

## FOAM RELEASES CFCs

LYNGBY, Denmark, June 19, 2001 (ENS) - Shredded foam insulation from junked refrigerators is releasing substantial amounts of ozone depleting chlorofluorocarbons, or CFCs, into the earth's atmosphere, new research shows.

Chlorine contained in CFCs damages the earth's ozone layer, a thin shield of oxygen that protects the planet from ultraviolet radiation. A single chlorine atom - contained in CFCs and also found naturally - can destroy more than 100,000 ozone molecules.

The first study looking at how and how fast CFC gas releases from foam insulation used in older refrigerators appeared in the July 15 issue of "Environmental Science & Technology," a journal of the American Chemical Society.

More than eight million refrigerators and freezers in the U.S. reach the end of their useful lives and are thrown away each year, often ending up at a landfill where they are shredded to recover scrap metal. Shredding one discarded refrigerator can release more than 100 grams of CFC-11 into the environment, reports Peter Kjeldsen, Ph.D., an associate professor at the Technical University of Denmark.

All 500 grams of CFC gas in the insulation of each refrigerator - a total of almost 4,000 tons of CFC emissions - can seep from the appliances over the next 300 years, he said.

"The future atmospheric concentrations of CFC-11, and their effect on the ozone layer, will mainly depend on the continued release from insulation foams," Kjeldsen said.

Comparing their laboratory CFC-release rates to computer models, the researchers found that all CFC gas embedded in the energy saving insulation is released after the foam is ripped apart. The smaller the size of the shredded foam, the faster the release, Kjeldsen noted.

Some countries, including Denmark, dispose of the foam before scrapping the refrigerator, which eliminates most CFC emissions, Kjeldsen added. Although CFCs were developed in the 1930s, the majority of the CFC emissions are coming from refrigerators made during the 1980s, when a new type of insulating foam featuring the material was used. The appliances last for around 20 years.

"Use of these results may help evaluate changes in the atmospheric concentrations of CFC-11 in the future," Kjeldsen said. "They add to the understanding of a very important source of CFCs."