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Keeping You Informed!

IN APPRECIATION TO OUR CUSTOMERS

By Angelos Backus

DECEMBER 31ST 2009 IS HERE!

R-410A IS IN!

R-22 IS OUT!

R-410A, sold under the trademarked names **Puron**, **Genetron R410A**, and **AZ-20**, is a near- azeotropic mixture of difluoromethane (CH₂F₂, called R-32) and pentafluoroethane (C₂HF₅, called R-125), (An **azeotrope** is a mixture of two or more refrigerants in such a ratio that its composition cannot be changed when it becomes vapor. This occurs because, when an azeotrope is boiled, the resulting vapor has the same ratio of constituents as the original mixture, Carrier Corporation refers to it as (Puron). It does not contribute to ozone depletion, and is, therefore, becoming more widely used after December 31st, 2009. However, it has a high global warming potential of 1725 (1725 times the effect of carbon dioxide), (*Global warming potential (GWP) is a measure of how much a given mass of greenhouse gas is estimated to contribute to global warming. It is a relative scale which compares the gas in question to that of the same mass of carbon dioxide_(whose GWP is by definition 1). A GWP is calculated over a specific time interval and the value of this must be stated whenever a GWP is quoted or else the value is meaningless*), similar to that of R-22. R-410A is incompatible with R-22 refrigerant.

R-410A is used at much higher operating pressure than R-22, new equipment that uses R-410A will require service personnel to acquire different tools and equipment, safety standards and fundamentals when installing, and replacing older split A/C systems, and repairing systems in the field. HVAC service persons need to understand the safe handling, proper charging, operating characteristics, proper applications, and general use of R-410A refrigerant. R-410A should only be used in equipment specifically designed and constructed for higher pressure refrigerants. R-410A operates at considerably higher pressures and requires the use of special tanks, gauges and recovery equipment.

R-410A requires training of installation and service personnel in the proper and safe handling of R-410A.

R-410A also needs service personnel to understand why all refrigerant flow controls, valves and driers have changed and must be properly applied with newly designed and built compressors.

Myths About R-410A

There have been a number of myths and misconceptions about R-410A refrigerant and air conditioners that use it. Some of these are completely untrue, and some are simply exaggerated.

- 1) The higher pressures of R-410A are unsafe.
- 2)The higher pressures of R-410A cause air conditioners to break down more often.
- 3)R-22 will be cheap and available through 2020.
- 4)R-410A isn't the final refrigerant, and other new refrigerants are coming.
- 5)R-410A costs too much.
- 6)R-410A technology is too new and risky.
- 7)R-410A is new and it may not be available to service you new air conditioner if it breaks down.
- 8)The lubrication oil used in R-410A systems absorbs water and makes systems break down.

1) The higher pressures of R-410A are unsafe.

Actually, air-conditioners that use R-410A are specially designed for the higher pressures of R-410A. These systems have typically been rigorously tested by their manufacturers, as well as by independent safety testing laboratories such as Underwriters Laboratories.

Many dealers of air-conditioning equipment are not educated on the benefits of this new refrigerant, and some use the "high pressure" argument to convince consumers not to buy a product which the dealer isn't properly trained to install or service anyway.

With over a million R-410A based air conditioners operating worldwide, and nearly a decade of field testing and product history, there is no evidence to suggest that R-22 systems are any safer than systems that contain R-410A.

2) The higher pressures of R-410A cause air conditioners to break down more often.

Evidence shows this is not only untrue, but that R-410A air conditioners can be remarkably more reliable than air-conditioners that use R-22.

First, air-conditioners that use R-410A are designed to be heavier-duty, with a thicker compressor shell. Usually this results in smaller, sturdier pieces of equipment that vibrate less, putting less strain on the piping connections that are the source of most leaks.

Second, most air-conditioner manufacturers require their technicians to be fully trained on R-410A before they can sell or service that manufacturer's R-410A equipment. As a result, the dealers and technicians that offer and install R-410A are often better trained and have the right tools to give you a more reliable installation.

3) R-22 will be cheap and available through 2020

This is wishful thinking on the part of many service technicians. R-22 is being phased out globally. The manufacturing plants that make R-22 in Europe, North America and other regions will eventually be shut down or converted to make other chemicals.

The U. S. EPA implemented an allocation program which limits both the companies who can make and import R-22, and the amounts that they each can make for import. In order to meet the reduction in the use of ozone-depleting chemicals that Congress laid out in the Clean Air Act of 1990, the U.S. EPA expects to pass further laws to reduce allocations of R-22 and other ozone-depleting chemicals.

By 2015, the cap on R-22 and other ozone-depleting HCFC refrigerants will be reduced to allow a maximum

of about 60 million pounds of virgin (new) R-22 to be produced in or imported into the U.S. Currently, the U.S. Uses over 160 million pounds each year!

4) R-410A isn't the final refrigerant, and other new refrigerants are coming

Every major air conditioner manufacturer in the United States has selected R-410A as its choice to replace R-22 in new equipment.

5) R-410A costs too much

It's true that non-ozone depleting refrigerants are more expensive to manufacture. Over the long-term though, manufacturing costs are likely to decline as R-410A becomes more popular and is produced on a larger scale.

6) R-410A technology is too new and risky

Air conditioners using R-410A have been available in the U.S. Since 1995, so they're not at all new. They're new to people who haven't heard about them.

7) R-410A is new and may not be available to service your new air conditioner if it breaks down

All manufacturers are committed to having ample supplies of this refrigerant available, and have invested millions in manufacturing plants to make sure that there is plenty of R-410A available.

1.The lubricating oil used in R-410A systems absorbs water and makes systems break down 2.

Many air-conditioning contractors who haven't learned about R-410A often hear this myth and repeat it to others.

Air conditioners and heat pumps that use R-22 use a mineral oil that circulates through the system to keep the compressor and other parts lubricated. Systems containing R-410A usually use a synthetic oil. Some of these synthetic oils do absorb moisture more readily than mineral oils, but there are several reasons why this is not an issue for the homeowner.

First, equipment manufacturers train their technicians to keep these oils from getting exposed to the air where they could absorb moisture. As long as technicians follow the manufacturer's directions in installing and servicing R-410A systems, the oil will remain clean and dry.

Second, nearly all air conditioners and heat pumps that use R-410A have a device called a “filter drier”. This important part does exactly what the name implies – it filters, cleans, and dries the refrigerant and oil as it circulates through the system just like the oil in a car.

GET THE CD OR THE BOOK, AND BRING YOURSELF UP TODAY!

#007-60882

For Only \$30.00

This interactive CD-Rom provides field service personnel with the necessary training and practical knowledge to safely perform service on systems containing R-410A and R-407C. In addition, this CD includes information on: the R-22 phase-out, appropriate refrigerant and oil applications, service techniques, as well as safe handling of R-410A.



#007-60884

For Only \$35.00

This book will provide field service personnel with the necessary training and practical knowledge to safely perform service on systems containing R-410A as well as R-407C and other near azeotropic blends. This manual also includes information on: the R-22 phase-out, appropriate refrigerant and oil applications, service techniques, as well as safe handling of R-410A.

