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From Experience

Zeroing in: How the AIM Act May Affect Your Facility

The American Innovation and Manufacturing (AIM) Act is a landmark legislation in the United States designed to phase down the use of the potent greenhouse gases known as hydrofluorocarbons (HFCs) and transition to environmentally friendly alternatives. Signed into law in December 2020, the primary objective of the AIM Act is to fulfill the commitments made within the Kigali Amendment to the Montreal Protocol, an international agreement intended to reduce the production and consumption of HFCs globally.

Proposed GWP Limits for Manufacture & Import of Products Containing HFCs

Sectors	GWP Limit	Compliance Date
Industrial Process Refrigeration Systems >200 lbs	150	1/1/2025
Industrial Process Refrigeration Systems <200 lbs	300	1/1/2025
Cold Storage Warehouses >200 lbs	150	1/1/2025
Cold Storage Warehouses <200 lbs	300	1/1/2025
Chillers - Industrial Process Refrigeration	700	1/1/2025

In particular, the AIM Act establishes a gradual reduction schedule for the production and consumption of HFCs, with specific targets set for each year. By 2036, the

legislation aims to achieve an 85% reduction in HFC production and consumption compared to a baseline (known as the Global Warming Potential (GWP) limit).

Unfortunately, many of the commonly used refrigerants for industrial refrigeration applications far exceed the GWP100, an index which calculates the GWP of the greenhouse gases over the span of 100 years. By contrast, natural refrigerants such as Ammonia (NH₃) and carbon dioxide (CO₂) have significantly lower GWPs compared to HFCs, meaning they have a reduced impact on climate change. They also have excellent thermodynamic properties, enabling more energy-efficient cooling systems. This can result in lower electricity consumption, reduced greenhouse gas emissions, and cost savings for end users.

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EXPERIENCE IN BRIEF

For more detailed explanations of the AIM Act, visit the EPA's website [at this link](#). In addition, the International Institute of Ammonia Refrigeration (IIAR) has created a detailed review of natural refrigerants which can be [found here](#).

GWP of Common Refrigerants for Industrial Application

Refrigerant	GWP100
R-404A (HFC)	3,922
R-410A (HFC)	2,088
R-448A (HFC)	1,386
R-507A (HFC)	3,985
R-717, Ammonia (Natural)	0
R-744, Carbon Dioxide (Natural)	1

For manufacturers with industrial refrigeration systems, it's important to understand how the phase down of HFCs will impact current and future refrigeration-based decisions. While the AIM Act only applies to new equipment and not existing equipment installations, be aware that future availability of current HFC refrigerants may be difficult to obtain. At the same time, adopting a new, low GWP refrigerant may potentially require higher capital investment and be subject to other regulatory programs. Be sure to weigh all of your options carefully and consult with a qualified refrigeration engineer to determine the best course of action for your facility.

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