

TRACERLINE®

**Industry Update for
Leak Detection Products**



TRACER PRODUCTS

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Solvent-Free Fluorescent Leak Detection Dyes Avoid Damage to Air-Conditioning Systems

Automotive technicians worldwide use the fluorescent dye method of leak detection, because it is fast, exceptionally accurate, easy to use and inexpensive. However, service personnel should pay careful attention to the dye that they put into air-conditioning systems. Solvent-based dyes can impair the properties of the system's lubricant, resulting in diminished viscosity and lubricity. This could lead to equipment damage or premature failure of the system's components.

Tracer Products' Fluoro-Lite® fluorescent dye is the *only* dye on the market that is specially formulated with a refrigerant-grade PAG, ester or mineral oil carrier without the use of solvents.

Other dye manufacturers formulate their dyes with a solvent called Aromatic 200. This material was designed by Exxon as a petroleum hydrocarbon solvent for use as a carrier for industrial and oil field chemicals. It is also used as a solvent for printing inks, paints and pesticides. However, it is not designed to be added to a refrigerant lubricant since its low viscosity is detrimental to the operating parameters of refrigeration oil.

If too much of this solvent is added to an air-conditioning system, the lubricating properties of the system's oil are changed and would be adversely affected. In addition, the solvent itself is not miscible in R-134a. The potential for damage due to this is not yet known. The solvent also contains naphthalene, which is listed by OSHA as a hazardous material.

Another benefit of solvent-free Fluoro-Lite fluorescent dye is that it is highly concentrated, so only a small amount is needed to sufficiently treat an air-conditioning system. The optimum oil-to-dye volumetric dilution ratio of Fluoro-Lite dye is 375:1, although even at 500:1 or more, Fluoro-Lite has been shown to perform effectively. Dyes that are produced by diluting solvent-bearing raw material with the lubricant must be used in significantly greater amounts (64:1 to 32:1, oil to dye, volumetric), so the effect on viscosity, lubricity, miscibility and heat transfer could become significant.

Because our Fluoro-Lite dyes are processed with air-conditioning grade lubricants, we were able to synthesize these leak detection fluids without the use of any extraneous and possibly damaging solvents. This has resulted in a product that is safe to equipment and personnel in any dosage.