

The Fluorocarbon-Free Option

The Fluorocarbon-Free Option - for the sake of the environment

Climate change has become a serious problem. To help solve this problem, we have the option to purchase products that do not use fluorocarbons, "Fluorocarbon-free products"

What are Fluorocarbons?

Various types of fluorocarbons are used in various applications

Fluorocarbons are composed of Fluorine and Carbon. Fluorocarbons have many advantages such as being hard to burn, chemically stable, easy to liquefy and safe to humans. Because of this, they have become used widely as refrigerants, which carry heat in air-conditioners, mobile air-conditioners, refrigerators, vending machines, drinks coolers, freezer showcases and water coolers. They are also used as foam agents for insulation, cleaning agents for semiconductors and precision components and propellants for aerosols such as air dusters. There are many types of fluorocarbons; the first type was CFCs, followed by HCFCs and then HFCs.

Types of Fluorocarbons

• CFCs (Chlorofluorocarbons)

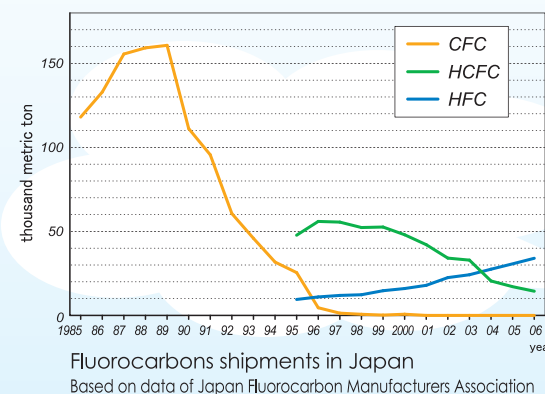
Compounds of Carbon, Fluorine and Chlorine

• HCFCs (Hydrochlorofluorocarbons)

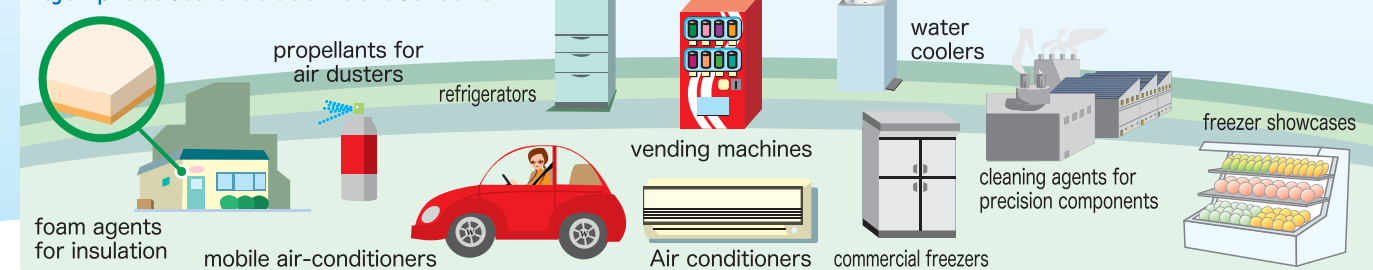
Compounds of Carbon, Fluorine, Chlorine and Hydrogen

• HFCs (Hydrofluorocarbons)

Compounds of Carbon, Fluorine and Hydrogen



Major products that use fluorocarbons

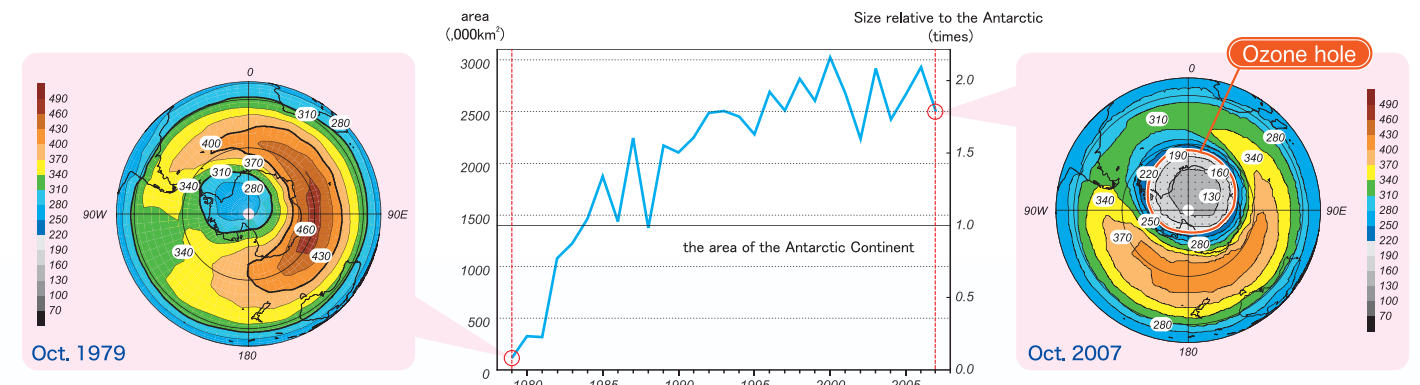


However, Freons are a cause of climate change and ozone layer depletion!!

Ozone Layer Depletion

Ozone layer depletion continues unabated

The Ozone Layer is 10-50km above the Earth's surface and absorbs harmful UV rays from the Sun. However, CFCs and HCFCs which are emitted into the air reach the ozone layer and decompose ozone by chemical reactions. The depletion of ozone above the Antarctic is so serious that in September - October each year the ozone density decreases drastically. This is called "Ozone Hole", because it looks like a hole in the sky. Still now, there is no clear sign of recovery of the Ozone Hole.

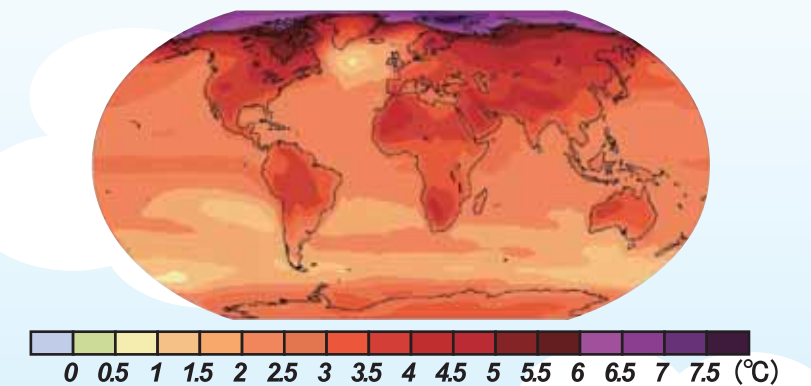


Impact on Climate Change

Fluorocarbons are about 100-10,000 times stronger greenhouse gases than CO₂

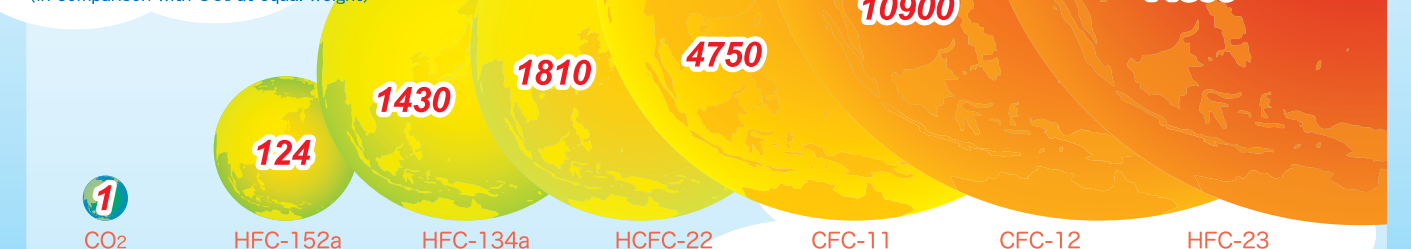
Currently, climate change caused by man-made emissions of CO₂ is becoming more and more serious. Climate change is not only caused by CO₂. Fluorocarbons such as CFCs, HCFCs and HFCs also have strong greenhouse effects. Their impact on climate change is known to be extremely strong - ranging from a hundred times to over ten thousand times stronger than CO₂. For example, fluorocarbons used in air-conditioners and mobile air-conditioners are more than 1,000 times stronger greenhouse gases than CO₂. If 1 kg of fluorocarbons are emitted into the air accidentally, they will have the equivalent impact of more than 1 ton of CO₂.

Geographical pattern of surface warming



Figures have been taken from IPCC third assessment report (2007)

Global warming potentials of CFC, HCFC and HFC (in comparison with CO₂ at equal weight)



Figures have been taken from IPCC third assessment report (2007)