ER-85 LIPOPHILIC EMULSIFIER

Approved Type 1, Method B, MIL-I-25135 Rev. D & E, and AMS-2644
Approved Group V & VI of MIL-I-25135 Rev. C

DUBL-CHEK PENETRANT PROCESS

PRODUCT INFORMATION

Description: **ER-85 emulsifier** is used in the inspection penetrant process to remove excess surface penetrant where Method B, the lipophilic emulsifier method, is required. There is no "pre-wash" with this method, and the emulsifier is used full strength.

ER-85 can be used with Sherwin's Type I **RC-29**, **RC-50**, **RC-65**, **RC-77**, **RC-8**8 fluorescent penetrants, and with Sherwin's Type II **DP-40** visible dye penetrant. The product meets low-sulfur, low-halogen, and low-sodium requirements, has a flash point over 200°F, and is an OSHA Class IIIB material. **ER-85** meets MIL-I-25135 and AMS-2644 requirements.

Special Features: Being slow to diffuse with penetrant until the penetrant-emulsifier mixture is sprayed with water, **ER-85** minimizes the risk of over-emulsification. **ER-85** is superior to other lipophilic emulsifiers in this regard.

ER-85 works well on smooth or rough surfaces as well as on machined or coated surfaces.

Companion Materials:

Penetrants -
- Sherwin **RC-29**
- Sherwin **RC-50**
- Sherwin **RC-65**
- Sherwin **RC-77**
- Sherwin **RC-88**
- Sherwin **DP-40**

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)
- Sherwin **D-113G.1** Water Soluble (form b)
- equivalent MIL-I-25135/AMS-2644 developers

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. They may need to be amended by the user to comply with applicable specifications and/or inspection criteria provided by the contracting agency.)

ER-85 works by mixing with the thin layer of excess penetrant which remains on a part's surface following the penetrant dwell and drain cycle. The emulsifier-penetrant mixture is then washed from the part surface by a coarse, plain-water spray. The objective is to remove excess surface penetrant as completely as possible in order to minimize background flourescence without disturbing flaw-entrapped penetrant.

1. **Application:** Apply **ER-85** by dipping, spraying, or flowing the product over the surface of a part that has been drained as completely as possible of excess penetrant. Allow excess **ER-85** to drain back into the tank.

2. **Allow to Stand:** The **ER-85** must stand on the part surface and mix with the excess penetrant layer for a measured time period sufficient for it to mix with and provide water washable properties to excess surface penetrant. Rough surfaces require longer emulsifier dwell times than smooth surfaces. Timing is critical: too long, and flaw entrapped penetrant will become an emulsifier-penetrant mixture, providing weak or no indications; too short, and excessive background will interfere with the final inspection.

3. **Plain-Water Spray:** To remove the emulsifier-penetrant mixture, spray the part at an angle with plain, ambient temperature water. Do not use hot water. A course spray of 30-40 p.s.i. is preferred. If possible, perform this operation under black light to insure against over-washing.

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4. **Drying:** After the spray cycle, completely dry the part in a recirculating oven set no higher than 170°F, or according to governing specifications. When the part is dry, use a developer such as **D-90G.1 dry powder developer**, **D-100 non-aqueous developer** before making the final inspection under black light. **D-113G.1** water soluble developer may also be used.

Applicable Specifications:

MIL-I-25135 Rev's. C & D & E
ASME B & P Vessel Code
Navships 250-1500
ASTM-E-1417
AMS-2644
MIL-STD-271 E
AMS-2647
ASTM-E-165
AECL
MIL-STD 6866
RDT-F3-6T

PRECAUTIONARY INFORMATION

ER-85 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.