



## Refrigerant Update

Always follow any and all Manufacturer Guidelines.

The manufacturer warranties are only for the refrigerant type that it came with. If you or the customer chooses to change refrigerants the manufacturer warranty (if any) is void.

As a contractor dealing with light commercial equipment that was out of any manufacturer warranty but still new enough to have several years of service life, I spent time looking at refrigerant alternatives.

Over the past few years we have learned that much of what we thought about refrigerant oils was not true. Mineral Oil for R-22 and POE Oil for R-410A get a long just fine. They get along so well that if you decide to convert a R-22 system to the Honeywell R-422D, you should add some POE oil to the system. There is a video explaining this at: [www.honeywell-refrigerants.com/americas/applications/r-22-retrofit-solutions/](http://www.honeywell-refrigerants.com/americas/applications/r-22-retrofit-solutions/)

Just because the two oils get along doesn't mean we want any extra oil in the system. Good service procedures are to blow out refrigerant lines with nitrogen to remove any debris from a system failure, any extra oil and the purge while we braze.

R-22 was used for so long because it is such a great refrigerant. It had performance in low, medium and high temperature applications. As well as almost all weather conditions. When we look at replacements, we find that it takes several refrigerants to do what R-22 could do by itself. Because of the increased pressures, I don't consider R-410A an option for R-22 replacement. My concern was coil failure and having to replace all the metering devices did not seem cost effective.

R-407 is a good replacement for R-22. For low/medium temperature applications I used R-407A. For Comfort Cooling (air conditioning) I like R-407C. All R-407 refrigerant needs POE Oil. So for that reason, I look at converting to R-407 after a compressor failure. Many of the replacement compressors in supply houses now come with POE Oil in them. POE oil will work with just about any refrigerant, so it's easier to stock one POE compressor than a Mineral Oil and POE Oil compressors.

Rather than try and explain what we were doing, we have ordered the R-410A version of an OEM out of warranty compressor so that we could convert large roof top units to R-407C and found the R410A version much cheaper than the R-22 version. No clue as to why?

When you convert to R-407C from R-22, you do not need to replace the metering device. Blow out the refrigerant lines. Install the POE oil compressor and a new filter drier. Leak test, evacuate and charge. Then label the system in multiple areas with the stickers you can get from the refrigerant supplier. Scratching "R-407C" into the disconnect cover and access panel with an Awl or screw driver is also a permanent way to identify the new refrigerant.

Refrigerant R-407C and R-422D have operating pressures that are very close to R-22.

Depending on the situation and the system being out of any warranties, we would give the customer three options. Always the option to go with the refrigerant the system came with. If the system had a leak and lost the charge, R-422D with a few ounces of POE oil. Lastly if the compressor had failed and we had found a POE oil replacement, we would offer the conversion to R-407C. I would consider R-407C a long term refrigerant. Copeland has approved R-407 for use in all of their compressors.

Again, we were motivated to move in that direction because we were working with systems that held 20 to 60 pounds of refrigerant. That meant more reclaim bottles and more refrigerant inventory on each truck.

Every company and its customers are different and will need to decide what refrigerant strategy works best for them. I would not recommend Drop In refrigerants from small companies you have never heard of. The last thing you want to do is put that in a system then find out you can't get it a few months later. For that reason alone, you may want to look at the Honeywell R-22D.

With that same thinking in mind, I would be reluctant to install a system that had a newer refrigerant in it just yet. Once ASHRAE and ARI announce where they want to see the industry to go, then I will follow. In the late 90's we saw some of the manufacturers jump to a newer refrigerant, then change with the industry a year later. Those customers now have a devil of a time finding refrigerant for their systems.

We are far from done with the refrigerant replacements. There are several in the works right now.

