

# ZYGLO<sup>®</sup> ZL-15B, ZL-19, ZL-56, ZL-60C, ZL-60D, ZL-67B



## Water-washable Fluorescent Penetrants

### General Description

ZYGLO<sup>®</sup> water-washable fluorescent penetrants are used for a wide range of sensitivity applications, from ultra-low to ultra-high. They exhibit outstanding penetrating characteristics, giving you maximum reliability in locating surface-open flaws and defects.

### Applications

Our ZYGLO 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.

### Composition

These ZYGLO penetrants consist of a blend of non ionic surfactants, petroleum distillate and fluorescent dyes.

### Benefits

- Wide range of sensitivity applications
- Excellent controlled washability over a wide temperature range and variable dwell times
- Produce stable fluorescent indications under normal drying conditions.

### Typical Properties (not a specification)

Property	ZL-15B	ZL-19	ZL-60C	ZL-60D	ZL-67B	ZL-56
Odour	Bland	Bland	Bland	Bland	Bland	Bland
Flash point	> 93°C	> 93°C	> 93°C	> 93°C	> 93°C	> 93°C
Density	0.86 g/cm <sup>3</sup>	0.86 g/cm <sup>3</sup>	0.88 g/cm <sup>3</sup>	0.92 g/cm <sup>3</sup>	0.95 g/cm <sup>3</sup>	1.01 g/cm <sup>3</sup>
Viscosity at 38°C	5.2 mm <sup>2</sup> /s	5.6 mm <sup>2</sup> /s	7.0 mm <sup>2</sup> /s	10.6 mm <sup>2</sup> /s	20.0 mm <sup>2</sup> /s	19.0 mm <sup>2</sup> /s
Sulphur content	< 300 ppm	< 300 ppm	< 300 ppm	< 300 ppm	< 300 ppm	< 300 ppm
Chloride content	< 300 ppm	< 300 ppm	< 300 ppm	< 300 ppm	< 300 ppm	< 300 ppm
Fluoride content	< 50 ppm	< 50 ppm	< 50 ppm	< 50 ppm	< 50 ppm	< 50 ppm
Sodium content	-	< 100 ppm	-	< 100 ppm	< 100 ppm	-
Meets AMS 2644	✓	✓	✓	✓	✓	✓
AMS 2644 class	Type 1, Method A	Type 1, Method A	Type 1, Method A	Type 1, Method A	Type 1, Method A	Type 1, Method A
AMS 2644 sensitivity	Level 0.5 Ultra-low	Level 1 Low	Level 2 Medium	Level 2 Medium	Level 3 High	Level 4 Ultra-high
EN-ISO 3452 sensitivity	-	Level 1 Low	Level 2 Low	-	Level 3 High	-
Storage temperature	10°C to 30°C	10°C to 30°C	10°C to 30°C	10°C to 30°C	10°C to 30°C	10°C to 30°C
Usage temperature	5°C to 55°C (bulk product); -5°C to 50°C (aerosol)					
Coverage	20-30m <sup>2</sup> per litre	20-30m <sup>2</sup> per litre	10 - 15m <sup>2</sup> per 400ml aerosol 20 - 30m <sup>2</sup> per litre	20-30m <sup>2</sup> per litre	20-30m <sup>2</sup> per litre	20-30m <sup>2</sup> per litre

Like all Magnaflux materials, our ZYGLO products are closely controlled to ensure batch-to-batch consistency, optimum process control and inspection reliability.

# ZYGLO® ZL-15B, ZL-19, ZL-56, ZL-60C, ZL-60D, ZL-67B

## Specification Compliance

Specification	ZL-15B	ZL-19	ZL-60C	ZL-60D	ZL-67B	ZL-56
AMS2644	✓	✓	✓	✓	✓	✓
ASME B & PV Code, Sec V	✓	✓	✓	✓	✓	✓
ASTM 1135			✓			
ASTM E165/E165M	✓	✓	✓	✓	✓	✓
ASTM E1417/E1417M	✓	✓	✓	✓	✓	✓
EN ISO 3452-2		✓*	✓		✓	
MIL-STD-2132D	✓	✓	✓	✓	✓	✓
MIL-STD-271F	✓	✓	✓	✓	✓	✓
Pratt & Whitney PMC		4350-2	4351-8	4351-2	4360-10	
Rolls Royce RRP 58003 (CSS 232)			✓	✓	✓	✓
SAFRAN Pr 5000/In 5000			✓	✓		

\* water absorbency 6.10, requirement of >5% not met

## 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).

**Remove excess penetrant** by thoroughly spraying the test part with clean water at 10°C - 40°C. This should be carried out under a UV(A) source so you can monitor the penetrant removal.

**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. **Important:** to maximise penetrant sensitivity, do NOT leave parts in aqueous developers for any length of time.

**Inspect your test part** using a suitable UV source. Any defect indications will fluoresce a bright green-yellow when exposed 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
Cleaner/ remover	SPOTCHECK® SKC-S	Solvent-based
Developers	ZYGLO® ZP-4B	Dry
	SPOTCHECK® SKD-S2 or ZYGLO® ZP-9F	Solvent-based
	ZYGLO® ZP-14A or ZYGLO® ZP-5B	Aqueous/ water-based
UV lamps	MAGNAFLUX® EV6000 or MAGNAFLUX® UV-LED miniSpot	

# ZYGLO® ZL-15B, ZL-19, ZL-56, ZL-60C, ZL-60D, ZL-67B

## Availability and Part Numbers

	ZL-15B	ZL-19	ZL-60C	ZL-60D	ZL-67B	ZL-56
 400 ml	N/A	N/A	008A008 (x 10)	N/A	N/A	N/A
 25 L	056C061	056C185	056C205	056C010	056C034	056C201
 200 L	056C062	056C186	056C206	056C011	056C035	056C202

## Health and Safety

Read the relevant Safety Data Sheet for this product before use. Safety Data Sheets are available on request from your Magnaflux distributor or via the Magnaflux website: [www.eu.magnaflux.com](http://www.eu.magnaflux.com)