



PENETRANT PROFESSOR APPROVED

PRODUCT DATA SHEET
FLP-1
Fluorescent Penetrant

1
3/09



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-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.

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 a biodegradable penetrant being free of solvents and oils. **FLP-1** is used on 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 used 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 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 **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. Genitally 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 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 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.



Typical Physical Properties

Form: orange green liquid
Density: 1.02 Kg/L
Flash Point: none
Viscosity: 4.8 mm²/s, concentrate
Corrosion of aluminum: none
Corrosion of stainless steel: none
Corrosion of titanium: none
Chloride content: < 1000 ppm (< 0.1%)
Fluoride content: < 1000 ppm (< 0.1%)
Sulfur content: < 1000 ppm (< 0.1%)
Mercury: none
VOC's: 0 g/L
Ozone layer depleting substances: none
PCB's: none

Product Availability

1 gallon (3.7L) plastic jug
5 gallon (18.9L) plastic jug
55 gallon (208L) plastic drum

Specifications

ASTM E-165
ASTM E-1417

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

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

Hazards Unknown

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

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

EU- unknown

WHMIS(Canada) D2B (bulk)

Human health hazards: Eye irritant.

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 and clean shoes.

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

Inhalation: Remove to fresh air.
