-01-269-4151
5 gallon	6850-01-268-6703
55 gallon	6850-00-782-2732
55 gallon	6850-01-265-2741
55 gallon	6850-01-268-6704

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

Specifications

AMS-2644E	AMS-2647
ASME B & PV code Sec. V	
ASTM E-165	ASTM E-1417
ISO-3452	
P & W FPM PMC # 4352-AA SPOP-62	
R-R Omat# 650B	R-R RPS-702



GHS Information



Warning

GHS Hazard Statements:

H315: Causes skin irritation.
H319: Causes serious eye irritation.

GHS Precautionary statements:

P102: Keep out of reach of children.
P261: Avoid breathing dust/fumes/gas/mist/vapors/spray.
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.
IATA- not regulated.
IMDG- not regulated.

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Penetrant Professor Approved



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (Type 1) and visible (Type 2) dye penetrant inspection process. All Met-L-Chek Company penetrants 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.

FP-94 is approved to AMS-2644 as a fluorescent (Type 1); Methods “B”, “C”, and “D”; sensitivity level 1 post emulsifiable inspection penetrant. It is approved with Method “B” emulsifier E-57 and Method “D” emulsifier E-58D. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FP-94 is applied by immersion, spray, or wipe on. FP-93A(M) meets requirements for low sensitivity aerospace applications.

FP-94 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 “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 FP-94 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 E-57 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 used 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” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
- 7A*. If water based developers forms “b “(D-76B) or “c”(D-78B) 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 @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).

Guide to METHOD “D” (hydrophilic) 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-94 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. Pre-rinse part with water. Water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi);only long enough to remove bulk of surface penetrant. This step may be skipped when emulsifier is applied by spray.
5. Immerse part in gently agitated E-58D emulsifier diluted to 17-20%. for 30 seconds to 2 minutes depending upon part roughness For spray applications emulsifier concentration should be 1-5% and spray contact for less than 2 minutes.
6. Wash part; water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi); if a hydro-air nozzle used limit pressure to < 172kPa (<25 psi). Distance >30cm (>12 inches). Wash time- only long enough to remove surface fluorescence under UV-A .
- 7*. Dry part; temperature not to exceed 71°C (160°F), time - only long enough to dry surface.
8. Apply dry powder developer, form “a” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
- 8A*. If water based developers forms “b” (D-76B) or “c”(D-78B) are used they are applied by immersion or spray, prior to step 6 drying.
9. 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.
10. Use UV-A illumination of >1000 μw/cm² @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).



Fluorescent Penetrant Indications Type 1 (FP-94 Method B (E-57), Level 1, form “a” (D-72A).



Penetrant Professor Approved

FP-94

Fluorescent Penetrant

Typical Physical Properties

Form: yellow green liquid
 Density: 899 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 5.8 mm²/s
 Fluorescent Brightness:(AMS-2644 requirement > 65 %) 67.6 %
 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

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

NSN

1 gallon	6850-01-263-9776
1 gallon	6850-01-268-6692
5 gallon	6850-01-268-6693
5 gallon	6850-01-268-6708
55 gallon	6850-01-268-6699

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
 ISO-3452

AMS-2647
 ASTM E-1417

GHS Information



Warning

GHS Hazard Statements:

H315: Causes skin irritation.
H319: Causes serious eye irritation.

GHS Precautionary statements:

P102: Keep out of reach of children.
P261: Avoid breathing dust/fumes/gas/mist/vapors/spray.
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.
 IATA- not regulated.
 IMDG- not regulated.

Met-L-Chek Company, 1639 Euclid Street, Santa Monica, California, 90404, U.S.A.

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Penetrant Professor Approved

Product Data Sheet

FP-95A(M)

Fluorescent Penetrant

1
112015



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FP-95A(M) is approved to AMS-2644 as a fluorescent (Type 1); Methods “B”, “C”, and “D”; sensitivity level 3 post emulsifiable inspection penetrant. It is approved with Method “B” emulsifier E-57 and Method “D” emulsifier E-58D. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FP-95A(M) is applied by immersion, spray, or wipe on. FP-95A(M) meets requirements for high sensitivity aerospace applications.

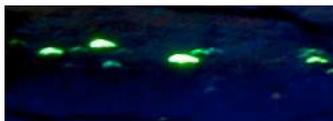
FP-95A(M) is listed on the Qualified Products List for AMS-2644. It meets the requirements of AMS-2647, ASME Boiler and Pressure Vessel Code Section V, ASTM E-165, and ASTM E-1417, for penetrant inspection materials. It is low in sulfur and halogens and is safe for use on all metal surfaces.

Guide to METHOD “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 FP-95A(M) 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 E-57 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 is used 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” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
7A*. If water based developers forms “b “(D-76B) or “c”(D-78B) 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 @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).

Guide to METHOD “D” (hydrophilic) 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-95A(M) 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. Pre-rinse part with water. Water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi);only long enough to remove bulk of surface penetrant. This step may be skipped when emulsifier is applied by spray.
5. Immerse part in gently agitated E-58D emulsifier diluted to 17-20%. for 30 seconds to 2 minutes depending upon part roughness For spray applications emulsifier concentration should be 1-5% and spray contact for less than 2 minutes.
6. 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 .
7*. Dry part; temperature not to exceed 71°C (160°F), time - only long enough to dry surface.
8. Apply dry powder developer, form “a” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
8A*. If water based developers forms “b” (D-76B) or “c”(D-78B) are used they are applied by immersion or spray, prior to step 6 drying.
9. 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.
10.Use UV-A illumination of >1000 μw/cm² @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).



Fluorescent Penetrant Indications Type 1 (FP-95A(M), Method D (E-58D), Level 3, form “a”(D-72A).



Penetrant Professor Approved

FP-95A(M)

Fluorescent Penetrant

Typical Physical Properties

Form: yellow green liquid
 Density: 932 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 6.9 mm²/s
 Fluorescent Brightness: (AMS-2644 requirement > 90%): 95.3 %
 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

12 x 400ml(16oz) aerosols
 1 gallon (3.7L) metal can
 5 gallon (18.9L) metal pail
 55 gallon (208L) metal drum

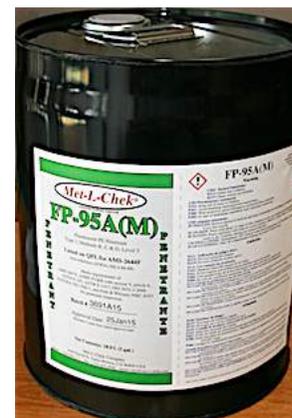
NSN

1 gallon	6850-01-117-2971
1 gallon	6850-01-263-9774
1 gallon	6850-01-585-6425
1 gallon	6850-01-268-6705
5 gallon	6850-01-268-6700
5 gallon	6850-01-263-8432
5 gallon	6850-01-268-6706
55 gallon	6850-00-782-2736
55 gallon	6850-01-263-8433
55 gallon	6850-01-414-7086

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

Specifications

AMS-2644	AMS-2647
ASME B & PV code Sec V	
ASTM E-165	ASTM E-1417
ISO-3452	
P & W PMC # 4353-7	SPOP-82
R-R Omat # 651D	RR RPS-702-7
Snecma sensibilité S3	



GHS Information



Warning

GHS Hazard Statements:

H315: Causes skin irritation.
H319: Causes serious eye irritation.

GHS Precautionary statements:

P102: Keep out of reach of children.
P261: Avoid breathing dust/fumes/gas/mist/vapors/spray.
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.
 IATA- not regulated.
 IMDG- not regulated.

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Penetrant Professor Approved

Product Data Sheet

FP-97A(M)

Fluorescent Penetrant

1
112015



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (Type 1) and visible (Type 2) dye penetrant inspection process. All Met-L-Chek Company penetrants 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.

FP-97A(M) is approved to AMS-2644 as a fluorescent (Type 1); Methods “B”, “C”, and “D”; sensitivity level 4 post emulsifiable inspection penetrant. It is approved with Method “B” emulsifier E-57 and Method “D” emulsifier E-58D. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504. FP-97A(M) is applied by immersion, spray, or wipe on. FP-97A(M) meets requirements for ultra-high sensitivity aerospace applications.

FP-97A(M) 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 “B” (lipophilic) processing per ASTM E-1417

Guide to METHOD “D” (hydrophilic) 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-97A(M) 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 E-57 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 used 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” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
- 7A*. If water based developers forms “b” (D-76B) or “c”(D-78B) 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 @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).

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-97A(M) 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. Pre-rinse part with water. Water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi);only long enough to remove bulk of surface penetrant. This step may be skipped when emulsifier is applied by spray.
5. Immerse part in gently agitated E-58D emulsifier diluted to 17-20%. for 30 seconds to 2 minutes depending upon part roughness For spray applications emulsifier concentration should be 1-5% and spray contact for less than 2 minutes.
6. Wash part; water temperature 10°-38°C (50°-100 °F). Water pressure < 275kPa (< 40 psi); if a hydro-air nozzle used limit pressure to < 172kPa (<25 psi). Distance >30cm (>12 inches). Wash time- only long enough to remove surface fluorescence under UV-A .
- 7*. Dry part; temperature not to exceed 71°C (160°F), time - only long enough to dry surface.
8. Apply dry powder developer, form “a” (D-72A), by dusting, or non aqueous developer, form “d”(D-70), by spraying.
- 8A*. If water based developers forms “b” (D-76B) or “c”(D-78B) are used they are applied by immersion or spray, prior to step 6 drying.
9. 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.
10. Use UV-A illumination of >1000 μw/cm² @ 15inches (38.1 cm) in a darkened area of <21 lux visible light (<2 foot candles).



Star Burst Panel indications, 1-5
Type 1 (FP-97A(M), Method D (E-58D), Level 4, form “a”(D-72A).



Penetrant Professor Approved

FP-97A(M)

Fluorescent Penetrant

Typical Physical Properties

Form: yellow green liquid
 Density: 957g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 8.5 mm²/s
 Fluorescent Brightness: (AMS-2644 requirement > 95%) 109.1 %
 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

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
 ISO-3452
 P & W PMC # 4354-7
 R-R Omat# 652E
 Snecma sensibilité S4

AMS-2647
 ASTM E-1417
 SPOP-84
 R-R RPS-702

Product Availability

1 gallon (7.7L) metal can
 5 gallon (18.9L) metal pail
 55 gallon (208L) metal drum

NSN

1 gallon	6850-01-263-9778
1 gallon	6850-01-306-1383
5 gallon	6850-01-263-7245
5 gallon	6850-01-121-0945
5 gallon	6850-01-268-6695
55 gallon	6850-00-268-6696
55 gallon	6850-01-263-7247
55 gallon	6850-01-121-0946



GHS Information



Warning

GHS Hazard Statements:

H315: Causes skin irritation.
H319: Causes serious eye irritation.

GHS Precautionary statements:

P102: Keep out of reach of children.
P261: Avoid breathing dust/fumes/gas/mist/vapors/spray.
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.
 IATA- not regulated.
 IMDG- not regulated.

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Penetrant Professor Approved

Product Data Sheet

FP-921

Fluorescent Penetrant

1
11/2015



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (Type 1) and visible (Type 2) dye penetrant inspection process. All Met-L-Chek Company penetrants 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.

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

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. 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).



Fluorescent Penetrant Indication
on
Aluminum Extrusion



Penetrant Professor Approved

FP-921

Fluorescent Penetrant

Typical Physical Properties

Form: clear yellow green viscous liquid
 Density: 969 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 25.7 mm²/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

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

Product Availability

1 pint (0.4mL) 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

AMS -2644
 ASME B & PV code Sec. V
 ASTM E-165
 ISO 3452

AMS-2647
 ASTM E-1417

GHS Information



Danger

GHS Hazard Statements:

H315 Causes skin irritation.
H318 Causes serious eye damage.

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 fumes/gas/mist/vapors/spray.
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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Penetrant Professor Approved

Product Data Sheet

FP-922

Fluorescent Penetrant

1
11/2015



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (Type 1) and visible (Type 2) dye penetrant inspection process. All Met-L-Chek Company penetrants 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.

FP-922 is approved to AMS-2644 as a fluorescent (Type 1); Methods “A”, and “C”; sensitivity level 2 water washable inspection penetrant. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504.

FP-922 is applied by immersion, spray, or wipe on. It is approved for medium sensitivity aerospace applications.

FP-922 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

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-922 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

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-922 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-922 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).

Fluorescent Penetrant Indication





Penetrant Professor Approved

FP-922

Fluorescent Penetrant

Typical Physical Properties

Form: clear yellow green liquid
 Density: 902 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 8.7 mm²/s
 Water Tolerance:> 9 %
 Water Content: < 1 %
 Fluorescent Brightness: (AMS-2644 requirement > 80 %) 109.8%
 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

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

Specifications

AMS-2644	AMS-2647
ASME B & PV code Sec. V	
ASTM E-165	ASTM E-1417
ISO-3452	P & W PMC # 4351-7
SPOP-82	R-R RPS-702
R-R CSS-232	Snecma sensibilité S2

Product Availability

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

NSN #

1 gallon	6850-01-267-7987
5 gallon	6850-01-263-2261
55 gallon	6850-01-263-2262



GHS Information



Danger

GHS Hazard Statements:
H315 Causes skin irritation.
H318 Causes serious eye damage.

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 fumes/gas/mist/vapors/spray.
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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Penetrant Professor Approved



Met-L-Chek Company manufactures a complete line of penetrants used in the fluorescent (Type 1) and visible (Type 2) dye penetrant inspection process. All Met-L-Chek Company penetrants 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.

FP-923 is approved to AMS-2644 as a fluorescent (Type 1); Methods “A”, and “C”; sensitivity level 3 water washable inspection penetrant. For Method “C” applications it is used with E-59, E-59A, R-503, and R-504.

FP-923 is applied by immersion, spray, or wipe on. It is approved for high sensitivity aerospace applications.

FP-923 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

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-923 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 foot candles).

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-923 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-923 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/cm² @ 15 inches (38.1 cm) in a darkened area of < 21 lux visible light (< 2 footcandles).

Fluorescent Penetrant Indication





Penetrant Professor Approved

FP-923

Fluorescent Penetrant

Typical Physical Properties

Form: clear yellow green liquid
 Density: 918 g/L
 Flash Point: > 93°C (> 200°F)
 Viscosity 11.3 mm²/s
 Water Tolerance:> 10 %
 Water Content: < 1 %
 Fluorescent Brightness: (AMS-2644 requirement > 90 %) 117.7%
 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

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

Specifications

AMS-2644	AMS-2647
ASME B & PV code Sec. V	
ASTM E-165	ASTM E-1417
ISO-3452	P & W PMC # 4360-7
SPOP-82	R-R RPS-702
R-R CSS-232	PMC Code 9

Product Availability

12 x 400 mL (16oz) aerosol	
1 pint (0.4L) can with dauber	
1 gallon (3.7L) can	
5 gallon (18.9L) pail	
55 gallon (208L) drum	
	NSN #
1 gallon	6850-01-263-8430
5 gallon	6850-01-263-2263
55 gallon	6850-01-263-4056



GHS Information



Danger

GHS Hazard Statements:
H315 Causes skin irritation.
H318 Causes serious eye damage.

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 fumes/gas/mist/vapors/spray.
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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