



Getting Ready for A2L Refrigerants

Here's what HVAC contractors and technicians need to know.

Familiar refrigerants including R-410A are phasing out in new equipment. Next-generation, low global warming potential (GWP) refrigerants are becoming the new reality. We're here to help.

Trane® has invested over 15 years and \$500 million to determine the best low-GWP refrigerant for our equipment and systems. We are happy to share what we've learned to help make your path to new work processes and compliance easier.

Phase-out deadlines only apply to newly manufactured equipment. The EPA mandated HFC phase-down is designed to allow the continued production of R-410A for service use.

Here's how to prepare.



1 Boost your confidence.

Low-GWP refrigerants like R-32 and R-454B are classified as A2L lower flammability refrigerants. R-454B can only be ignited by competent ignition sources (e.g. heat sources greater than 1290° F and open flames)¹.

Know the facts

- Trane equipment with A2L refrigerants meets strict safety standards
- Very few competent ignition sources exist in most settings
- Trane eliminates competent ignition sources in its equipment (i.e.: protected electrical circuits)
- An onboard leak detection system, where needed, will mitigate any refrigerant concentrations from reaching a level capable of being ignited by locking some parts of the unit from running

2 Know what's changing—and what's not.

You CAN continue servicing equipment with HFC refrigerants, such as R-410A. There is no directive to discontinue *using* HFCs. Phase-out deadlines only apply to newly manufactured equipment. The HFC phase-down program is designed to allow the continued production of R-410A for service. By continuing to reclaim and recycle HFC refrigerants, you'll be helping to ensure the availability (and affordability) of refrigerants including R-410A well into the future.

 **EPA Resource:** "[Phaseout of Ozone-Depleting Substances. Technicians and Contractors: Frequent Questions](#)"



Tip: Service Agreements can help extend the life of existing equipment and avoid end-of-use refrigerant leaks.

You CAN continue operating under the same Section 608 certification. However, Trane recommends getting training on safe A2L refrigerant handling.

 **EPA Resource:** "[Section 608 Technician Certification Requirements](#)"

You CANNOT directly replace refrigerants in existing units with new low-GWP versions. Drop-in refrigerant replacements do not exist. The U.S. Environmental Protection Agency (EPA) and industry safety standards specifically prohibit the use of flammable refrigerants in equipment that was originally designed for non-flammable refrigerants like R-410A.

 **AHRI Resource:** "[Retrofit Do's and Don'ts of Class A Refrigerants in Stationary Equipment](#)"

Know your local regulations.

Regulations for equipment using A2L refrigerants vary by location. AHRI maintains current information about building codes and legislation. Check the online resource for the latest rulings in every state.

 **AHRI Resource:** "[A2L Refrigerant Building Code Map](#)"

¹ ANSI/ASHRAE Addendum e to ANSI/ASHRAE Standard 15-2019

3 Prepare for new handling processes.

Learn the new service and installation procedures.

A2L refrigerants require different processes for service and maintenance. Trane is putting our field technicians through ESCO Institute training. We recommend this for all HVAC field service technicians. The EPA may make training a requirement in the future.



ESCO Resource: [Sign Up for ESCO Training](#)

Update your tool kit.

A2L refrigerants require A2L compatible tools. Trane's new A2L Tool Kit bundles them together. It includes:

- Fieldpiece® Vacuum Pump (VPX7)
- Fieldpiece® Leak Detector (DR-82)
- Fieldpiece® Recovery Machine (MR-45)
- Victor Edge Series 2.0 Hybrid Regulator (REG00619)

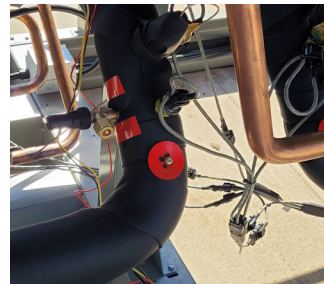


Trane Resource: [Order the A2L Tool Kit through Trane Supply](#)

TIP: Learn more about A2L safe handling. AHRI Resource: "[A2L Equipment Best Practices](#)"



Never Mix Refrigerants. Equipment manufacturers are making their own A2L refrigerant selections, so you may see a wider range of refrigerants in use. Check the labels, and always use the same one.



A2L equipment will have red marked service ports and pipes.

4 Learn more about leak detection and site modifications.

Reference the EPA requirements.

The EPA has updated its requirements for refrigerant leak detection, corrective actions, retrofitting or retiring appliances and system mothballing



EPA Resource: "[Stationary Refrigerant Leak Repair Requirements](#)"

Get to know the new safety standards.

New requirements are intended to maintain human safety during refrigerant leaks. Depending on the site, refrigerant and equipment, safety modifications may mean:

- Improved ventilation for equipment rooms
- Automated leak detector (ALD) in machinery rooms
- Leak detection system (LDS/RDS) on board units where applicable
- Lower detection limits
- Quicker alarm responses
- Automated shutdown
- Site modifications for safe distancing

Understand leak detection requirements.

According to safety standard UL 60335-2-40, ducted HVAC systems that have more than 3.91 lbs. of A2L refrigerant charge will be required to include one or more refrigerant detection sensors.

We've got this. Trane is making factory-installed leak detection systems standard on many of our rooftop units, split systems, water-source heat pumps and self-contained units where applicable. Applied systems in machinery rooms will adhere to ASHRAE® 15 safety standards.



Trane Resource: [Refrigerant Leak Detection Systems](#)

Know when site modifications are required.

In some cases, units containing next-generation A2L refrigerants require site modifications.



Trane Resource: [Application Considerations for Compliance with ASHRAE Standard 15-2022](#)



5 Practice safe storage and transportation.

Know how to properly store A2L refrigerant cylinders.

Updated fire protection codes and standards now cover A2L refrigerants, and local fire marshals and building officials generally follow industry standards. Storage requirements and maximums vary depending on the type of storage facility and whether or not the space has sprinkler protection. (Refer to the AHRI resource below.) Refrigerant that is already loaded into HVAC units does not need to be included in the maximum inventory count.



AHRI Resource: [“A2L Refrigerant Indoor Storage”](#)

Practice Transportation Safety for Flammable Products.

Technicians are limited to carrying a total of 225 lbs. of A2L refrigerants in service vehicles.



Trane units containing A2L refrigerants will include a Class 2.1 Flammable Gas label.

Application	Manufacture Deadline < 700 GWP	Installation & Sell-Through Deadlines > 700 GWP
All chillers for comfort cooling and heating in the states of CA*, CO, DE, MA*, MD, ME, NJ, NY RI, VA, VT, WA (EPA refrigerant bans)	Jan 1, 2024	No install deadline except for CA and MA*
All chillers for comfort cooling and heating (for most states)****	Jan 1, 2025	Sell products before Jan 1, 2028
Ice rink chillers (for most states)	Jan 1, 2025	Sell products before Jan 1, 2028
Packaged units (AC/HP) and other AC products including Room/wall/window AC, PTACs, PTHPs, portable AC, and residential dehumidifiers. (circuit sealed in factory)	Jan 1, 2025	Sell products before Jan 1, 2028 No install deadline
Split systems, including ductless split systems (refrigerant circuit sealed in factory)	Jan 1, 2025	Install systems before Jan 1, 2026
VRF >= 65,000 BTU/hr	Jan 1, 2026	Install before Jan 1, 2026**
Industrial process chillers with temperatures of chilled fluid >-22°F***	Jan 1, 2026	Install systems before Jan 1, 2026 Sell products before Jan 1, 2029
Data center equipment***	Jan 1, 2027	Install systems before Jan 1, 2027 Sell products before Jan 1, 2030
Industrial process refrigerant chillers with temperatures of chilled fluid -58°F to -22°F*** (no mandate if <-58°F)	Jan 1, 2028	Install systems before Jan 1, 2028 Sell products before Jan 1, 2031

*CA and MA require building permits approved in 2023

**On June 26, 2024, EPA proposed to extend the installation deadline for VRF >= to 65,000 Btu/hr until Jan 1, 2027.

*** CA (replacement and new installations) and WA (new installations) transition January 1, 2025.

IPR (Industrial Process Refrigeration) – CA has different requirements starting in 2024, Contact Account Manager for more information

**** A disassembled chiller (brazen plate heat exchanger) is considered a system, install by 1/1/25.

Sources:

<https://www.epa.gov/system/files/documents/2023-10/technology-transitions-final-rule-fact-sheet-2023.pdf>

<https://www.federalregister.gov/documents/2023/12/26/2023-28500/phasedown-of-hydrofluorocarbons-technology-transitions-program-residential-and-light-commercial-air>

For additional information and guidance, contact your local Trane office.

Due to the changing nature of this market and our reliance on information provided by outside sources, Trane makes no warranty or guarantee concerning accuracy or completeness of the content.

Systems and Products

The EPA prohibits “systems”, equipment charged in the field, to be installed one year after the manufacture deadline. The EPA allows “products”, equipment charged in the factory, to be sold up to 3 years after manufacture deadline. The EPA is considering clarification on the difference between products and systems and may provide additional guidance by the end of 2024. Properly store A2L refrigerant cylinders.

Resources



U.S. Environmental Protection Agency

[Phaseout of Ozone-Depleting Substances. Technicians and Contractors: Frequent Questions](#)

[Section 608 Technician Certification Requirements](#)

[Stationary Refrigerant Leak Repair Requirements](#)



AHRI

[Retrofit Do's and Don'ts of Class A Refrigerants in Stationary Equipment](#)

[A2L Refrigerant Building Code Map](#)

[A2L Equipment Best Practices](#)

[A2L Refrigerant Indoor Storage \(Cylinders\)](#)



ESCO Group

[Sign Up for ESCO Training](#)



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