

## **Protecting the Ozone Layer**

The stratospheric ozone layer shields the Earth from the sun's harmful ultraviolet radiation. Emissions of certain substances – including chlorofluorocarbons (CFCs), halons, and hydrochlorofluorocarbons (HCFCs) – that are commonly used as refrigerants, solvents, and insulating foams destroy the ozone layer.

In addition, many of these ozone-depleting substances (ODS), as well as their alternatives – including hydrofluorocarbons (HFCs) – are potent greenhouse gases that contribute to climate change. The purpose of this fact sheet is to help understand the regulatory requirements for servicing motor vehicle air conditioners (MVACs).

# **Environmental Impact of Motor Vehicle Air Conditioners**

Older model MVACs used CFC-12 (also known by 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 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 (CO<sub>2</sub>), a greenhouse gas that contributes to climate change. Currently, most MVACs use HFC-134a (also known as R-134a), a refrigerant that does not deplete the ozone layer, but has a GWP that is approximately

<b>Environmental Impacts of MVAC Refrigerants</b>		
	Global Warming Potential	Ozone Depletion Potential
CFC-12	10,900	1
HFC-134a	1,430	0
HFC-152a	124	0
HF0-1234yf	4	0
CO <sub>2</sub>	1	0

1,400 times greater than CO<sub>2</sub>.

Alternative refrigerants such as CO<sub>2</sub> and hydrofluoroolefin (HFO)-1234yf do not deplete the ozone layer and have much lower GWPs than CFC- 12 or HFC-134a. CO<sub>2</sub> has a GWP of 1 and HFO-1234yf has a GWP of 4. MVACs alone represent about 15% of the global use of HFCs.

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

### **MVAC** (609)

**Passenger cars** 



**Buses\*** 



**Trucks** 



### MVAC-like (609 or 608)

Off-road vehicles





#### Non-MVAC (608)

**Trains** 



Aircraft – passenger & cargo





Refrigerated trailers



Ship/boat – passenger & cargo



\* If R-22, then 608

## **Venting Prohibition**

Section 608 prohibits intentionally releasing (also called venting) ODS refrigerants and most alternatives (including all HFCs, HFOs, and their blends) while maintaining, servicing, repairing, or disposing of MVACs and MVAC-like equipment. CO<sub>2</sub> refrigerants are exempted from the venting prohibition.

# Section 609 Regulatory Requirements: Motor Vehicle Air Conditioning

**TECHNICIAN TRAINING** 

# AND CERTIFICATION

# SALES RESTRICTION

Section 609 prohibits the sale of small cans (less than 20 pounds) of CFC-12 to anyone other than an EPA-certified technician.

# Technicians repairing or servicing CFC-12, HFC-134a, and CO<sub>2</sub>, HFC-152a, or HFO-1234yf MVACs must be trained and certified by an EPA-approved organization. Certification is obtained by passing an EPA-approved examination.

# RECORDKEEPING REQUIREMENTS

MVAC service shops must maintain records of the names and addresses of facilities to which the refrigerant they recover is sent. Service shops are also required to maintain records (on-site) showing that all service technicians are properly certified and must certify to EPA that they own approved equipment.

# Section 609 Regulatory Requirements

# SAFE DISPOSAL REQUIREMENTS

When refrigeration and air conditioning equipment enters the waste stream, the final person in the disposal chain must remove (or make certain that their customers have removed) refrigerants prior to appliance disposal.

# EQUIPMENT CERTIFICATION REQUIREMENTS

MVAC service shops must certify to EPA that they have acquired and are properly using approved refrigerant recovery equipment.

Service shops must also verify that each person using the equipment has been properly trained and certified.

## **APPROVED EQUIPMENT**

Technicians repairing or servicing MVACs using CFC-12, HFC-134a, HFC-152a, CO<sub>2</sub>, or HFO-1234yf must use refrigerant recovery equipment that is approved by EPA.

#### **Additional Resources**

EPA Ozone Layer Protection Website: epa.gov/ozone/strathome.html EPA Section 609 Website: epa.gov/ozone/title6/609/ EPA Phaseout of Ozone-Depleting Substances Website: epa.gov/ozone/title6/phaseout/

Approved equipment information website:

epa.gov/ozone/title6/609/technicians/appequip.html

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

