RC-29 FLUORESCENT PENETRANT

Approved Type I, Methods B, C, & D, Level 1 MIL-I-25135 Rev. D & E, and AMS-2644

DUBL-CHEK PENETRANT PROCESS

PRODUCT INFORMATION

Description: **RC-29** is a low sensitivity, nonwater-washable fluorescent penetrant. It is an OSHA Class III material. Flash point over 200°F. Complies with low-sulfur and low-halogen requirements. **RC-29** meets MIL-I-25135 and AMS-2644 requirements.

Special Features: **RC-29** is a general use material — high flash point, resistant to over-washing, self-developing where specifications permit, and relatively low viscosity. Excellent electrostatic spray capability. **RC-29** is formulated especially for the pre-wash process using Sherwin Incorporated's **ER-83A Hydrophilic Emulsifier**. Most **RC-29** is removed easily by the mechanical scrubbing of the first wash, thus, reducing heavy reliance on an emulsifier, and insuring that flaw entrapped penetrants are less likely to be diluted or displaced.

RC-29 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) Sherwin **D-113G.1** Water Soluble (form b) equivalent MIL-I-25135/AMS-2644 developers
Emulsifiers -	Sherwin **ER-83A** Hydrophilic Emulsifier (method D) Sherwin **ER-85** Lipophilic Emulsifier (method B)
Removers -	Sherwin **DR-60** (Class 2) Sherwin **DR-62** (Class 2) equivalent MIL-I-25135/AMS-2644 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. 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 **RC-29** 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.

   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**
   A. **Hydrophilic Dip Method**
      a. **pre-wash:** following dwell, use a plain water rinse to remove 90-99% of the undrained penetrant from surface. Use a coarse spray at 20-50 psi; use ambient temperature —not heated— water. Do not over wash.
      b. **immersion:** immerse and agitate the part in 20-30% hydrophilic emulsifier solution. Immersion time and agitation will vary with part geometry and surface condition.

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c. **rinse:** remove the part from tank; clean with coarse, plain water spray.

B. **Hydrophilic Spray Method**

a. **wash:** inject a 0.1-5.0% emulsifier solution into pressurized rinse water; spray the part. Use a coarse spray at 20-50 psi; ambient temperature —not heated— water. Use very dilute emulsifier solutions since spraying "scrubs" the penetrant from part. Time and solution concentrations vary with part geometry and surface conditions.

b. **rinse:** use coarse plain water spray to remove all traces of emulsified penetrant.

C. **Lipophilic Method**

a. **emulsification:** dip part into undiluted lipophilic emulsifier, remove part, and allow excess emulsifier to drain back into tank. During drain time, the emulsifier will mix with surface penetrant. Parts with rough surfaces require longer drain times.

b. **rinse:** use coarse plain water spray to remove all traces of emulsified penetrant.

4. **Drying:** A recirculating oven 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 excess water before placing part in oven.

5. **Developing:** **RC-29** is self-developing. Flaw marks are visible under black light almost immediately after the part is dry. However, allow several minutes before final inspection.

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

Applicable Specifications:

MIL-I-25135 Rev. D & E
ASME Code NDT, Sec. V
Navships 250-1500
ASTM-E-1417
AMS-2644
MIL-STD-271 E
AMS-3155
ASTM-E-165
AECL
MIL-STD 6866
RDT-F3-6T

PRECAUTIONARY INFORMATION

RC-29 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.