

TECH TIP

The Downside to Dye Leak Detection

It seems that everything good also has a downside. Finding refrigerant leaks using an ultraviolet dye is a method that works when others won't. The insertion or application of dye comes in many forms. Some OE and other manufacturers add a pellet of dye inside the accumulator or other component. From there the method ranges from cartridges to syringes and other twist and squeeze applicators. You can also buy your refrigerant and oils with dye already mixed in.

The variety of application methods is only superseded by a larger variety of dyes. Some dyes can be seen leaking with a blue or ultraviolet filter while others require a pure or true ultraviolet light. Light enhancing glasses are required with some dyes. When you find a method of installation and a dye that works best for you, be sure to follow the manufacturers' instructions.

Most dye manufacturers formulate their dye using various amounts and types of solvent. This solvent is required to assist the dye to flow with the oil through the system. Of course solvents weaken or even destroy the refrigerant oil. So, even a good dye can cause compressor failure if too much is used. An example is you install oil with dye, then refrigerant with dye, and then you add more dye. Then there is the mechanic who thinks "If a little is good, more is better." There goes the oil's ability to lubricate and thus there goes the seals and the compressor.

The most miss-diagnosed leak that can be caused by dye is the compressor shaft seal. The integrity of the seal is maintained by refrigerant oil. Too much dye or too much solvent in the dye you use can cause dye to show up as a leak when there is not one and can be the cause of a seal leak.

Using dye as a refrigerant leak detection is a great method. Just be sure that you follow the instructions and do not use too much dye. Be sure that ALL of the flush solvent you used is out of the system before evacuating and charging. Also be sure to place the "Dye Added" label so the next technician does not add more dye without completely flushing the system.