HM-3A FLUORESCENT PENETRANT

DUBL-CHEK PENETRANT PROCESS

Approved Type I, Methods A & C, Level 2
MIL-I-25135 Rev. D & E, and AMS-2644
Approved Group V of MIL-I-25135 Rev. C

PRODUCT INFORMATION

Description: HM-3A is a medium sensitivity, water-washable fluorescent penetrant for inspecting castings, extrusions, and similar parts. Designed for dip tank use with good self-developing properties, HM-3A is a versatile, general purpose penetrant for use on a variety of materials, including aluminum and magnesium castings. Complies with low-sulfur and low-halogen requirements. OSHA Class IIIB material. Flash point over 200°F.

Special Features: HM-3A is fully approved and proven. It has been used by leading aerospace manufacturers —including airframe, turbine engine, and missile— for over a decade.

HM-3A, an approved MIL-I-25135-C and AMS-2644 material, qualified without modification under the stricter requirements of MIL-I-25135 Revision D. The Sherwin laboratory was the first to recognize the need for high flash point, stable, nonvolatile, low toxicity penetrants.

HM-3A is a proven production material.

1. Low to near zero background for assured indication visibility.
2. Sharp, precise flaw indications for rapid interpretation.
3. Excellent electrostatic spray capability has been demonstrated for over a decade.
4. Long material tank life due to formula stability and nonvolatility.
5. Low material consumption (low drag out) due to low viscosity.
6. Clean, relatively odorless product; vapor free atmosphere.
7. Recognized and accepted as a low toxicity material by health authorities.
8. Use without developers where specifications permit.

HM-3A meets all military and applicable commercial specifications. Full conformance certification documentation complying with MIL-STD-6866, ASTM E-1417 and other applicable specifications are provided with each shipment.

Companion Materials:

Developers -	Sherwin D-90G.1 Dry Powder (form a) Sherwin D-100 Nonaqueous (form d) Sherwin D-106 Nonaqueous (form d) Sherwin D-110A.1 Water Suspendable (form c) equivalent MIL-I-25135/ AMS-2644developers
Removers -	Sherwin DR-60 (Class 2) Sherwin DR-62 (Class 2) equivalent MIL-I-25135/ AMS-2644removers

Container Sizes:
case of 12 aerosol cans
one-gallon cans
case of 4 one-gallon cans
five-gallon pail
55-gallon drum

Basic Instructions: (These instructions describe the basic process, but they may need to be amended by the user to comply with applicable specifications and/or inspection criteria provided by the contracting agency.)

1. Application: Apply HM-3A only to clean, dry surfaces by spraying, flowing, brushing or dipping.

2. Dwell-Time: A 10 minute dwell time is suggested, although in many cases five minutes will suffice. When particularly tight cracks are suspected, or the part is especially critical, the dwell time may be extended to 30 minutes, or longer.

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Do not soak the part. To increase sensitivity, as well as conserve material, allow the penetrant to drain from the part surface back into the penetrant tank.

3. **Removal:** Use a quick, ambient temperature water wash at tap pressure to rinse **HM-3A** from the part surface. To avoid washing entrapped penetrant from surface flaws, do not use high water pressures and temperatures, or prolonged washing and scrubbing.

4. **Drying:** A recirculating oven set no higher than 160°F (71°C) is suggested. Leave part in oven just long enough to evaporate surface moisture. Drying is improved by using pressurized air to disperse and remove as much excess water as possible before placing part in oven.

5. **Developing: HM-3A** is self-developing. Flaw marks are visible under black light almost immediately after the part is free of moisture. However, two or more minutes should elapse before final inspection.

   Flaw marks may be amplified using a developer such as **D-90G.1** (dry) or **D-100** (nonaqueous). Whether a developer is used to enhance visibility depends on the criticalness of the part, governing specifications, type of defect suspected, black light intensity, etc. (MIL-STD-6866 mandates, and ASTM E-1417 strongly recommends, using a developer.)

Applicable Specifications:

MIL-I-25135 Rev. C, D & E
ASME Code NDT, Sec. V
Navships 250-1500
AMS-2644

BAC 5423
MIL-STD-271 E
Pratt-Whitney FPM
ASTM-E-1417

AECL
MIL-STD 6866
ASTM-E-165

PRECAUTIONARY INFORMATION

HM-3A is a combustible liquid. Use with adequate ventilation and away from sparks, fire or open flame. Avoid prolonged or repeated contact with skin. Do not take internally. Avoid prolonged or repeated breathing of vapors. Read the label on the container for additional precautionary information.

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