

# Industry Update

News from ICOR International, Inc.

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August 2015

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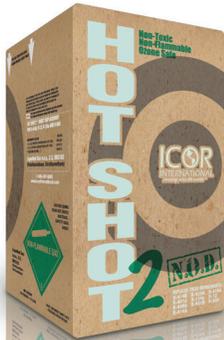
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## Topping Off Blends - Just The Facts

Since the introduction of alternative refrigerants, commonly referred to as blends, in the early 90s, one of the primary concerns has been that some blends could separate, (fractionate), as the result of a system leak. Blends that are comprised of refrigerants which have unique boiling points are known as zeotropes, and they are assigned an ASHRAE 400 series designation. Some of the most commonly used zeotropes are R-410A, R-407C, R-404A, R-438A, and ICOR's R-422B (NU-22B®), R-422C (ONE SHOT-C) and R-417C (HOT SHOT-2).

It was originally believed that systems charged with a zeotrope could not be topped off because the refrigerant leaked components disproportionately (fractionated), and any refrigerant left in the system would have less cooling capacity. To this day, many blend users still believe that 400 series blends cannot be topped off.

Countless hours of research has went into studying the fractionation of 400 series blend. It was determined many years ago that fractionation, as a result of a leak, is very minimal and systems charged with a 400 series blend can be topped off repeatedly with little to no loss in cooling capacity. One study in particular showed that after leaking a system charged with a 400 series blend down at a 20% vapor leak (worst case vapor leak test), and topping it off for 8 years, there was only a 5% drop in capacity.

400 series blends are far more vulnerable to fractionation during system charging than from a system leak. For this reason, all 400 series blends must be charged in the liquid phase (invert the cylinder to charge as a liquid). Note: Refer to the manufacturers charging guidelines for product specific charging instruction. You can access guidelines for NU-22B, and ICOR's other popular refrigerant blends, at [www.icorinternational.com](http://www.icorinternational.com).

If you encounter a leaking system charged with a 400 series blend and you are concerned about the condition of the refrigerant left in the system, you may be able to perform a simple pressure/temperature (P/T) test to determine if the gas is still within specification. For instruction on conducting a P/T test go to <http://www.icorvte.com/programs.php> and click on the slide presentation "ACR System service – The Era of HFCs". There is a complete section (page 20) on performing a "Fractionation Test".

For additional support, call ICOR's toll free Tech-2-Tech line at (866) 433-8324.

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