

## CANADIAN SMOKE AND MIRRORS

Although Canada signed the Montreal Protocol and recently announced a speedup of the program, which it says will eliminate 85% of CFC emissions by 1999, the Canadian commitment to eliminating CFCs is suspect. Canada is only now putting regulations in place to implement the cutbacks nearly two years after Montreal. Regulations for the 85% cutback are not expected for another year or more.

Canada's Minister of the Environment announces new programs, but he does not provide funding or laws to back up his statements. It appears the minister is more interested in public relations than action on CFCs.

Canada produces 20,000 tonnes of CFC a year or about 2% of the world production. The manufacturers are Dupont in Maitland, Ontario and Allied Signal in Amherstburg, Ontario.

## THE PROBLEM

Ozone (O<sub>3</sub>) is a pungent bluish gas with the important ability to absorb ultraviolet light as it enters the earth's atmosphere. Ultraviolet radiation can cause skin cancers, eye damage, reduce field crop production and add to global warming. CFCs and halons are manufactured chemicals that release chlorine and bromine.

Ozone is broken down by ultraviolet light, but in the presence of pollutants such as chlorine and bromine the process is highly accelerated. The chlorine molecule in CFCs is liberated in the chemical process and has the ability to destroy thousands of ozone molecules. The bromine molecule has an even greater potential to destroy ozone.

Although the ozone layer extends from 15 to 40 kilometres, it is actually quite thin and fragile. At its highest concentration ozone is only 1 in 100,000 molecules. If the ozone were compressed around the surface of the earth it would be only 3 millimetres thick.

In the early 1970s two American scientists, Sherwood Rowland and Mario Molina, raised fears about CFCs. They predicted 30% to 40% of the ozone would be destroyed. The calculation was based on the annual release rate of 800,000 tonnes of CFCs resulting in 500,000 tonnes of chlorine being deposited in the atmosphere over 30 years. The present release rate is about 1 million tonnes.

In 1979, because of growing concern over the impact of CFCs on the ozone layer, Canada joined the United States, Sweden, Finland, Norway and Switzerland in banning CFC in aerosols. At the time half of the world production of CFCs was being used to propel deodorant, hair spray and other household items out of spray cans. The CFC propellants were released directly into the atmosphere.

The aerosol ban caused a drop in CFC production levels, but new uses for CFC compounds were found and production has now overtaken the levels of the late 1970s.

## THE HOLE IN THE OZONE LAYER

In 1982 the British Antarctic Survey (BAS) detected a decline in the concentration of ozone over the South Pole. The results were so unexpected the BAS checked and rechecked the findings. However, in October 1984 they reported a hole over Antarctica showing a 30% reduction in ozone, figures close to the prediction of Molina and Rowland over a decade earlier. The NASA satellite monitoring the area also noted a reduction in ozone, but the computer had discounted the data automatically because it was not considered credible.