Technical Data Sheet

ARDROX®

Ardrox 9812, 9813, 9814

Post emulsifiable fluorescent penetrants

Scope

ARDROX 9812, ARDROX 9813 and ARDROX 9814 are fluorescent penetrants of three different sensitivities, to be used with a separate emulsifier. They are qualified to AMS 2644.

These penetrants give crisp indications with exceptionally low levels of background and have excellent heat and UV fade characteristics. They are ideal for electrostatic application.

They are normally used in conjunction with dilute (10% v/v) ARDROX 9881 hydrophilic emulsifier and ARDROX 9D4A dry powder developer.

ARDROX 9812, ARDROX 9813 and ARDROX 9814 are used to inspect metal components during manufacture and overhaul. They can be classified as follows:

ARDROX 9812 – medium sensitivity;

ARDROX 9813 - high sensitivity;

ARDROX 9814 - ultra high sensitivity.

Approvals

ARDROX 9812, ARDROX 9813 and ARDROX 9814 are approved to AMS 2644 at the following levels:

ARDROX 9812 – level 2.

ARDROX 9813 – level 3.

ARDROX 9814 – level 4.

Chemicals required

ARDROX 9812, 9813, 9814 [fluorescent penetrant]

ARDROX 9881 [penetrant remover]

ARDROX 9D4A [powder developer]

Method of use

ARDROX 9812, ARDROX 9813 and ARDROX 9814 may be applied by brushing, tank immersion or by electrostatic spraying. The following typical process sequence illustrates the recommended method of use for general industrial applications. However, where relevant, the process specifications of the approving authorities must be closely followed.

1.	Prepare test surface	All surface contamination such as rust, paint residues, grease, scale etc. must be completely removed. Wipe the surface with an Ardrox solvent remover. Ensure the component is within the temperature range 10 .. 50ºC
2.	Penetrant application	Apply ARDROX 9812, 9813, and 9814 to the surface and leave the penetrant on the surface for a suitable dwell period. Allow components to drain as necessary. The combined application and drainage period should be at least 10 minutes. If the drain time exceeds 1 hour the penetrant should be re-applied to the surface.
3.	Remove excess penetrant	Remove excess penetrant by one or a combination of the following methods: a) air agitated water rinse tank, b) spray rinse tank, c) manual spray rinse [15 … 35ºC, 1 … 3minutes and 20 … 25psi]. The conditions given are a guide only. Practical trials should be carried out to find the optimum.
4.	Penetrant removal	Immerse in ARDROX 9881, 10% v/v in water at ambient temperature for 1.5 … 2.5 minutes. Slight agitation of components is recommended to free any trapped air. Drain for 30 seconds over the remover tank.
5.	Second stage water rinse	Conditions as for 3. It is recommended that this rinse stage be kept separate from the pre-rinse (3.) to facilitate effluent treatment.
6.	Oven dry	Air recirculating oven at 85°C maximum. Typically for 10 minutes. To assist drying, either the use of clean, filtered, low pressure, compressed air (1.7 bar/25 psi maximum) or a hot water dip (80 … 90°C maximum for up to 20 seconds) can be used prior to oven drying. Use the minimum oven time required to obtain thoroughly dry components.
7.	Apply developer	ARDROX 9D4A may be applied in purpose built dust storm cabinets, or by an electrostatic spray unit or spray applicator in an extracted booth. The contact time is 10 minutes minimum.
6.	Inspection	Low pressure, clean filtered air at 0.3 bar/5 psi (maximum) should be used to remove excess powder prior to inspection under black (UV) light, (800 µW/cm² minimum) in a darkened area.

Effects on materials

When ARDROX 9812, ARDROX 9813 and ARDROX 9814 are used in the prescribed manner, no significant corrosion is likely to occur on commonly used constructional metals.

These products may stain or soften some plastics and rubbers and, where appropriate, a compatibility test should be carried out.

Equipment

It is recommended that tanks are constructed from stainless steel (grade 304 or equivalent), mild steel may be used provided it is free from rust, scale and other contaminants.

Technical information

Appearance:		Clear, bright, highly fluorescent, yellow liquids.
Flash Point:		Greater than 100ºC.
Density at 20ºC:	ARDROX 9812	0.90 g/ml
	ARDROX 9813	0.90 g/ml
	ARDROX 9814	0.94 g/ml

These are typical values and do not constitute a specification.

Storage requirements: Store away from oxidising chemicals.

General information

Chemetall supplies a wide range of chemical products and associated equipment for cleaning, sanitising, descaling, paint and carbon removal, metal protection and forming, paint denaturing and non-destructive testing. Field Support Engineers are available to advise on specific problems and applications.

Chemetall also supplies products within the glass, polymer, fine chemical and aerospace fields.

Safety and handling guidance

Before using the product it is important that this complete document, together with any relevant safety data sheet(s), have been read and understood. The safety data sheet(s) will advise on all precautions, safety equipment and procedures necessary in the safe use and disposal of the product.

Environmental guidance

All local and national regulations on the transport, storage, use and waste treatment of chemicals in concentrated or diluted form, or as working solutions, plus any bi-products and contamination occurring as part of the process, must be obeyed.

All waste waters must be treated in accordance with national legislation and local regulations prior to discharge to the sewer.

Aml Nov 2004