

INTRODUCTION

A2l's are a class of refrigerants in which some can mimic the performance of refrigerants with significantly higher GWP values. The similarity to the refrigerants they are replacing requires little in the way of equipment re-design. The industry is switching to A2L refrigerants to reduce environmental impact and comply with stricter regulations on greenhouse gas emissions. HFO-based A2L refrigerants have a significantly lower global warming potential (GWP) compared to traditional refrigerants, making them a more sustainable choice. This transition helps in mitigating climate change while meeting international standards such as those set by the Kigali Amendment to the Montreal Protocol.

With the phasedown in HFC refrigerants comes some understandable questions and concerns. As an HVAC professional, you may have already received some questions from your own customers. We've put this FAQ together to help HVAC professionals more confidently and comprehensively answer these questions and address customers' concerns in these changing times.

What are the requirements for A2L refrigerant?

Requirements for A2L refrigerants mitigation measures based upon the refrigerant charge. These measures are based on ASHRAE 15 and UL safety standards and may include ventilation, leak detection, and isolation. Equipment must be designed to handle mildly flammable substances, and technicians must be trained in safe handling and emergency response procedures.

The allowance of A2L refrigerants varies by state, with regulations continually evolving. Checking state-specific guidelines and local building codes is essential. States with progressive environmental policies are more likely to permit A2L refrigerants. Please refer to the AHRI building code map for details - https://www.ahrinet.org/a2l-refrigerant-building-code-map.

How do you transport A2L refrigerants?

Transporting A2L refrigerants requires compliance with regulations for flammable materials. They must be securely stored in approved containers, with proper labeling and documentation. Transporters should follow safety guidelines to prevent leaks and ensure safe handling. There are DOT special permits available that allow for limited shipment of A2Ls in service trucks.

How can I visually identify a system that operates with A2L Refrigerants?

Systems operating with A2L refrigerants are typically labeled with specific markings indicating their use of mildly flammable substances. These labels include the refrigerant type and flammability classification, and red striping to aid in proper identification and handling.

Will this low-GWP transition only affect mini-split systems?

No, the transition to low-GWP refrigerants, including A2L refrigerants, affects a wide range of HVACR systems beyond mini-split units. This includes commercial refrigeration, residential air conditioning, and other applications where traditional refrigerants are used.

Which manufacturers have decided on the refrigerant that they will use?

Several manufacturers, including major HVACR companies like Carrier, and Mitsubishi, have announced their refrigerant choices, often favoring low-GWP R-454B for their products. Check manufacturer announcements for specific details.

How do you charge A2L refrigerant?

Charging A2L refrigerants involves using proper equipment and following manufacturer safety guidelines to avoid ignition sources. The process is similar to charging other refrigerants. Technicians must be trained in handling mildly flammable substances and follow manufacturer instructions closely.



What are the charge limits for A2L refrigerants?

Charge limits for A2L refrigerants vary based on application, system design, and safety standards. These limits are set to minimize flammability risks and ensure safe operation. Refer to industry guidelines and manufacturer specifications for exact limits.

Do I still charge an A2L system using superheat and subcooling?

Yes, charging an A2L system still involves measuring superheat and subcooling to ensure optimal performance.

Can you mix A2L with another refrigerant?

No, mixing A2L (or any) refrigerants with other refrigerants is not recommended. Each refrigerant has specific chemical properties and pressure requirements. Mixing can result in unpredictable behavior, reduced efficiency, safety hazards, and potential equipment damage.













