

**Proven Use:** Daikin, a leading air conditioning and refrigerant manufacturer, was the first to develop and use R-32 in residential air conditioners.

Shift in Refrigerants Past refrigerants, such as R-22 and R-410A, faced stricter regulations due to environmental concerns highlighted by the Montreal Protocol (1987) and the Kyoto Protocol (1997). This pushed the industry to look for alternatives with lower environmental impact, like R-32.

Challenges and Success Handling R-32 used to be difficult, making it impractical for use until Daikin leveraged its expertise to make it feasible. Daikin not only manufactures air conditioners with R-32 but also supports global efforts to expand its use through technical training and partnerships with governments in emerging countries. This effort has led to successful tests and training in places like India, Thailand, and Malaysia, earning Daikin recognition and awards for their contributions.

#### More Information –

[https://www.daikin.com/air/daikin\\_techknowledge/benefits/r-32](https://www.daikin.com/air/daikin_techknowledge/benefits/r-32)



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## NEW REFRIGERANT MANDATE 2025

A new refrigerant for HVAC systems is mandated in 2025. A2I refrigerants include R-32 and R-45, these are a more environmentally friendly. These products have a reduced greenhouse gas emissions and ozone depletion and is the reason behind this mandate.

It will be used in residential and light commercial air conditioners and heat pumps starting January 1, 2025. The goal to reduce the global warming and an effort to combat climate change. This new refrigerant replaces all older refrigerants.



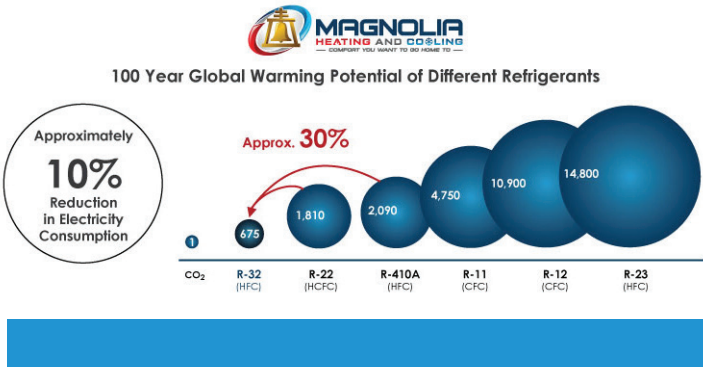
In 2025, Daikin plans to use a refrigerant called R-32. This refrigerant is already popular, with over 23 million of Daikin's R-32 units installed globally, and more than 100 million similar units used worldwide.

### THE AIM ACT

In 2020, the U.S. passed the American Innovation and Manufacturing (AIM) Act, allowing the Environmental Protection Agency (EPA) to guide the country in switching to new, more eco-friendly refrigerants. This move follows global efforts to phase down harmful substances. The Senate believes this change could bring nearly \$39 billion in economic benefits each year by 2027. R-32 is a promising option because it's affordable and easier to handle. Plus, it requires less refrigerant to do the job, which can lead to significant cost savings.

### CALIFORNIA'S REGULATIONS

California is leading the way in limiting harmful refrigerants by focusing on their Global Warming Potential (GWP). They set a GWP limit of 750 for various HVAC equipment starting in 2023 for some and extending to residential and commercial systems by 2025. R-32, with a GWP of 675, meets these new requirements. It has a much lower impact than older refrigerants like R-410A,



potentially cutting direct emissions by up to 80%. This makes R-32 a key player in meeting greenhouse gas reduction goals.

### BENEFITS OF R-32

R-32's thermodynamic properties mean HVAC systems can be made with smaller parts while still being efficient, which helps reduce their overall environmental footprint. This also leads to energy savings and requires fewer raw materials for manufacturing.

### SAFETY AND BUILDING CODES

Switching to newer refrigerants like R-32 requires updates to safety standards and building codes. These refrigerants, classified as "2L" for lower flammability, break down faster in the atmosphere, reducing their impact on global warming but are more flammable than older ones. Updated codes ensure safe installation, use, and compliance while supporting technological growth.

Overall, R-32 offers a practical and environmentally friendly path forward for HVAC systems, aligning with both state and federal regulations and goals.

#### More information -

<https://www.northamerica-daikin.com/assets/resources/r-32/Driving-the-Next-Generation-of-Refrigerants.pdf>

### WHAT IS R-32?

R-32 is a type of refrigerant used in air conditioners that stands out for being environmentally friendly, energy-efficient, safe, and cost-effective. Refrigerants are essential for air conditioners, as they help move heat between the indoor and outdoor units to cool or heat a space.

### WHY R-32?

**Energy Efficiency:** R-32 helps reduce electricity use by up to 10% compared to older refrigerants like R-22.

**Low Environmental Impact:** It has a Global Warming Potential (GWP) that is only about one-third of what current common refrigerants like R-410A have. R-32 has a GWP of 675, while R-410A has a GWP of 2,090. Both R-32 and R-410A have no ozone-depleting effects.



ENVIRONMENTAL IMPACT OF AIR CONDITIONER REFRIGERANTS AND TRENDS		
	Ozone Depletion Potential (ODP)	100 Year Global Warming Potential of Different Refrigerants
R12 (CFC)	1.0	10,900
R22 (HCFC)	0.055	1,810
R410A (HFC)	0	2,090
R32 (HFC)	0	675