

Product Data Sheet

ZL-15B/ZL-19/ZL-60D/ZL-67/ZL-56

Fluorescent Water Washable Penetrants

Classification: *Type 1, Method A, Water Washable (Non-Water-Based) Penetrants*

General Description: Fluorescent Water Washable Penetrants are used to check for cracks in a wide range of applications. Our penetrants fluoresce a greenish-yellow color under ultraviolet radiation. Use black light sources with peak wavelength of 365 nanometers such as MAGNAFLUX ZB-100F Fan-Cooled Black Light. Water Washable penetrants meet OSHA requirements for Class III B liquids due to the high flash point and can be used in open dip tanks.

Applications:

ZL-15B (Level ½ - Lowest Sensitivity); ZL-19 (Level 1); ZL-60D (Level 2): Exhibits excellent washability for rough surfaces; typically used on castings, forgings, extrusions and rough machined surfaces to find cracks, seams, laps, cold shuts, laminations and porosity.

ZL-67 (Level 3 - High Sensitivity): Provides an excellent combination of sensitivity and washability.

ZL-67 is a fluorescent, high sensitivity, water washable penetrant. ZL-67 is typically used on critical applications including investment castings, jet engine components, and highly machined surfaces to find cracks, seams and porosity. ZL-67 exhibits controlled washability over a wide temperature range and variable dwell time.

ZL-56 (Level 4 – Ultra High Sensitivity): Ultra-high sensitivity penetrant for critical applications. ZL-56 is a fluorescent, high sensitivity, water washable penetrant. ZL-56 is typically used on smooth, nonporous, highly machined surfaces to find cracks, seams, and scratches on critical parts.

Product Data Sheet

Typical Properties:

Properties	ZL-15B Level 1/2	ZL-19 Level 1	ZL-60D Level 2	ZL-67 Level 3	ZL-56 Level 4
Viscosity @ 100° F (cs)	5.1	5.8	10.7	23.5	18.3
Density (lb/gal)	7.3	7.3	7.7	8.3	8.4
Density (g/cc)	0.880	0.880	0.920	0.985	1.010
Flash Point (PMCC)	>200°F	>200°F	>200°F	>200°F	>200°F
Water Tolerance	>9%	>10%	>20%	>20%	>20%
Sulfur (ppm)	<1000	<1000	<1000	<1000	<1000
Chlorine (ppm)	<1000	<1000	<1000	<1000	<1000
Sodium (ppm)	--	<100	<100	<100	--
Fluorine (ppm)	--	<50	<50	<50	--
VOC (grams/liter)	--	--	356	89	350

Method of Application:

Test parts must be clean, free of all oil, grease or other foreign contaminating substances, and dry, before penetrant is applied. Our Water Washable Penetrants can be applied by immersion dip, brush or flow on, conventional or electrostatic spray. The area to be inspected must be completely covered with penetrant. *Warning!!* Penetrants may attack and even dissolve many kinds of plastic pipe. Polyvinyl chloride (PVC) pipe is especially vulnerable, and can crumble after only a few days of exposure. Even diluted penetrant rinsings attack it rapidly. ABS plastic pipe is nearly as sensitive. When installing plumbing to handle penetrant rinsing, use metal pipe.

Penetration/Dwell Time:

The generally accepted minimum penetration time is 10 minutes. Some specifications may require longer dwell times.

Temperature:

Our Water Washable Penetrants are generally used between 40°F to 125°F.

Penetrant Removal:

Penetrants are generally removed by water spray. The general wash temperature envelope is 50°F to 100°F.

Developer Application:

Zyglo developers should be used to maximize the sensitivity of our penetrants. Aqueous developers are applied prior to drying, dry powder and non-aqueous developers after drying.

NOTE! Parts should not remain in aqueous developers for any length of time, as the penetrant sensitivity could be impaired.

Product Data Sheet

Recommended Developers:

ZP-4B Dry Powder, ZP-9F Nonaqueous, ZP-5B Water Suspensible, SKD-S2 Nonaqueous

Specification Compliance:

AMS 2644, ASME B & PV Code, Sec. V, MIL-STD-271, MIL-STD-2132, Boeing BAC 5423 PSD 6-46 or 8-4, General Electric P50YP107, Boeing PS-21202, ASTM E 165, AECL, ASTM E 1417

Packaging:

- ZL-15B:** 5 gallon pails, 20 and 55 gallon drums
- ZL-19:** 5 gallon pails, 20 and 55 gallon drums
- ZL-60D:** 5 gallon pails, 20 and 55 gallon drums, aerosols
- ZL-67:** 5 gallon pails, 20 and 55 gallon drums
- ZL-56:** 5 gallon pails, 20 and 55 gallon drums

Coverage:

1 gallon covers approximately 1000 square feet.

1 aerosol can (16 ounce by volume) covers approximately 65 square feet.

