

# Safer air-conditioner refrigerant helps reverse rapid ozone-layer losses of past decades

April 4 2012, By Randy Lee Loftis

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If the approaching summer has you calling for an air-conditioning repair, you'll have a personal experience with one of the world's most successful global environmental efforts.

But it might carry a higher [price tag](#).

Production of R-22, the last refrigerant sold in the U.S. that depletes the Earth's protective [ozone layer](#), has been ramping down each year toward a ban on new manufacturing after 2020.

R-410A, a safer replacement introduced in 1996, doesn't deplete the naturally occurring barrier about 12.4 miles above the planet that blocks much of the sun's dangerous [ultraviolet radiation](#).

That replacement refrigerant, and the phaseout of R-22 and other chemicals under the 1987 Montreal Protocol, have worked better than predicted, reversing the rapid ozone-layer losses of past decades. Last month, scientists reported that as the ozone layer recovers, less cancer-causing [UV radiation](#) is reaching the Earth's surface.

But the path toward safer refrigerants hasn't always been smooth for homeowners, repair technicians and suppliers, especially this year.

Prices for R-22 have tripled since January because the [Environmental](#)

[Protection Agency](#) said it might allow less production this year than previously planned. The agency isn't expected to decide until July or August whether to cut the 2012 allocation, and if so, by how much.

People with older systems that use R-22 and need major repairs are being encouraged to consider new, more efficient R-410A systems.

Those who don't want to switch can still make sure that their systems don't leak and that the technician doesn't illegally vent the old refrigerant into the atmosphere. The latter is less likely now since recyclers are paying more for recaptured R-22.

Even with an older system, North Texas AC technicians say, don't worry. R-22 is more expensive these days, but there's plenty available, so summer should be tolerable - at least indoors.

"Obviously, the cost has gone up a lot," said Steve Lauten, owner of Total Air and Heat Co., a sales and repair firm in Plano.

But for homeowners with a system that isn't leaking or breaking down, and might just need some added refrigerant, "the impact overall isn't going to be big," he said.

Lauten said he boosted his R-22 stock before the price went up. "I've got enough in-house," he said.

The air-conditioning industry has long known that R-22 was on its way out. The phaseout is part of the global effort to transition from the most ozone-damaging chemicals to less harmful ones, and eventually to new ones that do no damage.

Manufacturers in the U.S. have been phasing in R-410A systems for more than a decade.

The U.S. has banned manufacturing or installation of new systems that use R-22 since 2010.

"There have been no secrets about when these milestones would occur," said Charlie McCrudden, vice president for governmental relations at the Air Conditioning Contractors Association, a national trade group.

The ban on new R-22 systems leaves an estimated 74 million existing ones in use in the U.S. There's no requirement to replace them, and technicians can still add R-22 to those systems for maintenance and repair.

In addition, the ban on manufacturing new systems using R-22 has loopholes. New window-mounted air conditioners can still use R-22. And new condensing units using that refrigerant can still be installed in older home systems, extending their lives.

A replacement R-22 condensing unit can be a cost-saving option for a homeowner otherwise faced with installing a whole new system. It's like replacing an older car's engine instead of buying a new vehicle.

Some air-conditioning repair technicians and the makers of new systems say that creates a mismatched, patchwork system and denies customers the reliability and efficiency of a new system.

"Too many fly-by-night companies are using these units to replace (faulty) equipment on older systems" and leaving other inefficient components in place, Georgia contractor Colt Anderson wrote to the EPA last month. He was commenting on pending decisions on R-22 supply and renovations of existing systems.

Others argue that economic realities often force homeowners to keep an older system going, which they say is better than letting old equipment

keep leaking.

Replacing an R-22 condenser gives "an affordable, more reliable and environmentally friendly service option," wrote Michael Bleier, a wholesale heating and air-conditioning distributor in Chicago.

The EPA is in charge of regulating refrigerants that harm the ozone layer. Complications from a lawsuit filed by refrigerant makers, plus a glut of R-22 in warehouses, led the EPA to say in January that it might order steeper cuts in this year's R-22 production.

The agency's goals were to speed up the R-22 phaseout and encourage more recycling.

The result was something like a panic. Repair companies fearing a shortage of R-22 bought as much as they could before prices rose; some blasted the EPA in online forums for intentionally raising prices.

Some homeowners worried that their older systems would go unrepaired all summer for lack of refrigerant. Internet posters claimed falsely that the EPA was banning all systems using R-22.

"I call it a frenzy," said McCrudden of the Air Conditioning Contractors Association.

As emotions cooled, he said, it became clear that the wildest speculation was untrue, but questions about R-22 supplies for this year remained.

The industry is awaiting the EPA's decision on 2012 production. EPA officials are widely expected to order at least some additional cuts this year, but they also are aware that their delayed ruling has caused unneeded worry, McCrudden said.

Even the deepest possible reduction, he said, would not cripple the industry or keep a homeowner from cooling the house this summer.

Repair companies have the needed R-22 supply, McCrudden said. "Of course, they've paid two or three times more for that supply," he said.

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## Q&A: KEEPING COOL THIS SUMMER

Frequently asked questions about refrigerants and the ozone layer:

Q: What's the ozone layer?

A: A natural "shell" of ozone, a form of oxygen, about 12.4 miles up. It blocks dangerous ultraviolet solar radiation. Without it, life on [Earth](#) would be impossible. The ozone layer isn't related to the ozone, or smog, that clogs the lower [atmosphere](#). Smog is from pollution.

Q: What's the worry about refrigerants and the ozone layer?

A: Older refrigerants and other chemicals contain chlorine, which was found to damage the ozone layer when released into the air. The chlorine-ozone theory, first offered in 1974, was confirmed by many later studies.

Q: What's been done about it?

A: The world's nations adopted the Montreal Protocol in 1987, mandating a phaseout of ozone-depleting substances. It's been a smashing success. About 95 percent of such chemicals have been replaced, and the ozone layer is recovering.

Q: Does my home [air-conditioning](#) system use ozone-depleting

refrigerant?

A: It might, if it was installed new before 2010. Since then, the U.S. has allowed only new systems that use R-410A, which contains no chlorine and doesn't hurt the ozone layer.

Q: What should I do if my system has the older R-22 refrigerant?

A: Have a technician keep it in good working order, especially stopping leaks. A "tight" system without leaks doesn't cause problems. You're not required to replace it.

Q: Is R-410A environmentally benign?

A: No. It's a powerful greenhouse gas, adding to global warming. Researchers hope to find a [refrigerant](#) that's even safer for the planet.

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