The Dos and Don'ts of CFCs

Scientists worldwide have concluded that chlorofluorocarbons, or CFCs, deplete the ozone layer above the Earth. However, CFCs have become deeply woven into the fabric of business and our daily living.

They are widely used as refrigerants for large buildings and automobile air conditioning, home appliances and in-process cooling equipment to support manufacturing. CFCs are used to clean a wide variety of sensitive products, including electronics and medical devices. They are also used as blowing agents in the manufacture of foam padding, insulation, and packaging.

Smaller air-conditioning units use hydrochlorofluorocarbons (HCFCs), which have a significantly lower ozone-depleting potential than CFCs.

Under the Montreal Protocol, the United States and more than 110 nations agreed to phase out production of CFCs by Jan. 1, 1996. Production of HCFC-22 will be phased out by 2020. All other HCFCs will be phased out by 2030. All "non-essential" uses are banned. The Clean Air Act Amendments of 1990 require recycling of CFCs and HCFCs and ban the release of refrigerants during the service, maintenance and disposal of air-conditioning and refrigeration equipment.

All of these steps to protect the ozone layer have major implications for business.

Venting requirements

It is illegal to intentionally release CFC or HCFC refrigerants into the atmosphere during the servicing, maintenance or disposal of refrigeration and air-conditioning equipment. No person servicing an appliance may knowingly release refrigerant to the atmosphere. Only three types of releases are permitted under the prohibition:

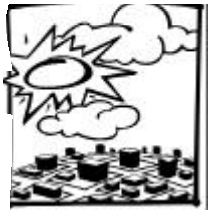
- "De minimis" quantities of refrigerant released in the course of making good faith attempts to recapture and recycle or safely dispose of refrigerant.
- Refrigerants emitted in the course of normal operation of air-conditioning and refrigeration equipment, such as from leaks and mechanical purging.
- Mixtures of nitrogen and R-22 that are used as holding charges or as leak-test gases, because in these cases the ozone-depleting compound is not used as a refrigerant.

Nonmobile sources/HVAC industry

EPA estimates show that there are over 80,000 centrifugal chillers, 1.6 million retail food refrigeration units, 540,000 transport refrigeration units and 537 million cubic feet of cold storage warehousing in service in the United States today. CFC emissions are the largest during operation and servicing.

The servicing and disposal of air-conditioning or refrigeration systems may be conducted only by certified technicians, and only certified technicians may purchase CFC and HCFC refrigerants. All persons who sell or distribute HCFC refrigerant must retain invoices that indicate the name of the purchaser, the

The law requires recycling of CFCs and HCFCs and banning the release of refrigerants during the service, maintenance and disposal of air-conditioning and refrigeration equipment.



date of sale and the quantity of refrigerant purchased.

Persons performing air-conditioning or refrigerant service or disposal must notify the EPA regional office that they have acquired certified recovery or recycling equipment. A list of recovery or recycle equipment is available by calling the Stratospheric Protection Hotline at 800-296-1996.

Certification of HVAC technicians

Technicians must be certified under Section 608 of the Clean Air Act Amendments. A list of approved certification programs is available from the Stratospheric Protection Hotline at 800-296-1996.

There are four certification categories, as follows:

- Type I small appliances (household refrigerators/freezers and water coolers)
- Type II high and very high pressure appliances
- Type III low pressure appliances
- Universal all appliances

Type I technicians may choose to take an on-site, closed-book test or a mail-in test. Type II, III, and universal technicians must pass a closed-book proctored test. Technicians who maintain, service or repair motor vehicle-like appliances (farm equipment and other nonroad vehicles) must either be certified as Type II technicians or complete the training and certification test approved for automotive technicians.

Mobile sources/automotive repair shops

One of the single largest uses of CFCs in the U.S. is as a refrigerant in automobile air conditioners. CFC-12 in motor vehicles accounts for over 20 percent of all CFC use in this country. Shops must certify to the EPA that they own approved recovery or recovery and recycle equipment that meets the appropriate SAE standards when servicing air-conditioning systems. Owners must keep certification records as long as they own the equipment. If they recover refrigerant and send it to a facility, they must also retain the name and address of that facility. Lists of approved equipment are available by calling the Stratospheric Ozone Hotline at 800-296-1996.

All of these steps to protect the ozone layer have major implications for business.

By the end of 1994, virtually all new cars, trucks and vans were equipped with HFC-134a or other nonozone-depleting refrigerants. These refrigerants do not deplete the ozone layer because they do not contain chlorine.

Certification of auto technicians

Technicians who repair or service motor vehicle air conditioners must be trained and certified by an EPA-approved organization under Section 609 of the Clean Air Act Amendments. Training programs must cover use of recycling equipment in compliance with SAE Standard J-1989, the regulatory requirements, the importance of refrigerant containment and the effects of ozone depletion. To be certified, technicians must pass a test demonstrating their knowledge in these areas. For more information on 609 certification, call SBEAP at 800-578-8898.

A list of approved testing programs is available by calling the Stratospheric Ozone Hotline at 800-296-1996.

K-STATE Kansas State University

The Small Business Environmental Assistance Program's (SBEAP) mission is to help Kansas small businesses comply with environmental regulations. SBEAP operates through a consortium of the University of Kansas, Kansas State University and Wichita State University. SBEAP is funded through a contract with the Kansas Department of Health and Environment. SBEAP services are free and confidential. This fact sheet was published by Kansas State University's Pollution Prevention Institute. For more information, call 800-578-8898 or send e-mail to SBEAP@ksu.edu. Our Web address is *http://sbeap.niar.twsu.edu*. The University of Kansas, Kansas State University and Wichita State University are EEO/AA