



# Section 609 of the Clean Air Act: Motor Vehicle Air Conditioning

## Protecting the Ozone Layer

The stratospheric ozone layer shields the Earth from the sun's harmful ultraviolet radiation. Emissions of certain synthetic chemicals – including chlorofluorocarbons (CFCs), halons, and hydrochlorofluorocarbons (HCFCs) – that are commonly used as refrigerants, solvents, and insulating foams destroy the ozone layer and have created an “ozone hole” over the South Pole.

In addition, many of these ozone-depleting substances (ODS), as well as their substitutes – including hydrofluorocarbons (HFCs) – are greenhouse gases that contribute to climate change. The purpose of this fact sheet is to help understand the requirements of the motor vehicle air conditioning (MVAC) Program.

## Environmental Impact of Motor Vehicle Air Conditioners

Older model MVACs used CFC-12 (also known by various trade names, such as Freon ®). When CFCs leak from MVACs into the atmosphere, strong radiation in the atmosphere will break the molecules apart and release chlorine atoms, each of which can destroy over 100,000 ozone molecules.

MVACs can also have serious impacts on climate. For example, the global warming potential (GWP) of CFC-12 is approximately 10,000 times greater than that of carbon dioxide, a greenhouse gas that contributes to climate change. Since the mid 1990s, MVACs use HFC refrigerant (R-134a) that do not deplete the ozone layer, but do have high GWP that is approximately 1,400 times greater than carbon dioxide. In the U.S., vehicle air conditioners consume over 7 billion gallons of gasoline every year, emitting over 58 million metric tons of carbon dioxide. Refrigerant leakage adds the equivalent of over 50 million metric tons of carbon dioxide to the atmosphere each year.

Because of the potential damage that refrigerants can do to the environment, Section 609 of the Clean Air Act (CAA) directs EPA to establish requirements to prevent the release of refrigerants during the servicing of MVACs and MVAC-like appliances and to require recycling of used refrigerants. MVAC-like appliances are mechanical vapor compression, open-drive compressor appliances used to cool the driver's or passenger's compartment of a non-road vehicle, including agricultural and construction vehicles.

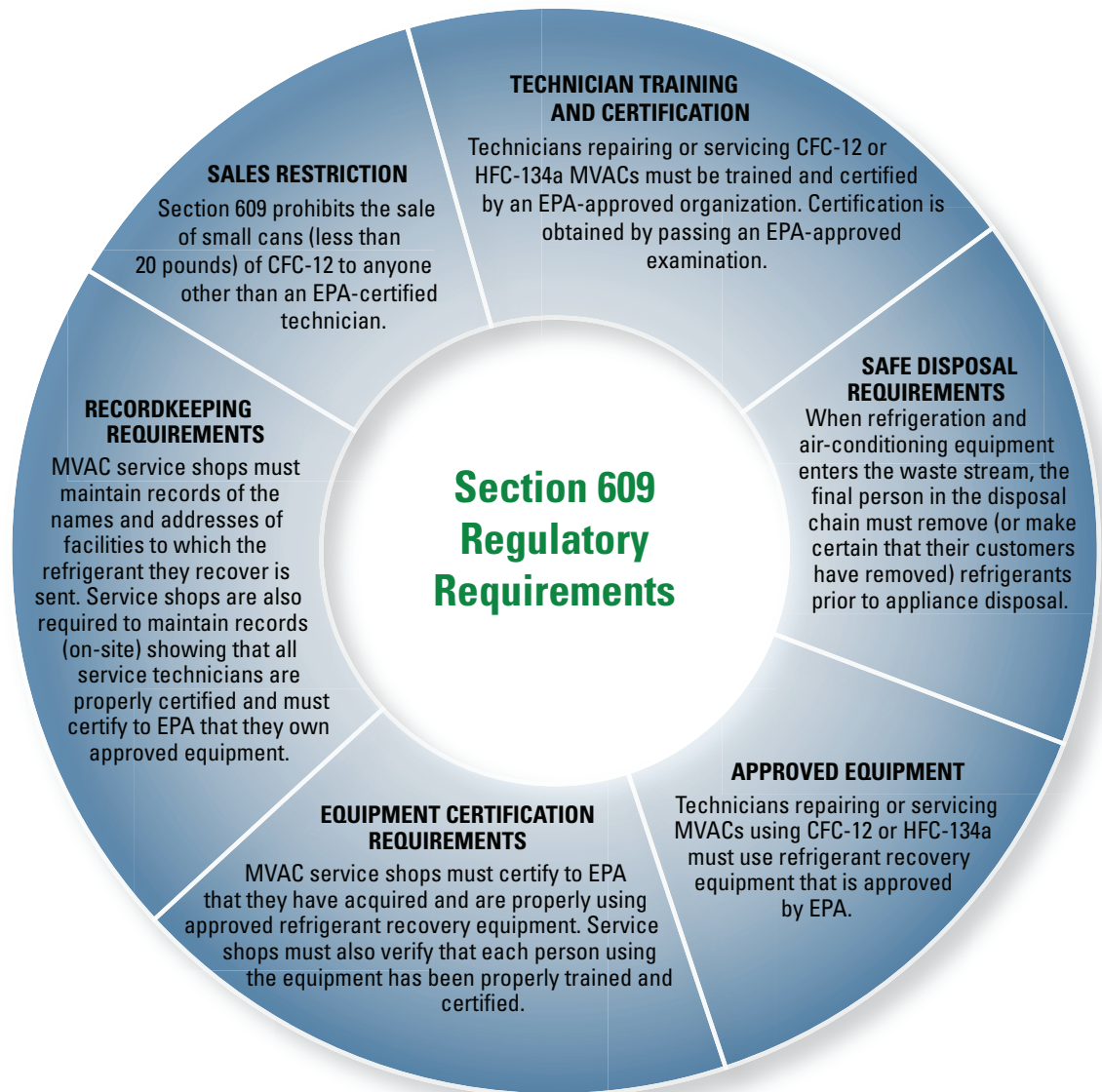
608 vs. 609	
<b>MVAC (609)</b>	
Passenger cars	
Buses*	
Trucks	
<b>MVAC-like (609 or 608)</b>	
Off-road vehicles	
<b>Non-MVAC (608)</b>	
Trains	
Aircraft – passenger & cargo	
Refrigerated trailers	
Ship/boat – passenger & cargo	

\* If R-22, then 608

## Venting Prohibition

Section 608 of the CAA prohibits venting any ODS refrigerant, or substitutes for an ODS refrigerant, into the atmosphere. This prohibition on venting has been in effect since the early 1990s.

## Section 609 Regulatory Requirements: Motor Vehicle Air-Conditioning



### Additional Resources

EPA Ozone Layer Protection Website:  
[epa.gov/ozone/strathome.html](http://epa.gov/ozone/strathome.html)

EPA Section 609 Website:  
[epa.gov/ozone/title6/609/](http://epa.gov/ozone/title6/609/)

EPA Phaseout of Ozone-Depleting Substances Website:  
[epa.gov/ozone/title6/phaseout/](http://epa.gov/ozone/title6/phaseout/)

Approved equipment information website:  
[epa.gov/ozone/title6/609/technicians/appequip.html](http://epa.gov/ozone/title6/609/technicians/appequip.html)

EPA Stratospheric Ozone Information Hotline: 1-800-296-1996