



Will Forane® 427A perform as well as R-22?

Yes, in many systems. The capacity loss on Forane® 427A is approximately 3% @ 45 degree evaporator temperature. This is not noticeable in most systems that are currently running correctly and designed properly.

Will my efficiency decrease using Forane® 427A?

You may lose some efficiency. The efficiency loss of Forane® 427A at 45 degree evaporator temperature < 3%. Systems that are not running or sized correctly could see additional losses.

Will I have to change the oil?

No, not in many installations. Forane® 427A is compatible with MO/AB & POE. However, R-22 is both compatible and miscible with MO, AB, & POE. Although Forane® 427A is formulated to be highly tolerant of MO/AB, installations with extensive piping layouts or vertical risers could prove challenging for proper oil return. In addition, low evaporator temperatures and systems utilizing a receiver and/or accumulator, adding up to 20% POE or changing to POE completely is recommended. Consult Arkema's technical support department for additional guidance.

Can I mix Forane® 427A and R-22?

Mixing refrigerants is not recommended as it creates a new refrigerant that is not EPA approved. In addition, it contaminates the R-22. Proper calculation of superheat and subcooling becomes extremely difficult, which could result in damaging the compressor.

Can I top off with Forane® 427A?

Yes, you can top off with liquid Forane® 427A if the system has already been retrofitted with Forane® 427A and leaks occur. The charge should be within specification. If a large portion of the charge has leaked, it is best to recover the remaining charge and weigh in a new charge.

Can I charge vapor?

No. Forane® 427A is a blended refrigerant. All blended refrigerants should be charged in liquid phase. Charging in the liquid phase will limit fractionation. Disposable cylinders do not come with dip tubes, therefore, the cylinder will need to be turned upside down.

Is R-407C a better refrigerant?

R-407C capacity, efficiency, and mass flow rates may be slightly closer to R-22 than Forane® 427A in typical AC applications. A trade-off, however, is that R-407C is not formulated to work with MO/AB and requires POE oil. Also, the discharge pressures could be 15 to 25 psi higher than R-22. Forane® 427A discharge pressure is typically only 0 to 10 psi higher than R-22. Consult Arkema's Retrofitting with Forane® Refrigerants Quick Reference Guide.

Will I have to change my expansion device?

The mass flow rate of Forane® 427A is 4% greater than R-22. Rarely does such a small increase require a modification of the expansion device.

What else do I need to know?

R-22 is an excellent refrigerant, especially at high ambient conditions. However, it is also an ozone depleting substance, which is being phased out. The EPA-approved alternative gases do not have the same solvency with MO/AB nor do all compressors have the same suction velocity to circulate oil properly through the system. Oil quality and solvency could impact oil return. R-22 systems that were not correctly designed or systems that are not running well on R-22 will likely not run any better using another refrigerant. Care must be taken to evaluate each system before retrofitting.

What to expect after retrofitting?

Typically expect 0 – 5 psi lower on the suction and 0 – 10 psi higher on the discharge. Superheat and subcooling will typically be lower than R-22. Pressures could be higher due to ambient conditions.

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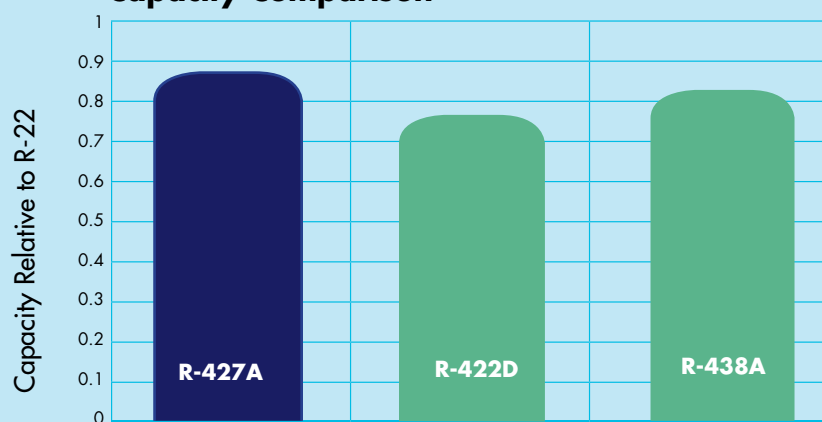
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Forane[®] Refrigerants R-22 Alternative

FORANE[®] 427A – THE EASY RETROFIT[™]

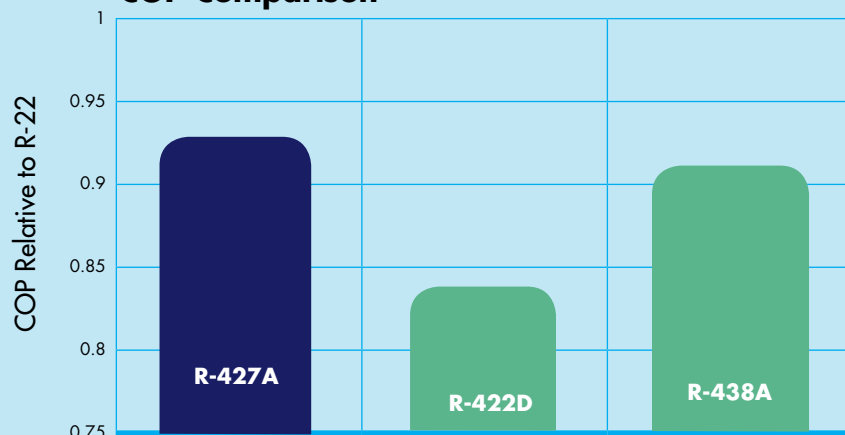
Forane[®] 427A is an R-22 retrofit for air conditioning, heat pumps, and refrigeration systems. R-427A out performs other common R-22 retrofits in most applications.

Capacity Comparison



Note: Box Temperature 25°F, Ambient 100°F

COP Comparison



Note: Box Temperature 25°F, Ambient 100°F



Minimize the work for R-22 retrofits

- ▀ One refrigerant for three applications: air conditioning, heat pumps, and refrigeration
- ▀ No TXV replacement required
- ▀ Comparable capacity to R-22
- ▀ Better efficiency than most R-22 retrofits
- ▀ Nearly identical operating pressures to R-22
- ▀ Copeland Discus[™] and Bitzer Approved

NO OIL CHANGE NEEDED
in many installations



iPhone[®]



Android[™]

New! Forane[®] P/T App

- ▀ Interactive pressure/temperature charts
- ▀ Pressure/temperature calculator
- ▀ Product finder
- ▀ Subcooling and superheat calculator
- ▀ Toggle between 8 different languages

Forane® 427A Retrofit Guides

Step 1: Establish baseline performance

Check the system for leaks and identify any needed repairs. Run the system using the correct OEM charge of R-22 and record performance parameters using an Arkema Retrofit Data Sheet.

Step 2: Recover existing R-22

Recover existing R-22 refrigerant (DO NOT vent to the atmosphere) and make sure not to mix with other refrigerant gases. Record the weight of refrigerant removed.

Step 3: Check lubricant

A lubricant change may not be required, but POE is always recommended for optimal performance. Confirming oil quality is important. Check the oil for moisture, acidity, and metal shavings or sediments. If the oil does not meet the desired specification, a complete oil change using POE is recommended.

Systems with complex piping schemes could impede proper oil return. In these cases, adding or changing over to POE is recommended.

Step 4: Replace the filter dryer and seals

Replace the filter dryer and, if necessary, elastomeric seals and gaskets, such as Schrader valve cores.

Step 5: Leak check and evacuate the system

Conduct a pressure test using dry nitrogen to determine if the system has a leak, staying below the system pressure limitations. Repair any leaks as necessary.

Pull a minimum vacuum of 500 microns and ensure that it maintains a vacuum. If the system does not hold vacuum, leaks may still be present.

Step 6: Charge the system with Forane® 427A

Remove refrigerant as a liquid only from the cylinder, being careful not to damage the compressor. The initial weight should be approximately 95% of the original charge for R-22, charging up to 100% if necessary.

Step 7: Start the system and check performance

Start system and record system performance, noting superheat and subcooling. Adjust TXV set-point and/or refrigerant charge to achieve the desired superheat. Low side pressure control settings may also need to be adjusted.

Step 8 : Label the system

Properly label the system as being retrofitted with Forane® 427A. For Forane® 427A system labels, call Arkema's customer service at (800) 245-5858.

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