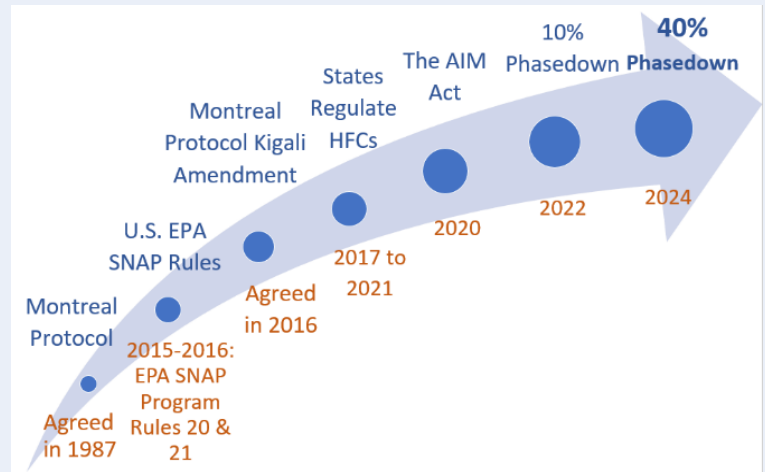


# Refrigerants

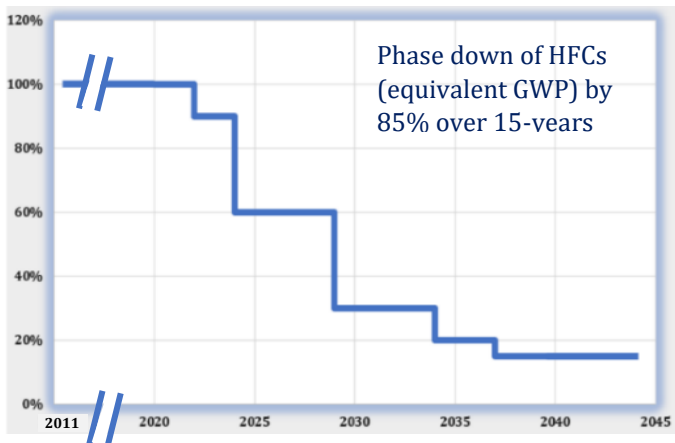
## FACTS ABOUT THE TRANSITION

The **American Innovation and Manufacturing (AIM) Act** was signed into law in 2020. The **AIM Act** mandates that the US EPA limits the consumption and production of hydrofluorocarbons (HFCs) including refrigerants.



<https://www.epa.gov/climate-hfcs-reduction/aim-act>

### Aim Act Phasedown Schedule



The phasedown begins in 2022!

Reductions in production and consumption are based on 2011-2013.

- 2022: 10% reduction
- 2024: 40% reduction
- 2029: 70% reduction
- 2034: 80% reduction
- 2036: 85% reduction

**Consumption = Production + Imports - Exports**

### AIM Act: The “To Do List”

- ✓ Establish the phasedown program
- ✓ Address petitions for sector transitions
- ✓ Develop a refrigerant management program including recovery and reclaim

**2021 EPA final rule** established an *allowance allocation and trading program* for the 18 most commonly used HFCs. This will limit the availability of newly produced, higher-GWP refrigerants.

<https://www.epa.gov/climate-hfcs-reduction/>

# EPA HFC Allowance Allocation Final Rule



- HFC supply is reduced over time and *allocated* to importers and producers.
- Production and imports in 2022 are prohibited without allowances.
- Allowances were established for 2022 and 2023, similar to the quota process used for R-22.
- Allowance methodologies may change after 2024.
- Currently, allocations currently do not apply to products that contain HFCs and that are imported into the US.

## Some Other Details about the AIM Act

- Allowances\* allocated for 90% of the baseline for 2022 and 2023.
- Next stepdown is significant: 60% of the baseline in 2024.
- Producers hold production and consumption allowances.
- Importers only need to hold consumption allowances.



\*An *allowance* is based on an exchange value that is identical to CO<sub>2</sub>-equivalent, which is often seen as GWP (global warming potential) values in HFCs.

## Reducing Demand to Balance Supply Options



- Stakeholders should take the HFC phasedown into consideration when installing new equipment (i.e., transition to lower-GWP refrigerants when possible).
- Consider smaller charge sizes in new equipment.
- Retrofit to lower-GWP A1 refrigerant if approved by EPA and manufacturers.
- Reduce leaks.
- Use recovered/reclaimed refrigerants.

# How Will Equipment Manufacturers Meet the Transition?

- Manufacturers will transition to lower-global warming potential refrigerants.
- Many new, lower-GWP refrigerants will have different safety classifications.
- R-410A is ASHRAE A1 refrigerant and other lower-GWP refrigerants may be ASHRAE A2L.



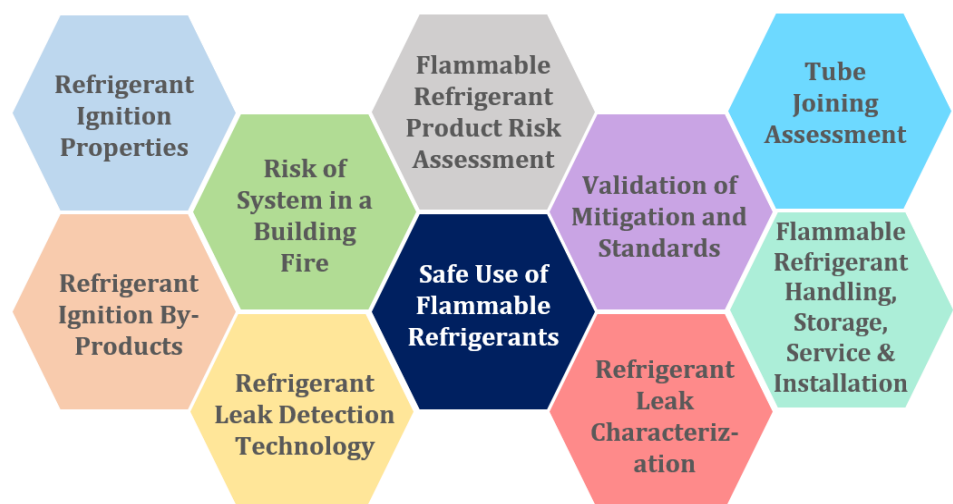
End-Use	Substitutes	Listing
Air-Conditioning (SNAP Rule 23)		
Residential and light commercial air conditioning and heat pumps (New)	R-32, R-452B, R-454A, R-454B, R-454C, R-457A	Acceptable Subject to Use Conditions
Air-Conditioning (SNAP Rule 19)		
Self-contained room air conditioners	R-32	Acceptable Subject to Use Conditions

<https://www.epa.gov/snap/snap-regulations>

AHRI, along with other industry stakeholders have been preparing for this transition for over a decade.

AHRI, ASHRAE, CARB, and DOE have spent over \$7 million in research evaluating the impacts relating to the transition.

Many new low-GWP refrigerants are ASHRAE A2L.



AHRI launched the Safe Refrigerant Transition Task Force (SRTTF) to enable a smooth transition.

Higher Flammability	A3	B3
Flammable	A2	B2
Lower Flammability	A2L	B2L
No Flame Propagation	A1	B1
	Lower Toxicity	Higher Toxicity

### ASHRAE A2L Refrigerants

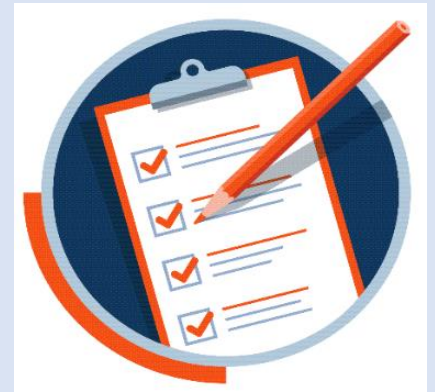
- ✓ Majority of physical/chemical properties are the same as A1 refrigerants
- ✓ Have lower flammability
- ✓ Are difficult to ignite
- ✓ Have slow flame spread if ignited
- ✓ Have similar heat of combustion vs R-410A

### What's different?

- Low-GWP refrigerants include some lower flammability (ASHRAE A2L) refrigerants.

### What do I need to do about it?

- Stakeholders must be aware and properly trained in risk mitigation due to lower flammability properties associated with new refrigerants.



<https://www.ahrinet.org/resources/research/ahri-flammable-refrigerants-research-initiative>



EPA must approve refrigerants use by application.

- Most new low-GWP refrigerants are **ASHRAE A2L**.
- **EPA considers** safety, toxicity, flammability, and environmental factors before approving refrigerants.
- EPA requires compliance with safety standards.
- All refrigerants are subject to safety standards and building codes.

**Existing R-410A equipment does not need to be replaced prematurely and can still be serviced through its useful life.**