

# LIFESTYLE

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Focus

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## Aggravating agents

ONCE considered safe replacements, hydrochlorofluorocarbons (HCFCs) and its by-product hydrofluorocarbons (HFCs) were promoted as ozone-friendly chemicals. However, both have now been found to intensify ozone depletion and climate change.

Although many ozone-depleting substances and their substitutes are known to be significant greenhouse gases, HCFCs and HFCs are the most potent: a tonne of HCFC-22, for instance, is 1,700 times more effective at warming the atmosphere than one tonne of carbon dioxide.

HCFC-22 is widely used in refrigeration, air-conditioning and some foaming agents as a replacement for CFC-12 and together with its by-product HFC-23, are expected to emit at least one billion tonnes of CO<sub>2</sub>-equivalent in 2015, which is the total reductions required under the Kyoto Protocol to curb global warming.

The Environmental Investigation Agency (EIA) report *Turning up the Heat* said the build-up of greenhouse gases is known to enhance warming of the lower atmosphere or troposphere (where weather systems occur) and cooling of the stratosphere (upper atmosphere where the ozone layer occurs).

“Stratospheric cooling creates a more favourable environment for the formation of polar stratospheric clouds, which are a key factor in the development of polar ozone holes. Thus, cooling of the stratosphere due to build-up of greenhouse gases is likely to exacerbate destruction of the ozone layer,” said the report.

The Montreal Protocol’s deadline to phase out HCFCs, 2020 for developed countries and 2040 for developing countries, is deemed way too long.

Furthermore, the Multilateral Fund (MLF) of the Montreal Protocol which finances projects to convert factories using CFC-12 to HCFC-22 has led to increased production of the chemical and its by-product HFCs.

Unlike the European Community, the United States has not banned imports of products containing HCFC-22 and is currently flooded with such products from China, primarily air-conditioners.

China is the world’s largest air-conditioning producer and 90% of the units run on HCFCs.