

# Industry Update

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## Mixing Alternative Refrigerants With R-22 – A Formula For Failure

By Gordon McKinney, VP/COO  
ICOR International, Inc.

The dramatic market shift away from R-22 has given rise to a number of new refrigerant options for distributors to sell, and technicians to use. Many in the ACR industry were not prepared for the transition to an alternative refrigerant and the bombardment of new refrigerant options to choose from continues to make their jobs even harder.

The fastest growing and most troubling concern being reported today, is the practice of mixing alternative refrigerants with R-22. This practice is considered highly irresponsible and unacceptable by the mainstream refrigerant industry, and for a number of good reasons. ICOR has received numerous reports from technicians claiming they were told by a distributor, or even worse, a refrigerant manufacturer's representative, that it is acceptable to mix an alternative refrigerant with R-22. Although several individuals claim they were given a green light to mix directly from a manufacturer's representative, we believe it is the result of selective listening and or miscommunication, rather than a conscious effort by anyone to encourage mixing.

The primary concern with mixing R-22 with an HFC alternative is the unpredictable change in the pressure temperature relationship. HFC based alternative refrigerants are comprised of no less than two refrigerants, and some have a blend of as many as five refrigerants. They have been developed in a way that when properly used in their pure form, and in a qualified application, they will mimic the operational characteristics of R-22. However, even in their pure form (not mixed with R-22) they will not provide adequate performance unless the refrigerant charge has been optimized by using the refrigerant's respective pressure temperature chart, and the superheat or sub-cooling calculation method. When an alternative refrigerant is mixed with R-22 there is no pressure temperature chart to refer to and therefore no way to optimize the system charge. Improper superheat or sub-cooling can lead to compressor flood back, overheating, and dramatically reduce system efficiency and compressor lifetime.

Mixing any HFC alternative refrigerant with R-22, in any concentration, is a formula for failure and should be discouraged industry wide. Any statement made to the contrary is highly irresponsible and the result of either poor communication, inadequate education, or misguided self-interest.

For more information regarding proper refrigerant use, call ICOR's toll free Tech-2-Tech support hotline at (866) 433-8324. You can also email questions or comments to: [icorinfo@icorinternational.com](mailto:icorinfo@icorinternational.com).

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