



OFFICE OF AIR AND RADIATION

WASHINGTON, D.C. 20460

September 18, 2025

MEMORANDUM

SUBJECT: Overview of R-454B Refrigerant Shortage and Current Status

FROM: Christian Wisniewski, EPA Stratospheric Protection Division

TO: EPA Air Docket: EPA-HQ-OAR-2025-0005

During the spring and summer of 2025 air conditioning technicians installing new residential and light commercial split system experienced significant increases in prices and scarcity of the refrigerant R-454B due to supply chain issues. This memo provides information on these supply chain issues, actions that have been taken by industry to address the shortage, and current status.

Background

R-454B is a newer refrigerant blend and many original equipment manufacturers (OEMs) have selected R-454B as the refrigerant of choice in manufacturing residential air conditioning systems that are compliant with the Technology Transitions (TT) regulations under the American Innovation and Manufacturing (AIM) Act. Under current regulations, equipment using legacy refrigerants such as R-410A are available for installation until January 1, 2026. The proposed revisions to the TT regulations would allow for continued installation as announced on August 21, 2025.¹ R-454B is a blend made up of HFC-32 (68.9%) and HFO-1234yf (31.1%), both of which are produced in the United States and abroad. HFC-32 is another refrigerant used in residential and light commercial air conditioning systems and is also compliant with the TT regulations. However, no concerns with supply of R-32 were reported. R-454B and HFC-32 are classified under ASHRAE as A2L² refrigerants, based on their low toxicity and mild flammability. OEMs may opt for these substances for a variety of reasons, including overall system performance and efficiency ease of design and production line revisions, and they are among the refrigerants that are compliant with the 2023 TT regulations. HFC-32 is widely used by OEMs in Europe and Asia. In the United States, Daikin is the major OEM using HFC-32 for residential split systems, while Trane, Carrier, Lennox, Rheem, and other OEMs in the United States are using R-454B in their systems.

Timeline of the R-454B Shortage

- January 2025
 - OEMs offering equipment with R-454B

¹ <https://www.epa.gov/newsreleases/epa-administrator-zeldin-vp-vance-tour-alta-refrigeration-highlight-epa-action-lower>

² Per ASHRAE standard 34, a safety classification of A2L denotes that the refrigerant has low toxicity and mild flammability.

- March – April 2025
 - Contractors and field installers noting difficulties obtaining R-454B in service cylinders
 - Honeywell announces price increase for R-454B
- May - July 2025
 - Trade groups (HARDI and ACCA) publish online resource hubs
 - OEMs announce increase in pre-charge of R-454B in systems
 - Arkema enters into commercial agreement with Honeywell to produce R-454B
 - Worthington increases A2L cylinder production
 - One OEM announced it would downpack bulk R-454B to get more material to contractors
- August 2025
 - Prices for R-454B are decreasing
 - One OEM announces delays have eased and now a 2-week delivery time for R-454B orders

Supply of R-454B

- Chemours and Honeywell are the two domestic suppliers of R-454B for OEMs manufacturing equipment and refrigerant distributors for sale to contractors for field installation. The industry has noted a range of factors influencing the R-454B supply chain issues, including higher than anticipated demand, shortages of cylinders needed to distribute the refrigerant to contractors, and potential impacts from tariffs. In April 2025, Honeywell announced 42% surcharge on R-454B, citing rising costs of raw materials, and potential impacts from tariffs.³ Honeywell also noted that its domestic production of R-454B was not sufficient to meet demand and sought out to source material from international sources. In May 2025, Honeywell entered into a commercial agreement with Arkema, who produces HFC-32 in the United States, to produce R-454B.⁴
- In 2024, Chemours completed an expansion of capacity for production of HFO-1234yf adding more domestic production capacity to meet demand for R-454B.
- Availability of fluorspar (i.e., raw materials) for fluorinated chemical production was not likely a major cause of refrigerant price increases.”⁵

Supply of Small Cylinders

A2L refrigerants, like R-454B and HFC-32, are sold in re-designed 20-pound cylinders rather than the traditional 30-pound cylinders used for other refrigerants. Worthington Enterprises (Worthington), the sole domestic cylinder manufacturer in the United States, noted that they were caught by surprise as OEMs increased equipment offerings using R-454B more than anticipated and demand for R-454B was higher than expected.

In general, OEMs receive refrigerant in large containers (e.g., ISO tanks), while contractors seek to purchase the refrigerant in service cylinders. Residential air conditioning appliances are manufactured with a certain amount of refrigerant pre-charged, and during installation, contractors charge the remaining amount using service cylinders. As such, the impacts of the shortage have affected contractors the most since material was scarcely available in service cylinders for use in the field. Contractors faced difficulty obtaining material, experiencing long lead times, depleted stock, and high prices during the height of the shortage.

³ <https://www.achrnews.com/articles/164475-honeywell-announces-42-surcharge-on-r-454b>

⁴ <https://forane.arkema.com/en/news/global/investorrelations/2025/20250519-lower-global-warming-potential-refrigerant/>

⁵ <https://www.whitehouse.gov/presidential-actions/2025/04/regulating-imports-with-a-reciprocal-tariff-to-rectify-trade-practices-that-contribute-to-large-and-persistent-annual-united-states-goods-trade-deficits/>

Actions by Industry to Address Supply Issues

Producers, OEMs, and trade groups provided resources to help mitigate the impacts of shortage for contractors. Two major trade groups – the Heating, Air-conditioning, and Refrigeration Distributors International (HARDI)⁶ and the Air Conditioning Contractors of America (ACCA)⁷ – set up resource hubs on their respective websites to provide up to date information on the shortage. The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and HARDI released an op-ed acknowledging the issues related to the R-454B shortage, identifying effects related to the cylinder shortage and evolving to a larger issue within the supply chain.⁸ In the op-ed, the groups noted that demand was greater than anticipated and industry was not prepared; they also noted that policy under the AIM Act was not an underlying cause of the shortage. In an effort to reduce contractor costs, many U.S. OEMs responded by providing additional amounts of R-454B with their equipment. One OEM, Carrier, announced that they were downpacking bulk R-454B from large containers to service cylinders for use by contractors.⁹ Further, Worthington increased cylinder production, which included adding two production crews to one facility and adding a production shift to another facility.¹⁰

Current Status

Installation of equipment using legacy refrigerants, such as R-410A, continues to be an available option through the end of the year under current regulations and longer if a rule is finalized consistent with the proposal. For those seeking to install R-454B equipment, the height of the shortage may have passed. Data on R-454B prices and information from manufacturers suggest that the supply chain issues were resolving as of August 2025. In August, prices for R-454B from online retailers were 50-60% lower than the prices in June. Carrier announced in August that orders of R-454B refrigerant were being fulfilled within two weeks.¹¹ There are no minimum or maximum quantity constraints on orders, with the exception that very large orders (i.e., 5,000 units or more) may require additional lead time. Some of the issues may have also been mitigated by the end of the height of the cooling season. The highest point of demand for refrigerant and new system installs typically occurs during the height of the summer months in June and July. Demand trails off in August and September, as the systems that were prone to breakdowns caused by hot weather would have already failed and been replaced during the summer.

ATTACHMENTS

1. R-454B Shortage – Table of References

⁶ <https://hardinet.org/refrigerant-shortage>

⁷ https://www.acca.org/resources/r454b-resource?_ga=2.85818457.1170409032.1752769873-1325445780.1748452001

⁸ <https://ahrinet.informz.net/AHRINET/data/images/Update%20Uploads/2025/20250515/R-454B%20shortage%20joint%20op-ed.pdf>

⁹ <https://www.coolingpost.com/world-news/carriers-strategy-seeks-to-ease-r454b-supply/>

¹⁰ <https://www.coolingpost.com/world-news/us-industry-surprised-by-r454b-demand/>

¹¹ <https://www.achrnews.com/articles/165141-carrier-now-offers-delivery-of-r-454b-within-2-weeks>