HM-704 FLUORESCENT PENETRANT

Approved Type I, Methods A, Level 4, MIL-I-25135 Rev. D & E, and QPL-AMS-2644

DUBL-CHEK PENETRANT PROCESS

PRODUCT INFORMATION

Description: HM-704 is an ultra-sensitive, fast acting, self-developing, water-washable fluorescent penetrant. HM-704 resists over washing, is low in sulfur and halogen, heat stable, and has a high flash point (368°F). OSHA Class IIIB material. HM-704 is qualified to the stricter requirements of MIL-I-25135 D & E. Sherwin Incorporated recognized early the need for high flash point, highly stable, nonvolatile, low toxicity penetrants.

Special Features: Where ultra-sensitivity is essential and water-washability is preferred, HM-704 is recommended. It should be noted, however, that HM-704 is more expensive and more viscous than conventional petroleum distillate penetrants. Also, before using on difficult surfaces, the acceptability of background fluorescence should be ascertained.

Containing no petroleum distillates or light oils, HM-704 is biodegradable, and disposal authorities are more likely to accept its waste water than the waste water of conventinal penetrants.

HM-704 is a proven product with the following advantages.

1. Reliable, ultra-sensitive performance on smooth surfaces.
2. Clean, relatively odorless product and vapor-free atmosphere.
3. Accepted as low-toxicity product by health authorities.
4. Biodegradable; effluent more readily accepted by sewage treatment officials.
5. Excellent electrostatic spray capability.
6. Special feature — does not contain petroleum distillates.
7. Use without developers where specifications permit.

HM-704 meets all military and applicable commercial specifications. Full conformance certification complying with MIL-STD-6866 and other applicable governmental and commercial documentation specifications are provided with each shipment.

Companion Materials:

Developers- Sherwin D-90G Dry Powder (form a)
Sherwin D-100 Nonaqueous (form d)
Sherwin D-106 Nonaqueous (form d)
Sherwin D-110A.1 Nonaqueous (form c)
equivalent QPL-25135 developers

Removers- Sherwin DR-60 (Class 2)
Sherwin DR-62 (Class 2)
equivalent QPL-25135 removers

Container Sizes: 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 specifictions and/or inspection criteria provided by the contracting agency.)

1. Application: Apply HM-704 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 5 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-704** 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-704** is self-developing. Flaw marks start becoming visible under black light when part is dry. After about 2 minutes, flaw marks are fully visible.

To amplify flaw marks or in critical inspection situations, use a developer such as the Sherwin developers listed above. (MIL-STD-6866 mandates the use of a developer.)

Applicable Specifications:

MIL-I-25135 Rev. D & E	MIL-STD-271 E	AMS-2644
ASME Code NDT, Sec. V	ASTM-E-165	RDT-F3-6T
Navships 250-1500	AMS-3156	MIL-STD-2132
AECL	MIL-STD 6866	

PRECAUTIONARY INFORMATION

HM-704 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. DANGER! Causes eye burns. First Aid: flush eyes with water; call a physician. Read the label on the container for additional precautionary information.

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