

# Ardrox<sup>®</sup> P7F3

## Post Emulsifiable Fluorescent Penetrant, VOC-Free

### PRIMARY APPLICATION

**Ardrox<sup>®</sup> P7F3** is a VOC-free, biodegradable, Type 1 (fluorescent), Method D (post emulsifiable hydrophilic) and Method C (solvent removable) inspection penetrant. When used in conjunction with **Ardrox<sup>®</sup> E1** emulsifier, **Ardrox<sup>®</sup> P7F3** achieves a level 3 sensitivity.

This system is characterized by its controlled removal that has a unique high entrapment feature. Flaw finding is enhanced by excellent bleed back properties. This product was developed for fracture critical control inspection and is approved for B-1 aircraft application.

### CHEMICAL CHARACTERISTICS

Physical Form .....	Green-yellow liquid
Bulk Density .....	0.925 to 0.945
Flash Point .....	350°F (177°C) PMCC
Sulfur Content .....	220 ppm
Chloride Content .....	250 ppm
Fluorides .....	3 ppm
Sodium Content .....	50 ppm
Viscosity .....	15.0 to 19.0 centistokes, per ASTM D445

### APPROVALS

AMS 2644	Boeing
AECL	Rockwell
General Electric	Rolls Royce
McDonnell Douglas	
ASME Boiler and Pressure Vessel Code: Section V, Article 6	

### APPLICATION PROCEDURE

Apply **Ardrox<sup>®</sup> P7F3** by brush, tank immersion, conventional and electrostatic spraying. The following typical process sequence illustrates the recommended method of use:

#### PRECLEAN/DRY

All surface contamination (rust, paint residues, grease, scale, etc.) must be completely removed. After cleaning with **Ardrox<sup>®</sup> 6333**, make sure that the component is completely dry and cool, 120°F (49°C) or lower, before applying the penetrant.

#### PENETRANT APPLICATION

Apply **Ardrox<sup>®</sup> P7F3** to the surface to be inspected and leave on for a suitable dwell period. This dwell period is a minimum of 5 minutes but no more than 120 minutes. If dwell time exceeds 120 minutes, reapply the penetrant.

## PRE-RINSE

Use either one or a combination of manual spray or automatic spray tank rinses. The following times are a guideline for pre-rinsing. Practical trials should be performed to establish the most suitable conditions for specific components:

- 25 to 40 psi
- 1 to 3 minutes
- 50 to 100°F (10 to 38°C)

## EMULSIFIER

**Ardrox® E1** is diluted to 10% concentration. Components are immersed in gently agitated emulsifier for 1 to 2 minutes (use only as a guideline). Practical trials should be performed to establish the most suitable conditions for specific components.

## POST-RINSE

Use either one or a combination of manual spray or automatic spray tank rinses. Use the following times as a guideline. Practical trials should be performed to establish the most suitable conditions for specific components.

- 25 to 40 psi
- 1 to 3 minutes
- 50 to 100°F (10 to 38°C)

## OVEN DRY/AIR RECIRCULATING

Use the minimum time necessary to thoroughly dry the components. Use clean, filtered, low pressure compressed air to remove pockets of water before oven drying.

## APPLY DEVELOPER

A dry powder developer, such as **Ardrox® 9D4A**, may be applied in specially designed dust storm cabinets or by electrostatic spray; dwell time is 2 to 5 minutes. Non-aqueous developers, **Ardrox® 9D1B** or **Ardrox® NQ1** are applied by spray; dwell time is > 2 minutes. Water suspendable Ardrox 9D76 is applied prior to oven drying.

**Note:** Do not use water soluble developer with **Ardrox® P7F3**.

## INSPECTION

Component should be inspected under UVA (365 nm) illumination in a darkened area.

## EFFECTS ON MATERIALS

Ardrox VOC-Free penetrants are noncorrosive to most common metals. They meet the corrosion requirements of AMS 2644 for aluminum, steel and magnesium. They are compatible with titanium and nickel alloys.

They may stain or soften some plastics and rubbers and, where appropriate, a compatibility test is recommended.

Use stainless steel tanks, Grade 304 or equivalent. For areas which are not exposed to water, mild steel may be used provided it is free from rust, scale and other contaminants.

## SAFETY AND HANDLING

Prior to handling and use of any of the materials referenced in this document, the Material Safety Data Sheets should be read and understood by all personnel in contact with these materials.

## KEEP OUT OF REACH OF CHILDREN

## STORAGE

Dry indoor storage at temperatures between 40°F and 100°F is recommended, away from any incompatible materials referenced in the Material Safety Data Sheets. All containers should be tightly closed when not in use.

## SHELF LIFE

The shelf life is 3 years.

## DISPOSAL

Any disposal of the materials referenced in this document should be in accordance with all applicable federal, state, and local regulations. The process solution can contain components other than those present in the materials as supplied. Analysis of process solutions may be required prior to disposal.

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Corporate Headquarters and Eastern Branch (800) 526-4473 • Central Branch (Midwest) (877) 941-3800  
Western Branch (800) 331-1197 • Oakite Canada Limited (800) 668-4318 • Chemetall Mexicana 011 52 55 5656 1490  
Website: [www.oakite.com](http://www.oakite.com) • E-mail: [oakite.products@chemetall.com](mailto:oakite.products@chemetall.com) • Shop online at [www.oakitestore.com](http://www.oakitestore.com)