

# HVAC INDUSTRY UPDATE

## A2L Refrigerants | Regulations | Challenges

### Design Considerations

Applying A2L refrigerants will require designers and installers to change the design and installation details to comply with the latest mechanical code requirements, based on the requirements from ASHRAE Standards 15 and 34.

### Site Monitoring

Use of devices that can sense the presence of leaked refrigerant and output a signal to indicate there is a leak and take an appropriate action, such as energizing an air circulation fan, opening a zone damper, activating a mechanical ventilation system, de-energizing heating elements, activating shutoff valves, sounding alarms and/or strobes (on site & off-premises) is a key element of the design.

### Sensor Calibration

As with any sensor-based technology, the proper calibration of the equipment on a routine basis by a company uniquely qualified to maintain accuracy, like System 1, is vital to ensure the safe operation and proper functionality of sensing equipment.



## A2L Refrigerants

Under new EPA regulations, as of January 1, 2025, manufacturers can no longer manufacture or import HVAC systems with GWPs >700, and the installation of HVAC systems with GWPs >700 is prohibited on or after January 1, 2026.

### What are A2L refrigerants?

Named for their ASHRAE safety classification, A2L refrigerants are characterized by mild flammability, low toxicity, and low global warming potential (GWP). They include hydrofluoroolefins (HFOs) and HFO blends. A2L refrigerants offer similar operating characteristics to legacy refrigerants, a safer profile than ammonia and hydrocarbon refrigerants, and are





## Proficiencies

System 1 specializes in the custom design, seamless integration, and wide-scale automation of virtually any technology found in the spaces we populate today, whether residential, commercial or industrial. We are a full service engineering firm, well versed in all aspects of a project from start to finish.

Our Industrial Control Engineers are leading the industry when it comes to the integration of sensor technologies into key installations, including large-scale HVAC systems.

Too often, the term "automation" is used in the industry in a misleading way. True "system automation" refers to something much more advanced; mainly a myriad of integrated systems communicating in concert and when required, managing and performing their assigned tasks without the need for human interaction. All the technologies found under one roof work as one complete system.

When dealing with safety issues, nothing is more important.

more energy efficient than R-410A and trans-critical CO<sub>2</sub> systems.

### *What does this mean?*

To comply with regulations set by the U.S. Environmental Protection Agency (EPA), manufacturers have made the switch from the higher global warming potential (GWP) HFC refrigerants to new HVAC systems utilizing lower GWP A2L refrigerants for residential and light commercial markets.

The new lower GWP equipment is making its way onto the market and with it comes some challenges with building code compliance for commercial, industrial and residential construction projects.

A key point to consider, unlike its predecessor R-410a, is flammability. Although mildly flammable, A2L refrigerants are safe to use when integrated properly. Properly designed and installed systems as well as ducting and open plenum spaces are vital for the safe operation of A2L based systems. Integrating sensor technologies into the system design to ensure a safe operating environment is key and can ensure safe inhabitable spaces.

