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Refrigerant transition advances as industry shifts to cleaner gases

By [Anthony Wright](#) on Nov 19, 2025

Refrigerant gases are undergoing a rapid transition as the industry moves away from older, high-global warming potential (GWP) formulations toward newer alternatives with a lower climate impact.

That shift is being driven by a mix of regulation, system efficiency concerns, and growing expectations around circularity and end-of-life treatment.

"In a perfect world, we'd use the most efficient refrigerant gases and would have no emissions," said Stephen Harrison, founder of sbh4 Consulting, who spoke on a recent **gasworld** webinar. "However, the production, maintenance, and end of life treatment of refrigeration systems causes some gas losses."

It is essential, he says, to convert these gases to new ones with a lower GWP. These include HFOs – new generation refrigerants developed to replace older refrigerants like HFCs – and natural refrigerants.

"[Industry] is working really hard to scale up production of these new refrigerant gases, which will be fit for the future," said Harrison. "[For industrial gas companies] it will be important to offer a range of refrigerant gas products and the reclaim services that the market needs today."

When it comes to reducing the impact of refrigerants, recovery and reclamation is just as important as finding alternatives.

Companies like A-Gas provide on-site services for immediate recovery and a separation service for easier return of recovered refrigerant via wholesalers.

Used refrigerant is sent to A-Gas reprocessing centres where it undergoes chemical analysis, filtering, drying, and separation to remove contaminants.



Perhaps surprisingly, reclamation and recovery services are being driven by regulations and voluntary carbon markets at a rate which exceeds overall market growth.

Legislation in the EU and UK revolves around the F-gas Regulation, which aims to phase out the use of F-gases in the EU.

In the US, regulations are driven by the AIM Act, with a major focus on phasing down HFCs based on their GWP. The Environmental Protection Agency is also restructuring the sale and use of high-GWP refrigerants, with a limit of 700 set for many new products like air conditioners, chillers, and heat pumps starting 1 January 2025.

Earlier this month, A-Gas launched a new line of reclaimed refrigerants to help distributors and contractors comply with a US bill that tightens rules on high-GWP HFCs.

Phase-out and alternatives

The molecules best suited for recovery include R410a and R134, two HFC refrigerant blends with a high GWP most often used in air conditioning and heat pump systems.

"I've been around long enough to remember when R134 was introduced," said Harrison. "At that time, it was being heralded as the 'super gas' for stationary and in-car air conditioning."

Now it's being phased out with R32 and R1234yf, two low-GWP refrigerants.

However, the move to low-GWP refrigerants brings with it safety challenges – especially flammability – that are reshaping the market.

HFOs and natural refrigerants like dimethyl ether and propane are flammable, unlike older refrigerants.

While ammonia, which performs well as a refrigerant, is highly toxic which limits its use to industrial settings rather than commercial or residential uses. These factors are completely changing what distributors and services engineers need to do.

"The skills and licensing to handle these flammable gases is much tougher than for the non-flammable, non-toxic gases of the past, and this is pushing some of the less sophisticated operators out of business," explained Harrison.

This trend suggests that the future of the refrigerant market will be characterised not only by new gases but by a more specialised, highly skilled workforce, permanently altering the competitive landscape.

The full webinar, '*Specialty gases: Enabling the high-tech revolution*', can be watched on demand [here](#).