



## Montreal Protocol revised in Copenhagen

Amendments ban CFCs by 1996 and HCFCs by 2030, signaling a major victory for the HVAC&R industry

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In a major victory for the U.S. negotiators and the HVAC&R industry, environmental ministers and other officials from over 80 countries agreed to a phaseout schedule for HCFCs that permits continued production of the refrigerants for refrigeration, air conditioning and foam insulation until the year 2030.

In addition, the phaseout date for CFCs was brought into alignment with the deadline set a year ago for the United States by President George Bush.

One key individual in this effort was James E. Wolf, who represented the industry as chairman of the Alliance for Responsible CFC Policy. Wolf praised the contributions made by U.S. Environmental Protection Agency head William Reilly in securing an international commitment to HCFCs as interim refrigerants.

ASHRAE joined in the process by participating in the technical assessments for refrigerant uses and by sending observers to the 1990 negotiations in London, the June 1992 working meetings in Geneva and the international negotiations in Copenhagen in November.

ASHRAE President Richard A. Charles stated, "The Copenhagen revisions provide a stringent but workable schedule for the phaseout of substances that deplete the stratospheric ozone layer."

Other industry participants included the Air-Conditioning and Refrigeration Institute and the Association of Home Appliance Manufacturers.

### HCFC phaseout

Although the United States has had a phaseout schedule for HCFCs since 1990,

the Montreal Protocol had no binding restrictions on HCFCs prior to the Copenhagen amendments. Although various governments and numerous environmental groups had sought a ban on the consumption of HCFCs as early as the year 2005, representatives of the signatory nations agreed to a reasonable transition period for these refrigerants.

Binding dates were also established on the consumption of HCFCs. This was based on a complicated formula weighted on the ozone depletion potential of both CFCs and HCFCs.

Beginning January 1, 1996, consumption of HCFCs will be capped at the level of use recorded plus 3.1% of CFC use. On January 1, 2004, the HCFC cap is lowered to 65%, 35% by 2010, 10% by 2015, 0.5% by 2020 and a complete phaseout by 2030.

The amendments also provide that HCFC use will be limited to applications where more environmentally suitable alternatives or technologies are not available, and that the chemicals will not be used in new applications except for the protection of human life or health. HCFCs must be selected only for use in a manner that minimizes ozone depletion, in addition to meeting other environmental, safety and economic considerations.

### Other chemicals

Additionally, the revised protocol accelerates the phaseout schedule for CFCs and establishes phaseout schedules for other compounds, including carbon tetrachloride, trichloromethane, halons and hydrobromofluorocarbons.

By January 1, 1994, consumption of CFCs will be limited to 25% of the levels recorded in 1986. A complete ban on the production of CFCs will be required by January 1, 1996. However, there will be no restrictions on the use of recycled refrigerants.

Along with the accelerated CFC phaseout, the production and use of carbon tetrachloride will be prohibited by 1995. The use of methyl chloroform in dry cleaning will be banned by 1996, moving up an earlier deadline of 2005 on this substance. The complete phaseout of halons was moved up to January 1, 1995, from the previous deadline of January 1, 2000.

The revised restrictions also include new controls on methyl bromide, an important agricultural fumigant that could account for 15% of the predicted ozone depletion by the year 2000.

James M. Calm, Member ASHRAE, who represented the Society in Copenhagen, reported on the protocol revisions during the Society's Issues Update seminar at the 1993 Chicago Winter Meeting.

Calm said, "The accord represents a balance between scientifically established objectives and the time needed for transition to alternative compounds and technologies."

He added, "While substitute refrigerants and insulation blowing agents are not yet available for all uses of substances to be phased out, I am optimistic that suitable replacements will be identified and commercialized in time to meet the requirements." ■