

ZYGLO ZL-2C ZL-27A ZL-37



POST-EMULSIFIABLE FLUORESCENT PENETRANTS

General Description

Zyglo ZL-2C, ZL-27A and ZL-37 are general-purpose, post-emulsifiable fluorescent penetrants. They exhibit outstanding penetrating characteristics, offering maximum reliability in locating surface-open flaws and defects.

Applications

These penetrants are safe to use on most engineering and aerospace alloys including aluminium, steel, nickel and titanium. They are typically used to find cracks, seams, laps, laminations and porosity on castings, turbine components, welds, forgings, and rough and machined surfaces.

Typical Properties (not a specification)

Property	ZL-2C	ZL-27A	ZL-37
Colour	Bright green-yellow		
Odour	Bland		
Flash point	> 93°C		
Density (g/cm ³)	0.89	0.93	0.95
Viscosity at 38°C (mm ² /s)	6.0	9.2	13.5
Corrosion	Meets AMS 2644		
Sulphur content	< 300 ppm		
Chloride content	< 300 ppm		
Fluoride content	< 50 ppm		
AMS 2644 class	Type 1, Method B/C/D		
AMS 2644 sensitivity	Level 2 Medium	Level 3 High	Level 4 Ultra-high
Storage temperature	10°C - 30°C		
Usage temperature	10°C - 55°C (aerosols < 50°C)		
Coverage	1 litre covers approx. 20 - 28 m ²		

Like all Magnaflux materials, these Zyglo penetrants are closely controlled to ensure batch-to-batch consistency, optimum process control and inspection reliability.

Benefits

- Wide range of medium to high sensitivity applications
- Immiscible with water, which protects against over-washing and allows the penetrants to separate easily from water. Can be used in conjunction with a hydrophilic or lipophilic emulsifier to render them washable with water.

Composition

These Zyglo penetrants are made of a blend of petroleum distillates, oils, alkyl aryl phosphate and fluorescent dyes.

General Method of Use

Pre-clean the test part and allow to dry. The surface must be free from oil, grease and any other contaminant.

Apply the penetrant by immersion dip, brush, flow on, conventional or electrostatic spray. The test area must be completely covered with penetrant.

Allow contact time of 2 - 5 minutes minimum. 10 minutes should be adequate for most situations, although specific process specifications may require longer - check the controlling process specification (where applicable).

If you're using a **hydrophilic emulsifier**, pre-rinse the test part with plain water* before applying the emulsifier by spray (hydrophilic) or immersion (lipophilic). Leave for the required length of time then wash with a water spray.

* The run-off from a pre-rinse can be treated to separate out the water, which can then be re-used for other pre-rinses. Dye penetrant process rinse waters should not be discharged to local authority waterways or sewers without some form of effluent treatment. We can advise on suitable equipment for this purpose; for more information, please contact us.

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General Method of Use

Dry the test part by placing in a controlled recirculating warm air dryer at a temperature of 50°C - 70°C.

Apply a developer to maximise the sensitivity of the penetrant and to provide a white contrasting background. There are three types of suitable developer (see opposite for our recommendations):

- Dry powder: free-flowing, lightweight powders which are applied to the dry component by powder storm, dusting, electrostatic spray or puffer.
- Solvent-based: quick-drying materials which are applied to the dry component by spraying.
- Aqueous or water-based: applied before drying by dipping or spraying.

Inspect your test part using a suitable UV source. Any defect indications will fluoresce a bright green-yellow when exposed to UV(A) light at a peak wavelength of 365 nm.

If required, you can **clean your test part** after inspection. Developer residues can be removed either by wiping with a cloth or by a water and detergent wash. Penetrant residues can be removed by vapour degreasing or solvent soak.

Recommended Products

Product type	Product Name(s)	Description
Pre-cleaner	SKC-S	Solvent-based
Emulsifiers	ZR-10C	Hydrophilic
	ZE-4B	Lipophilic
Developers	ZP-4B	Dry
	SKD-S2 or ZP-9F	Solvent-based
	ZP-14A or ZP-5B	Aqueous/ water-based **
UV lamps	ZB-100F or ZB-100-LED	

** To maximise penetrant sensitivity, parts should not remain in aqueous developers for any length of time.

Specification Compliance

Specification	ZL-2C	ZL-27A	ZL-37
AMS2644F	✓	✓	✓
ASME B & PV Code, Sec V	✓	✓	✓
ASTM E1135	✓	✓	✓
ASTM E165/E165M	✓	✓	✓
ASTM E1417/E1417M	✓	✓	✓
MIL-STD-2132D	✓	✓	✓
EN ISO 3452-2		✓	
MIL-STD-271F	✓	✓	✓
Pratt & Whitney PMC	4352-2	4353-2	4354-9
Rolls Royce RRP 58003 (CSS 232)	✓	✓	✓
SAFRAN Pr 5000/In 5000	✓	✓	✓

Availability

	ZL-2C	ZL-27A	ZL-37
Unit	Part numbers (if applicable)		
10 x 400ml aerosol	N/A	008A002	N/A
25 litre container	056C079	066C017	066C020
200 litre drum	056C080	066C016	066C019

Health and Safety

Read the relevant Safety Data Sheet for the individual products before use. Safety Data Sheets are available on request from your Magnaflux distributor or via the Magnaflux website:

www.eu.magnaflux.com