

SPECTROLINE[®]

Fluorescent Leak Detection and DIAGNOSTIC TOOLS for Industrial Systems

- Pipelines
- Hydraulic Systems
- Turbines
- Vacuum Systems
- Liquid Holding Tanks
- Evaporator Sections
- Compressed Air Lines
- Natural Gas Lines
- Propane Tanks
- Air Conditioning and Refrigeration Systems
- And Much More!



**SPECTRONICS
CORPORATION**

ISO 9001:2000 CERTIFIED COMPANY

Applications

(open and closed loop)

- Lubrication systems
- Hydraulic systems
- Pipelines
- Air conditioning and refrigeration systems
- Cooling control and hydrostatic pressure systems
- Fuel systems
- Engines

Myths

- Hydraulic systems are supposed to leak
- Dyes cost too much
- Hard to implement in large systems

Benefits

- Fast, easy and accurate
- Finds all leaks —the first time, every time
- Economical
- Reduces labor costs
- Perfect for preventive maintenance
- Environmentally friendly
- Safe
- Improves working conditions
- Decreases equipment downtime
- Increases efficiency of machinery operation

Tech tips

- Tanks often have a separate holding area where the oil is cooled. Therefore, inject the fluorescent dye into the dispensed area to ensure adequate circulation.
- When put into large tanks, the dye should first be diluted with the oil so it quickly mixes.
- When determining dye dosage, always base it on the capacity of the system, including lines and tank. In addition to the tank capacity, there is a significant amount of oil located in the lines.
- Develop a dye service card specific to each application.
- Include leak checking into your regular maintenance program.



Leak checking valves and fittings with the OPTIMAX™ 3000 blue light LED flashlight

Industrial Systems Leak More Than Just Fluids... They Leak Money!

This is why in any industrial system, leaks of any kind—oil, hydraulics, refrigerant, gasoline, diesel fuel or water—are a source of major concern.

Do this simple math. There are **86,400** seconds in a day; **31,536,000** seconds in a year. If there is a leak at the rate of 1 drip every 5 seconds, this means **6,307,200** drips per year!

Left undetected, these leaks will take a huge bite out of your profits. Plus they lead to equipment breakdown, accidents and environmental damage.

Unrepaired leaks disrupt production operations and increase equipment downtime. Also, leaks may lead to severe penalties for violation of tough environmental standards imposed by both local and national governments. These and other factors make the need to find an effective, economical and efficient leak detection method all the more important and urgent.

Current Leak Detection Methods — How Effective Are They?

There are many leak detection methods, including visual inspection, bubble solutions, ultrasonic detectors, halide torches, and infrared and electronic leak detectors. Each has its advantages and disadvantages. One significant disadvantage is that while all of these methods may find some of the leaks, they are not effective in finding all leaks. Another disadvantage is that it is hard to locate the leaks unless you are very close to the suspect leak site. Now, there is a new and revolutionary way to detect leaks that beats all other methods when it comes to effectiveness, cost and durability.

Spectroline® Fluorescent Leak Detection: A Revolutionary Solution!

Many large industrial systems have hundreds of possible leak sites, including dozens of valves and fittings. Spectroline® fluorescent leak detection works effectively in any enclosed circulatory system where fluids are used for lubrication, hydraulics, cooling control or hydrostatic pressure testing. Fluorescent dyes also can reveal leaks in static systems that can be pressurized or agitated.

In terms of cost, ease of use and effectiveness, Spectroline® fluorescent leak detection is the best of all available methods. It is the easiest, quickest and most effective way to pinpoint the exact location of each and every leak—the first time, every time! It is also the only method that allows inspection of an entire system under virtually all conditions.

1. Add fluorescent dye and let it circulate...

Dyes for Circulating Fluids

Find Leaks Fast in Synthetic Lubricant, Petroleum, Water and Water/Glycol-Based Systems!

Ideal for use as part of a diagnostic/preventive maintenance program for industrial systems. Work effectively in any enclosed circulatory system where fluids are used.

- **Versatile** — Allow inspection of an entire system under virtually all operating conditions. Find the smallest, most elusive leaks—even multiple and intermittent leaks!
- **Safe** — Work with any host fluid without damaging the fluid's properties or any of the system's components.
- **Cost Effective** — Highly concentrated. Contain more active ingredients per dose than competitive dyes.
- **Special Formulations** — Available in **several distinct** colors to differentiate between different leaking fluid systems (see back page).

Available in 1-pint (473 ml), 1-gallon (3.8 L), 5-gallon (18.9 L) and 55-gallon (208 L) drums for larger applications.

Refer to the table on the back for our most popular petroleum-based and water- and water/glycol-based dyes.

How It Works

Just add a small amount of dye to the system and let it circulate. The dye/fluid mixture escapes with the host fluid wherever there is a leak and glows brightly when inspected with a high-intensity UV or blue light inspection lamp.



INDUSTRIAL LEAK DETECTION KITS

OPK-340

The Most Effective and Efficient Kit for Finding Fluid Leaks in Oil, Water and Water/Glycol-Based Systems!

Works in any enclosed circulatory system where fluids are used. Allows inspection of the entire system under virtually all operating conditions.

Includes:

- OPTIMAX™ 3000 super-high intensity, cordless, rechargeable blue light LED leak detection flashlight
- 16 oz (473 ml) twin-neck bottle of patented OIL-GLO™ 44 concentrated oil dye
- 16 oz (473 ml) twin-neck bottle of WD-802 concentrated water dye
- 8 oz (237 ml) spray bottle of GLO-AWAY™ dye cleaner
- Smart AC and DC chargers
- Fluorescence-enhancing glasses and rugged carrying case



OPK-341

The Most Complete Kit for Finding Leaks in Oil-Based Systems. Works with Both Synthetic and Petroleum-Based Lubricants and Fluids!

Prevents expensive equipment breakdown and potential environmental problems. Ideal for pinpointing leaks in hydraulic systems, compressors, engines, gearboxes and fuel systems.

Includes:

- OPTIMAX™ 3000 super-high intensity, cordless, rechargeable blue light LED leak detection flashlight
- Two 16 oz (473 ml) twin-neck bottles of patented OIL-GLO™ 44 concentrated oil dye
- 8 oz (237 ml) spray bottle GLO-AWAY™ dye cleaner
- Smart AC and DC chargers
- Fluorescence-enhancing glasses and rugged carrying case



2. Find all leaks using these UV and blue light inspection lamps

HIGH-POWERED, CORDED UV LAMPS

MAXIMA™ ML-3500 Series

Features state-of-the-art Micro Discharge Light (MDL) technology!

Delivers unprecedented power—up to 10 times the UV-A output of conventional High Intensity Discharge (HID) lamps!

- Instant on; no warm up time needed
- Works even in direct sunlight
- Inspection range of up to 30 feet (9.1 m)
- Virtually no emission of harmful UV-B at 15 inches (38 cm)
- For maximum convenience, a portable, battery-operated version is also available.

Available as lamp kits: Both kits include UV-absorbing glasses (UVS-30), fluorescence-enhancing glasses (UVS-40), plastic carrying case (CC-350) and 8 oz (237 ml) spray bottle of GLO-AWAY™ dye cleaner (CR-800). MLK-35M kit also includes BP-12A 12-volt rechargeable battery pack, as well as AC and 12V DC cord sets. Choose dyes separately.



MLK-35 standard version



MLK-35M battery-operated version

Also available:

- **ML-3500RS** (shown) — Fully retractable, self-ratcheting flying reel with 35-foot (10.7 m) cord. Perfect for assembly line inspection.
- **ML-3500FL** — Flood lamp for wider beam profile.



BIB-150P Built-In-Ballast™ UV Lamp

Highest intensity UV lamp with a self-ballasted bulb in the industry!

- Eliminates heavy external transformer
- Inspection range of up to 25 feet (7.6 m)
- Rugged, super-tough polymer housing
- Lightweight design for easy handling
- Designed for maximum convenience and safety
- Easy bulb replacement without tools!



LD-80SK lamp kit also available:

Includes UV-absorbing glasses (UVS-30), plastic carrying case (CC-120A) and 8 oz (237 ml) spray bottle of GLO-AWAY™ dye cleaner (CR-800). Choose dyes separately.



CORDLESS LED FLASHLIGHTS

OPX-3000

OPTIMAX™ 3000

Blue Light LED Flashlight

Rechargeable flashlight with power comparable to super-high intensity 150W lamps!

- 15 times brighter than regular LED flashlights
- Inspection range of up to 20 feet (6.1 m)
- Compatible with all standard leak detection dyes
- 50,000-hour LED life
- Powered by rechargeable NiMH battery (included)
- Smart AC and DC chargers
- UVS-40 fluorescence-enhancing glasses



OPX-365

OPTIMAX™ 365 UV LED Flashlight

Features state-of-the-art, ultra-hi-flux LED technology. Delivers pure, long-wave UV light. Makes even dirty oil leaks glow brightly!

- Four times brighter than other high-intensity UV lamps
- Inspection range of up to 20 feet (6.1 m)
- Instant-on operation allows lamp to reach full intensity immediately. Eliminates warm up time
- Works with all systems and dyes, including difficult-to-fluoresce yellow dyes
- Powered by a rechargeable NiMH battery (included). Provides 90 minutes of continuous inspection between charges
- 30,000-hour LED life. Electronic Intensity Stabilizer assures consistent performance. Beam strength will not weaken between charges!
- Includes smart AC and DC chargers, UV-absorbing glasses, belt holster and padded carrying case. AC charger available in 120V, 230V, 240V or 100V versions.



SPECIALIZED DIAGNOSTIC TOOLS

Ideal for pneumatics!



ULTRASONIC DIAGNOSTIC TOOL

MDE-1000 Marksman™

Converts and amplifies inaudible ultrasonic sound into audible “natural” sound for accurate diagnosis. Finds problems before they result in major breakdowns.

- Quickly detects compressed air, natural gas, propane tank, vacuum, steam, refrigerant and other pressurized leaks quickly and effortlessly
- Pinpoints gear and bearing wear in internal components and electric motors
- Checks for electrical discharge associated with insulation breakdown, carbon tracking and arcing
- Detects irregular fluid turbulence due to restrictions in pipes and hydraulic lines
- Finds air and water leaks that pass by faulty seals, gaskets and weather stripping in doors, windows, ductwork and other non-pressurized enclosures

Master Kit includes: ultrasonic receiver, ultrasonic emitter, headphones, air probe, contact probe and padded carrying case

Also available: MD-500 Kit (same as MDE-1000, but without emitter)

MULTI-PURPOSE BORESCOPIES

CB-1000 COBRA™ and CB-1036 COBRA-Plus™ (Patented)

Feature built-in UV and white light LEDs. Perfect for refrigerant and fluid leak detection, finding cracks in heat exchangers, boiler inspections, behind-the-wall moisture or insect investigation, checking ductwork clearance and integrity, diagnosing blocked evaporator coils and much more!

- Advanced 7400 pixel imaging bundle and adjustable-focus eyepiece allow crystal-clear viewing
- “No-droop” shaft maintains position for easier access into hard-to-view areas
- Strong impact- and water-resistant nylon housing stands up to the daily abuse of a shop environment
- Pistol grip handle provides steady, comfortable viewing
- Clip-on mirror permits viewing at an angle to detect “hidden” leaks and flaws
- **CB-1000 COBRA** comes equipped with 10 mm, 24 inch (61 cm) shaft
- **CB-1036 COBRA-Plus** features 10 mm, extra-long 36 inch (91.4 cm) shaft for greater reach and versatility
- Includes fluorescence-enhancing glasses and padded carrying case



CB-400 COBRA-4™

Features detachable dual-head flashlight with super-bright blue and white light LEDs. Ideal for both leak detection and internal component inspection. Designed for specialized applications that require extended reach or viewing into deep recesses; slides easily into inaccessible areas!

- Ultra-thin, 4 mm water- and abrasive-resistant 36 inch (91.4 cm) shaft for added versatility. Reaches into very small spaces and tight orifices other scopes miss!
- Advanced 7400 pixel imaging bundle provides unsurpassed resolution and clarity
- Versatile, press-fit coupler design allows for quick attachment of light source
- Clip-on, angled mirror helps pinpoint leaks and flaws normally hidden from view
- Includes fluorescence-enhancing glasses and padded carrying case

ELECTRONIC REFRIGERANT LEAK DETECTOR

ELD-1000 PRO-Alert™

Features high-performance heated-diode sensor technology!

- Optimum sensitivity detects leaks down to 0.25 oz/yr (7 g/yr)
- Sensor life up to 200 hours or more
- Automatically self-calibrates to neutralize background contamination
- Sensitive to all CFC, HCFC and HFC refrigerants
- High/Low switch for accurate diagnosis of both large and small leaks
- Variable-intensity audible alarm plus flashing LED help pinpoint leaks fast
- Flexible metal probe holds its position in tight quarters
- Easily replaceable foam filter protects sensor and pump
- Includes sensor, replacement filters, (2) D cell batteries and rugged storage case



SUGGESTED DYE AMOUNT FOR INDUSTRIAL FLUID SYSTEMS

Application	Product No.	Suggested Dilution Ratio	% Dye to System Fluid
Petroleum-Based Fluid Systems: Light-colored hydraulic fluid Very dark or intensely blue hydraulic and lubrication fluids Compressor oil Engine oil Gearbox oil	OIL-GLO™ 22 Fluoresces yellow	1 oz (30 ml) per 4 gals (15.1 L) hydraulic fluid 1 oz (30 ml) per 2 gals (7.6 L) hydraulic fluid 1 oz (30 ml) per 2 gals (7.6 L) compressor oil 1 oz (30 ml) per 1.5 gals (5.7 L) engine oil 1 oz (30 ml) per 2 qts (1.9 L) gearbox oil	0.20% 0.39% 0.39% 0.52% 1.56%
Petroleum-Based Fluid Systems: Light-colored hydraulic fluid Very dark or intensely blue hydraulic and lubrication fluids Compressor oil Engine oil Gearbox oil	OIL-GLO™ 30* Fluoresces white	1 oz (30 ml) per 8 gals (30.3 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) compressor oil 1 oz (30 ml) per 3 gals (11.4 L) engine oil 1 oz (30 ml) per 1 gal (3.8 L) gearbox oil	0.10% 0.20% 0.20% 0.26% 0.78%
Synthetic- or Petroleum-Based Fluid Systems: Light-colored hydraulic fluid Very dark or intensely blue hydraulic and lubrication fluids Compressor oil Engine oil Gearbox oil	OIL-GLO™ 33 Fluoresces green	1 oz (30 ml) per 8 gals (30.3 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) compressor oil 1 oz (30 ml) per 3 gals (11.4 L) engine oil 1 oz (30 ml) per 1 gal (3.8 L) gearbox oil	0.10% 0.20% 0.20% 0.26% 0.78%
Synthetic- or Petroleum-Based Fluid Systems: Light-colored hydraulic fluid Very dark or intensely blue hydraulic and lubrication fluids Compressor oil Engine oil Gearbox oil	OIL-GLO™ 40* Fluoresces blue	1 oz (30 ml) per 8 gals (30.3 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) compressor oil 1 oz (30 ml) per 3 gals (11.4 L) engine oil 1 oz (30 ml) per 1 gal (3.8 L) gearbox oil	0.10% 0.20% 0.20% 0.26% 0.78%
Synthetic- or Petroleum-Based Fluid Systems: Light-colored hydraulic fluid Very dark or intensely blue hydraulic and lubrication fluids Compressor oil Engine oil Gearbox oil Fuel (gasoline or diesel)	OIL-GLO™ 44 Fluoresces yellow/green	1 oz (30 ml) per 8 gals (30.3 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) compressor oil 1 oz (30 ml) per 3 gals (11.4 L) engine oil 1 oz (30 ml) per 1 gal (3.8 L) gearbox oil 1 oz (30 ml) per 12-18 gals (45.4-68.1 L) gasoline/diesel fuel	0.10% 0.20% 0.20% 0.26% 0.78% 0.04-0.07%
Synthetic- or Petroleum-Based Fluid Systems: Light-colored hydraulic fluid Very dark or intensely blue hydraulic and lubrication fluids Compressor oil Engine oil Gearbox oil	OIL-GLO™ 50 Fluoresces red	1 oz (30 ml) per 8 gals (30.3 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) hydraulic fluid 1 oz (30 ml) per 4 gals (15.1 L) compressor oil 1 oz (30 ml) per 3 gals (11.4 L) engine oil 1 oz (30 ml) per 1 gal (3.8 L) gearbox oil	0.10% 0.20% 0.20% 0.26% 0.78%
Gasoline and Diesel Fuel Systems	GAS-GLO™ 32 Fluoresces yellow	1 oz (30 ml) per 10 gals (37.9 L) gasoline/diesel fuel	0.08%
Water- and Water/Glycol-Based Fluid Systems – Both Static and Circulating	WD-801: Fluoresces blue † WD-802: Fluoresces green WD-803: Fluoresces blue/green †	1 pt (473 ml) per 500 gals (1,900 L) water 1 pt (473 ml) per 1,000 gals (3,800 L) water 1 pt (473 ml) per 500 gals (1,900 L) water	0.03% 0.01% 0.03%

The dilution ratios of Spectrolin[®] fluorescent dyes to the host fluids shown above are only guidelines. These ratios can be increased or decreased depending on the fluorescent response required and the ambient lighting conditions. A simple way to check for proper fluorescence is to shine the UV or blue light lamp on the fluid reservoir of a system and check for a bright fluorescent response.

* Use with UV lamps only

† Does not change the color of the host fluid

To learn more about our wide range of
leak detection and diagnostic tools, visit
www.spectrolin.com

SPECTRONICS CORPORATION
 956 Brush Hollow Road, P.O. Box 483
 Westbury, New York 11590
 800-274-8888 • 516-333-4840
 Fax: 800-491-6868 • 516-333-4859
www.spectrolin.com

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