



# SPECTRONICS CORPORATION

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## TECHNICAL BULLETIN #48

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### USING THE *SPECTROLINE*<sup>®</sup> UV-FLUORESCENT LEAK DETECTION SYSTEM FOR INDUSTRIAL REFRIGERATION

#### FOR USE ON:

**Chillers • Centrifugal Systems • Oilless Systems • Compressorless Systems  
Rack/Parallel Systems • Low-Temperature Systems • Water Circuits**

The Spectroline UV-Fluorescent Leak Detection System is *not* just for smaller air conditioning and refrigeration (AC&R) units. Used as part of a refrigerant management program for large-capacity industrial systems, AR-GLO<sup>®</sup> Fluorescent Additives are cost effective in a number of ways. While special procedures must sometimes be used in such industrial applications, consider the important benefits of fluorescent leak detection:

- **Cut refrigerant losses due to leaks.** Large users can save *thousands of dollars* a year on replacement costs for refrigerant.
- **Reduce energy consumption.** A fully charged unit operates more efficiently than an undercharged system, which can significantly reduce the overall load — *and* the kilowatt hours for which your company pays.
- **Ideal for preventive maintenance programs.** Because industry-approved AR-GLO additives will safely remain in AC&R systems until the refrigeration oil is changed, they can be used to check for new leaks as often as is required under a refrigeration maintenance program. Simply reinspect the system with a high-intensity Spectroline Ultraviolet Lamp, looking for the characteristic yellow-green glow that reveals the *precise* location of *every* leak.

#### WE HAVE THE RIGHT FLUORESCENT ADDITIVE FOR *YOUR* APPLICATION:

**AR-GLO 4:** In systems with more than 4 to 6 gallons of refrigerant oil, and where oil circulates throughout the circuit (reciprocating chillers, rack or parallel systems, etc.), AR-GLO 4 is very cost effective when added at the suggested ratio of 1/4 oz. per gallon of refrigeration oil in the system. Long lengths of piping, oil separators and multiple compressors in the circuit all mean that extra time will be needed for adequate AR-GLO circulation — but the wait is well worth it!

Where the newer, highly efficient coalescing oil filter/separators are used, a simple bypass designed to add an AR-GLO/refrigeration oil mixture from the oil-side crankcase *past* the separator is recommended. Request Spectronics' Technical Bulletin #64 for further details.

AR-GLO 4 is available in cases of six 2-oz. bottles as well as in pint bottles.

**SPECIAL NOTE ON CHILLER APPLICATIONS:** AR-GLO additives (which are designed to work in a system with positive pressure) will work on all positive-pressure centrifugal systems. However, they have limited effectiveness on the *low* side of *negative*-pressure centrifugal systems. A special procedure must be used to bring the negative pressure up above atmospheric; even then the effectiveness is limited to areas *below* the refrigerant liquid line in the evaporator. There is no difficulty locating leaks on the *high* side of any centrifugal system, where operating pressure is above atmospheric. Even with the above limitations, the Spectroline System is a useful complement to other leak detection tools.

**AR-GLO 4/OL:** Where there is *no* oil circulating through the refrigeration circuit, AR-GLO 4/OL (patent pending) is ideal, even as a "once through" procedure where it may be drained from an oil trap on the liquid side. Unlike other AR-GLO additives, AR-GLO 4/OL is specially formulated for use where *no* oil is present.

Applications include centrifugal open-drive systems, refrigerant charging stations (such as in an air conditioner manufacturing plant), "brine systems" using refrigerants, and compressorless systems (such as heat transfer circuits employing refrigerants). This additive can be used in units that operate at -100°F (-73.3°C) or even lower. The recommended dosage of AR-GLO 4/OL is 1 pint per 2,500 pounds of refrigerant in the system.

AR-GLO 4/OL is available in pint bottles.