Chad Dorger had just walked into a garage filled with several small canisters of a chemical refrigerant known as R-12. He wasn't in any mortal danger, but he could see the scenario play out in the long run. The canisters of R-12 gas would eventually leak, or the owners would throw them out, unknowingly releasing 10,900 pounds of carbon into the atmosphere, where it would live forever.

Chemical refrigerants have long been an afterthought for older Americans, but younger generations are worried about what will happen when these gases break down.With names like R-12 and 410a, the compressed gases may not mean much to the average person, but climate scientists say they're the real silent killers of the environment.

Chemical refrigerants are gases that keep cars, homes and food cool. When in use, they're virtually harmless, but at the end of their lives they become one of the top contributors to climate change. According to Project Drawdown, a report-turned-book ranking of climate solutions from climate scientists, anthropologists and engineers, proper management of chemical refrigerants could reduce the world's CO2 capacity by 89.74 gigatons. To put that in perspective, careful disposal of chemical refrigerants would reduce carbon four times more than if every building in the United States used rooftop solar energy. While there has been some policy changes advocating proper care of these gases, experts in the field say that's not even half the battle.

"Every refrigerator and air conditioner contains chemical refrigerants that absorb and release heat to enable chilling," according to the first chapter in Project Drawdown. "Refrigerants,

specifically CFCs and HCFCs, were once culprits in depleting the ozone layer. Thanks to the 1987 Montreal Protocol, they have been phased out. HFCs, the primary replacement, spare the ozone layer, but have 1,000 to 9,000 times greater capacity to warm the atmosphere than carbon dioxide."

The idea that most homes contain a ticking time bomb of carbon is unsettling, but a group called Tradewater is attempting to help. By buying old canisters of R-12, R-22 and others, Tradewater can properly destroy the chemicals, stopping them from ever escaping into the atmosphere.

"To destroy it, you break it down into component parts that are less harmful," said Chad Dorger, a senior environmental program assistant at Tradewater and Loyola University Chicago alum.

Dorger describes his job as a traveling salesman of sorts. He and his company minivan have driven to 47 states to collect old R-12 canisters. Dorger doesn't collect from giant grocery stores or office buildings, but from everyday people.

"The way you measure pollution is the CO2 equivalency. One pound of R-12, an old automobile refrigerant, is equal to 10,900 pounds CO2," Dorger said. "They've phased it out now, but many, many people still have appliances that use it. And they're expiring quick. I was in South Carolina just the other day and met with an older couple who used to own a small auto-body shop. I walked into their garage and saw about 30 pounds of R-12."

According to Dorger, the couple didn't know how impactful the chemical was. They kept it around mainly because they thought it would one day be useful, but were shocked to find they could receive money to get rid of it safely.

Residents closer than South Carolina have the same ignorance on the topic.

“Yeah I did get just get my system replaced,” said Lupita Sorich, a resident of Chicago’s South suburbs. A service truck had just pulled out of her driveway. “I’ll probably just throw out the can of gas from the old machine so my kids don’t mess with it. Am I not supposed to?”

The world is currently in the midst of phasing out R-22, a chemical refrigerant in many home air conditioning systems. While Dorger is happy the new common chemical, Puron, will only be equivalent to 2,000 pounds of CO2, he says the global warming impact is only mitigated by proper destruction. How much emission potential a canister has doesn’t make much difference to him. Still, local heating and cooling business owners are happy to have the extra income.

“This will really help both customers and store owners,” said Shawn Partika, a dispatch manager at All Temp Heating and Cooling on Chicago’s North Side. “Puron is about $44 a pound, so it’s cheaper to buy for consumers. However, you can’t just Band-Aid an old system that’s not working anymore. You’d need to buy a new one which helps our business.”

While the chemical refrigerant issue is present and growing, many consider climate change is best mitigated through plant-based diets, renewable energy and public transit. Those things are important, Dorger said, but chemical refrigerants rarely get the attention they require.

“I think in one regard it’s not something you think about. How does something that makes you cooler cause global warming?” Dorger said. “It’s not something that people actively encounter. You can make a decision about your meat consumption every day but you don’t think about the cooling that goes along with your office, home, commute, the grocery store, the packing process. People think, ‘Oh, the hole in the ozone, it’s closed. Onto the next problem.’”