

HCFCs and the Ozone Layer

The stratospheric ozone layer shields the Earth from the sun's harmful ultraviolet radiation. Emissions of certain synthetic chemicals – including CFCs, halons, and HCFCs – destroy the ozone layer, and have created an “ozone hole” over the South Pole.

Through the *Montreal Protocol on Substances that Deplete the Ozone Layer*, the United States committed to a collaborative, international effort to regulate and phase out ozone-depleting substances. While the US phased out of CFCs and halons in the mid 90's, we now must first limit HCFC consumption to a specific level and then reduce it in a step-wise fashion.

Phaseout of R-22 and R142b

HCFC-22 (also called R-22) and HCFC-142b are the next two HCFCs that the United States will phase out. The schedule to phase out HCFCs is:

January 1, 2010

Ban on production and import of HCFC-22 and HCFC-142b except for continuing servicing needs of existing equipment

January 1, 2015

Ban on sale and use of all HCFCs except for certain uses, including continuing servicing needs of refrigeration equipment

January 1, 2020

Ban on remaining production and import of HCFC-22 and HCFC-142b

After 2020, the servicing of systems with R-22 will rely on recycled or stockpiled quantities.

EPA Ozone Web Site

<http://www.epa.gov/ozone/>

EPA Stratospheric Ozone Information Hotline

1.800.296.1996

ENERGY STAR Web Site

<http://www.energystar.gov/>

U.S. Environmental Protection Agency

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Disclaimer

EPA promotes energy efficiency and the safe use of ozone-friendly substances, and does not endorse any particular company or its products.

Phasing Out HCFC Refrigerants To Protect The Ozone Layer

What you need to know when *servicing or replacing an air conditioner* in your home



Hydrochlorofluorocarbons, or HCFCs, are chemicals that are mainly used as refrigerants. Unfortunately, releases of HCFCs deplete the Earth's protective ozone layer.

R-22 is an HCFC refrigerant that is often used in air-conditioning equipment. To protect the Earth's protective ozone layer, the United States is phasing out R-22, along with other chemicals.

As the United States phases out refrigerant R-22, you will need to make informed choices when servicing, repairing, or replacing an existing air-conditioning unit or when purchasing a new unit. EPA has not banned the use or sale of equipment that contains R-22. However as a homeowner, you need to consider and balance several key factors in your decision to purchase a new unit, such as energy efficiency, performance, reliability, cost, and the refrigerant used.

The lengthy phaseout period allows you to replace your air-conditioning equipment that contains R-22 when you normally would, for instance if it becomes old, inefficient, or ineffective. Realizing that supplies of R-22 will become more limited and that the price may increase should also be factors. In the meantime, R-22 remains available for servicing equipment made before 2010.

Choosing an efficient system that uses ozone-friendly refrigerants has important environmental benefits!

Availability and Cost of R-22

- ❖ R-22 is a refrigerant that is often used in air-conditioning equipment.
- ❖ Because R-22 depletes the ozone layer, production and import will be further limited in 2010.
- ❖ In 2020, R-22 will no longer be produced or imported. After 2020, only recovered, recycled, or reclaimed supplies of R-22 will be available.
- ❖ The production (not use) of R-22 is being phased out. You are not required to stop using R-22 air conditioners nor to replace existing equipment.
- ❖ The phaseout period provides time to switch to ozone-friendly refrigerants when you normally would replace your air conditioner.
- ❖ In the future, R-22 supplies will be more limited and costs to service equipment with R-22 may rise.

Servicing Systems with R-22

- ❖ You may continue to have your equipment containing R-22 serviced.
- ❖ The most important thing you can do is to maintain your unit properly. Appropriate servicing minimizes potential environmental damage and maintenance costs.
- ❖ It is important to select a reliable service contractor. Technicians must have EPA Section 608 certification to service equipment containing R-22.
- ❖ Request that service technicians locate and repair leaks instead of "topping off" leaking systems. This protects the ozone layer and saves you money by optimizing performance of your existing equipment.
- ❖ It is illegal to intentionally release any refrigerant when making repairs. Technicians must use refrigerant recovery equipment during service.
- ❖ To use alternative refrigerants in existing equipment generally the equipment needs to be modified.

Buying a New Air Conditioner

- ❖ Air-conditioning systems that use R-22 are still available, and R-22 may be produced for use in newly manufactured equipment until the end of 2009.
- ❖ You may still purchase a system that contains R-22, but supplies of R-22 will be more limited after 2010.
- ❖ Systems that use alternative refrigerants that do not harm the ozone layer are available and will become more common.
- ❖ New energy efficient air conditioners save energy costs. Even if your air conditioner is only ten years old, you may save significantly on your energy costs by replacing it with a newer, more efficient model.
- ❖ Energy efficiency is measured by the seasonal energy efficiency ratio (SEER). The higher the ratio, the more efficient the equipment.
- ❖ A central air-conditioner that has earned the ENERGY STAR® label is at least 14% more efficient than a standard new system and can save you money on your cooling bill.
- ❖ ENERGY STAR® qualified systems are available for both R-22 and alternative (R-410A) systems.

Alternative Refrigerants

- ❖ R-410A is manufactured and sold under various trade names, including GENTRON AZ-20®, SUVA® 410A and PURON®.
- ❖ The most common alternative to R-22 is R-410A, a non-ozone-depleting HFC refrigerant blend.
- ❖ EPA reviews alternative refrigerants and maintains a list of acceptable substitutes for household and light commercial air conditioning.
- ❖ It is illegal to intentionally release refrigerant substitutes when making repairs. Technicians must take efforts to avoid releases during service.