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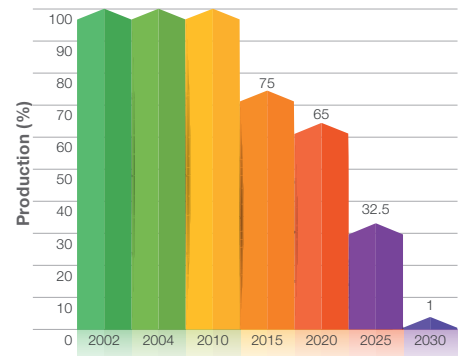
# LEARN M<sup>O</sup>RE WITH RHEEM®

## WHAT IS MONTREAL PROTOCOL?

Agreed in 1987 and entered into force in 1989, the Montreal Protocol on Substances that Deplete the Ozone Layer is an international treaty designed to protect the Ozone Layer by phasing out the production of numerous substances that are responsible for Ozone depletion.

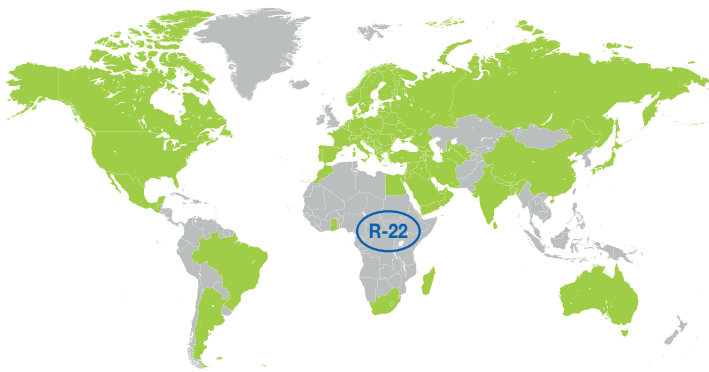
The United Nations member countries are phasing out the production and import of **Ozone depleting substances**, including **R-22 refrigerant**, under this protocol.

R-22 PHASE OUT PLAN

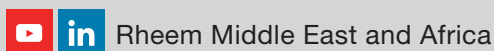


## GLOBAL CHOICE R-410A

- As per Montreal protocol, R-22 production is phased-out in most countries.
- After 2030, there will no longer be any new R-22 produced for air-conditioning applications.
- As R-410A is an environment friendly refrigerant & does not contribute to ozone depletion (ODP: Zero), globally most countries have adopted R-410A.
- In fact, in Europe & USA, today there is no production or consumption of R-22 refrigerant.
- Even in many Gulf markets, regulatory bodies and consultants, only accept R-410A based air-conditioning applications now.



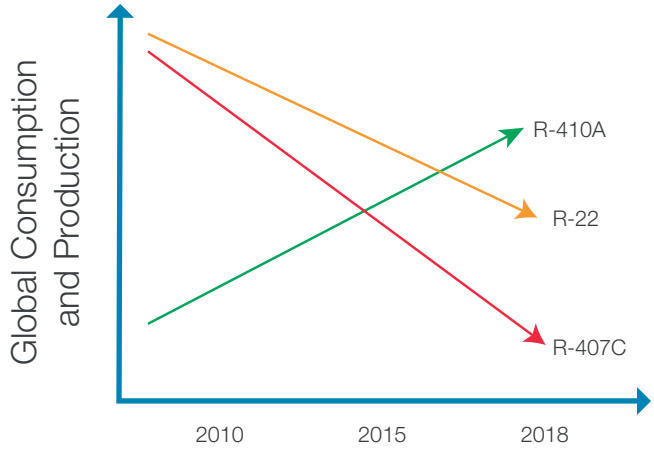
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## WHAT IS R-407C REFRIGERANT?

As an initial replacement for R-22, R-407C was introduced as a drop-in refrigerant as it has properties very similar to those of R-22.

However, due to certain technical limitations, as expected, R-407C global consumption has steadily dropped in the recent years.

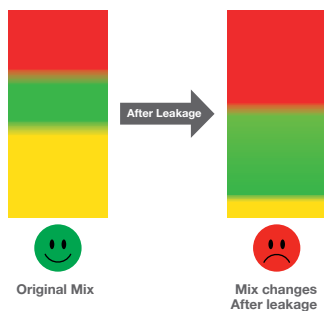


## WHY R-410A IS BETTER?

### Disadvantages of R-407C

#### Leakage Complexity:

- Mixture of three refrigerants, R-32, R-125, and R-134A, in the ratio of 23/25/52.
- These refrigerants have different boiling and condensing temperatures at same pressure.
- Proportion of these refrigerant varies based on pressure in the system.
- In case of leak, depending on the location of leak, only one or two out of the three refrigerants leaks, which changes the refrigerant mix and reduces the capacity/EER.



**Huge Temperature Glide:** Coil Temperature is not uniform.

**Less Efficient:** More refrigerant charge compared to R-410A.

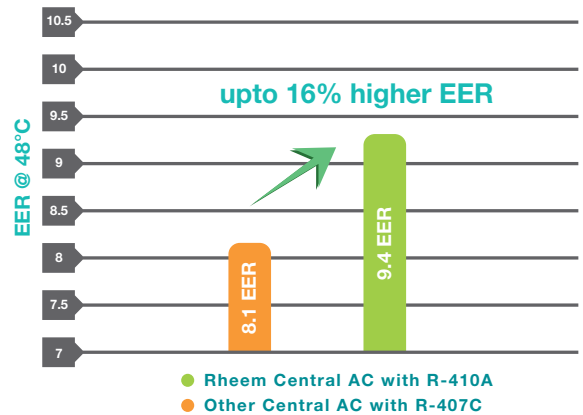
**Increased cost of servicing:** Due to leakage complexity complete recharge of the refrigerant is required.

### Advantages of R-410A

**Higher Energy Efficiency:** Which means lower power consumption.

**Lesser cost of servicing:** No leakage complexity and hence no need to completely recharge refrigerant.

**Longer life of system:** Need lesser lubricating oil which makes the system more reliable.





## WHO ARE WE AND WHAT DO WE BELIEVE IN?

Founded in 1925, Rheem® is nearly a 100-year-old American brand delivering innovative, energy-efficient air conditioning and water heating solutions under one roof to homes and businesses in more than 70 countries worldwide. From its Atlanta, Ga. Headquarters, three U.S. manufacturing facilities, state-of-the-art distribution centre and Advanced Technology Integration (ATI) Lab, Rheem designs, builds and supplies some of the most reliable, environmentally responsible and technologically advanced products in the industry. Under the “One Rheem Quality” promise, every Rheem built everywhere in the world is held to the same high standard of excellence.



# SUSTAINABILITY

## A Rheem Initiative

At Rheem®, providing The New Degree of Comfort® is about more than just product performance—it’s about taking a higher degree of responsibility for future generations. Rheem® always focuses on environmentally friendly, energy saving and high performance air conditioners and hence today most of Rheem®’s products are developed with R-410A refrigerant. R-410A refrigerant is highly efficient and has an Ozone Depletion Potential (ODP) of 0.

## Awards & Certifications



### DEGREES OF INNOVATION

We are focused on innovating with intent, engineering solutions with lifetime sustainability in mind—from material selection to smart features to responsible recycling.

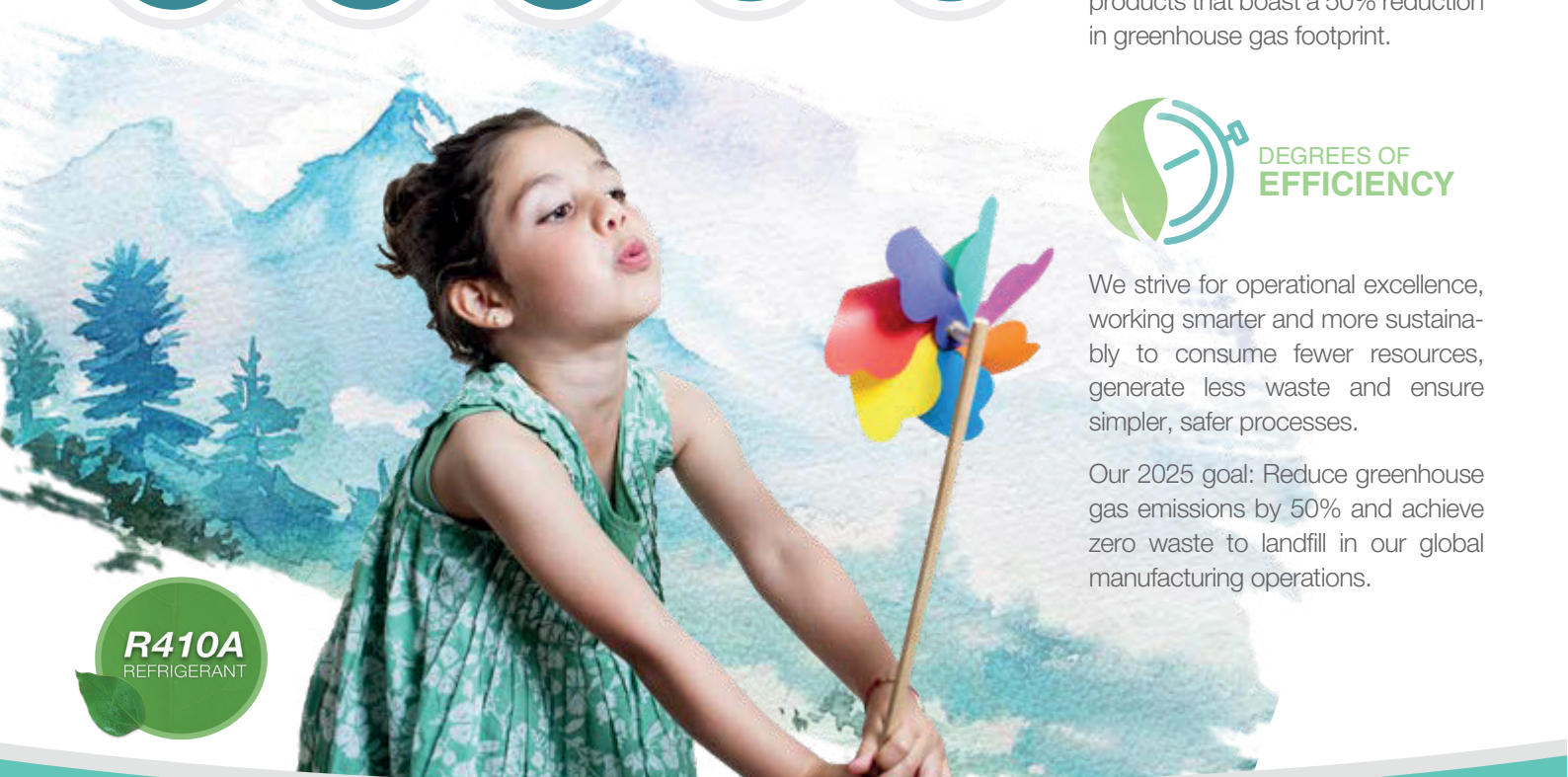
Our 2025 goal: Launch a line of heating, cooling and water heating products that boast a 50% reduction in greenhouse gas footprint.



### DEGREES OF EFFICIENCY

We strive for operational excellence, working smarter and more sustainably to consume fewer resources, generate less waste and ensure simpler, safer processes.

Our 2025 goal: Reduce greenhouse gas emissions by 50% and achieve zero waste to landfill in our global manufacturing operations.



## R-410A ADOPTION IN GULF MARKETS

In many Gulf markets, regulatory bodies and consultants, only accept R-410A based air-conditioning applications now.

### UAE

- Abu Dhabi government projects shifted to R-410A
- QCC (Quality Conformity Council) mandates only R-410A
- Dubai: Trakhees (Municipality) shifted to R-410A
- Emirates Green Building Council, accepts only R-410A
- 60% to 70% consultants accept only R-410A

### Kingdom of Saudi Arabia

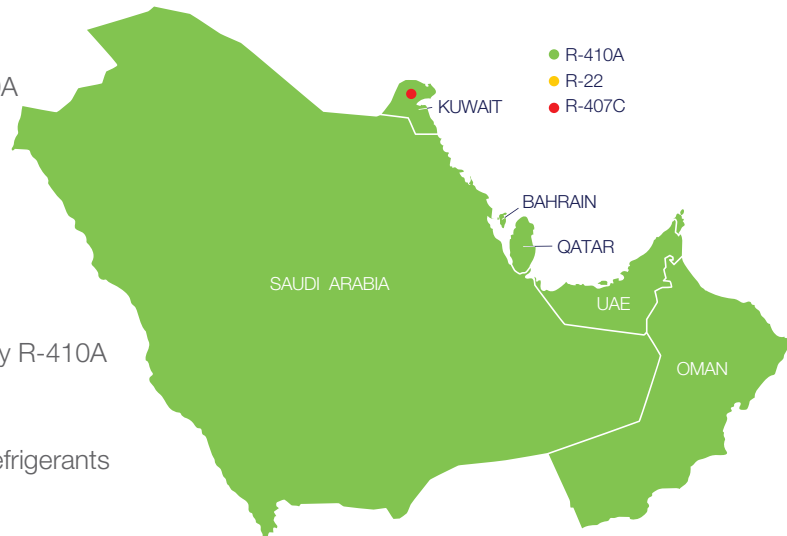
- SASO (Saudi Arabia Standards Organization) allows only R-410A

### Kuwait

- Moving towards low GWP (Global Warming Potential) refrigerants

### Oman Qatar Bahrain

- Shifting rapidly towards R-410A due to new EER regulations



## RHEEM R-410A INSTALLED BASE IN GCC

- Launched R-410A products in 2008 in the USA
- First company to launch high-efficiency R-410A products in GCC in 2009
- Almost 100% sale today is with R-410A products
- Over 400,000 sets installed and successfully running in GCC in last 10 years
- 100% of our service technicians are trained to handle and service the R-410A .



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