



WHAT CONTRACTORS SHOULD KNOW ABOUT A2L REFRIGERANTS AND SHORTAGES

This information is provided by Daikin Comfort Technologies North America, Inc. (Daikin) to help contractors stay informed about A2L (R-32 & R-454B) refrigerants, emphasizing the safety, efficiency, and environmental benefits of these refrigerants. We discuss tips for proper system compatibility, correct charge levels, and installation guidelines to help ensure optimal performance and efficiency. Equip yourself to help ensure compliance and performance in your HVAC applications.

We have seen some news stories that seem to suggest that R-454B is a “government mandated refrigerant.” That is not true. The Environmental Protection Agency (EPA) mandates a Global Warming Potential (GWP) of less than 700 GWP for new equipment, and some manufacturers chose R-454B (a proprietary refrigerant blend) to meet this requirement. However, other manufacturers chose R-32 (a non-proprietary, single component refrigerant) to meet this requirement. We would encourage all contractors faced with shortages at their current distributor to contact other distributors in their local areas to understand the availability of BOTH equipment AND refrigerant that can meet the needs of their customers. There is a good chance that someone has the product and the refrigerant to support installations.

Our largest concern on the reported R-454B shortage are the rumors that some contractors may be using refrigerants other than the refrigerant for which the equipment is designed. We have heard rumors that some contractors may be doing some of the following: 1) “topping off” an R-454B with either R-32 or R-410A, or 2) evacuating the R-454B from a new system and charging with R-410A. **Daikin strongly recommends that all systems only be charged with refrigerants for which they are designed and marked** for the following reasons:

1. **Using a refrigerant other than that for which the system is marked may invalidate the safety listing for the system.** All HVAC equipment sold in the US is listed with a Nationally Recognized Testing Laboratory (NRTL), the most common of which are UL and ETL. All equipment has a detailed listing of the design of these units, including the refrigerant to be used. By changing the refrigerant in a system away from the refrigerant specified in the safety listing with UL or ETL, **the contractor may be held responsible should there be a safety issue with that installation in the future.** As a contractor contemplating using a different refrigerant than specified (especially if a manufacturer’s rep suggested to do so), you

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should ask that manufacturer to provide you with a signed letter from an officer of the company that such a practice does not compromise the safety (or safety listing) of the equipment.

2. **Using a refrigerant other than the refrigerant for which the system was designed may violate SNAP Rule 23** which prohibits using R-32 or R-454B in a manner that is inconsistent with specified use conditions, including the following:
 - A. the refrigerant may be used only in new equipment specifically designed and clearly identified for the refrigerant (i.e., none of the substitutes may be used as a conversion or “retrofit” refrigerant for existing equipment designed for other refrigerants), and
 - B. the refrigerant may only be used in air conditioning equipment that meets all requirements in the third edition of UL 60335-2-40. There is risk that using a refrigerant other than R-454B in an R-454B system could violate these use restrictions under SNAP Rule 23. Potential penalties for violating SNAP Rule 23 include:
 - a. civil judicial action by the EPA for an injunction and/or to assess a civil penalty of not more than \$124,426/day for each violation, or
 - b. EPA administrative civil penalty of up to \$59,114/day (limited to penalties totaling \$472,901).
3. **Using a refrigerant other than for which a system is marked may also potentially violate the EPA Technology Transition Rules (TTR)**. TTR § 84.54(i) provides that “[n]o person may falsely indicate . . . that a product or specified component uses or is intended to use a regulated substance . . . that differs from the regulated substance . . . that is actually used.” Accordingly, indicating that a system uses R-454B when another refrigerant (e.g., R-32 or R-410A) is actually used may violate this TTR prohibition. Potential penalties for violating the TTR include:
 - A. civil judicial action by the EPA for an injunction and/or to assess a civil penalty of not more than \$124,426/day for each violation, and
 - B. EPA administrative civil penalty of up to \$59,114/day (limited to penalties totaling \$472,901).



4. **Other than the regulatory issues above, there could be additional issues with refrigerant mixing:**

- A. In A2L systems that require leak detection, devices, and/or sensors – these components may be optimized to detect a specific A2L refrigerant, and mixing refrigerants may impact the ability of those devices to function properly.
- B. Compressors, lubricants, or other components designed for use with one refrigerant may be incompatible with another refrigerant.
- C. In our warranty documentation, we make the following statement under a section titled “What Problems Does This Warranty Not Cover?” - “Damage or the need for repairs arising from the use of components or accessories not compatible with this unit.” It is believed that many other HVAC manufacturers have similar statements in their warranty documents.

We recognize that contractors are put in a tough position when the industry has shortage issues. However, we suggest that using a different refrigerant than one specified could only compound that problem – and could lead to unintended consequences in the future for a contractor that engages in such a practice. That could come in any of the forms detailed above: responsibility for safety issues, potential penalties, or declined warranty coverage for the homeowners.

Our recommendation to any contractor faced with R454B shortages would be to explore the following:

- 1. Solutions for which there is BOTH equipment AND refrigerant available. That may be existing R-410A inventory (we see there is still quite a bit out there), or equipment designed for R-32 (check local distributor for equipment and refrigerant availability).
- 2. Repair of the R-410A system – not the best solution at times, but far better than refrigerant mixing.
- 3. Wait on R-454B availability to complete the installation. Again, this is not a great solution, but better than the potential consequences of mixing the refrigerant.

We have prepared a couple of resources for contractors:

- 1. Learn more at www.R32Reasons.com
- 2. Find a distributor near you www.R32Reasons.com/locator.