



Penetrant Professor Approved

Product Data Sheet

FLP-1

Fluorescent Penetrant

1
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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

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 **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).

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.



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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

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