



PRODUCT DATA SHEET

ZL-60D Zyglo Water Washable Penetrant

Effective March 6, 1997

Supercedes February 13, 1995

General Description

ZL-60D is a biodegradable, fluorescent, normal sensitivity, water washable penetrant. ZL-60D is typically used on castings, forgings, extrusions, rough and machined surfaces to find cracks, seams, laps, laminations, and porosity. ZL-60D exhibits controlled washability over a wide temperature range and variable dwell time.

ZL-60D fluoresces a greenish-yellow color under ultraviolet radiation. Use blacklight sources with peak wavelength of 365 nanometers such as MAGNAFLUX ZB-100.

Composition

ZL-60D contains mineral oil, surface active agents, and fluorescent dyes.

Typical Properties (Not a Specification)

Viscosity @ 100°F:	10.7 cs
Flash Point:	Greater than 200°F (93.3°C) (P.M.C.C.)
Density:	7.6 lbs./gal. (0.91 g/cc)
Water Tolerance:	Greater than 20%
Sulfur:	Less than 1000 ppm
Chlorine:	Less than 1000 ppm

Safety

1. ZL-60D is intended for industrial use by qualified personnel only.
2. Do not smoke or eat while using ZL-60D. Wash hands thoroughly after use. To protect hands from staining and drying out, protective hand wear is recommended.
3. Store ZL-60D in closed containers away from open flame or heat.
4. Read Material Safety Data Sheets prior to use of penetrant materials.

Method of Application

Warning:

Penetrants attack and even dissolve many kinds of plastic pipe. Polyvinyl chloride (PVC) pipe is especially vulnerable, and can crumble after 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 rinsings, use metal pipe.

Test parts must be clean, free of all oil, grease, or other foreign contaminating substances. Make sure parts are dry before penetrant is applied. ZL-60D can be applied by immersion dip, brush and flow on, conventional and electrostatic spray. Check area to be inspected under black light to assure complete penetrant coverage.

Penetration Time and Temperature

The generally accepted minimum penetration time is 2 to 5 minutes. Some specifications may require longer dwell times of 10-30 minutes. Use ZL-60D between 50°F to 125°F (10°C-51.6°C) ambient or part temperature.

Penetrant Removal

ZL-60D is generally removed by water spray. If immersion rinse is employed, final touch-up with fresh water is required.

Developer Application

Zygro developers should be used to maximize the sensitivity of ZL-60D. Aqueous developers are applied prior to drying while dry powder and nonaqueous developers are applied after drying (140°F/60°C).

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

Recommended developers for use with ZL-60D are:

ZP-4B ZP-9F SKD-S2 ZP-5B

Specification Compliance

MIL-I-25135 (Classified as Type I, Method A, Level 2)
MIL-STD-271 ASME B & PV Code, Sec. V
MIL-STD-2132 AMS-3156
ASTM E 165 AECL
ASTM E 1417 AMS-2647

Coverage 1 gallon approximately 1000 square feet

Packaging 1 gallon can 20 gallon drum
 5 gallon pail 55 gallon drum
 12 ounce aerosols