

## Impact of Chlorofluorocarbons on Environment and Climate Change

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### Abstract

The physical and chemical properties of chlorofluorocarbons (CFCs) are significantly different from those of simpler alkanes. The boiling point of CFCs is much higher than that of simpler alkanes. The boiling point of CFCs is much higher than that of simpler alkanes.

**Keywords:** Hydrochloro uorocarbons; Chloro uorocarbons

### Introduction

The methane-derived CFCs deviate from perfect tetrahedral symmetry because the fluorine and chlorine atoms differ greatly in size and effective charge from hydrogen and from one another. Changing the number and identity of the halogen atoms can alter the physical properties of CFCs and HCFCs. They are volatile in general, but less so than their parent alkanes. The halides' molecular polarity, which causes intermolecular interactions, is responsible for the decreased volatility. As a result, while fluoromethanes boil between 51.7 (CF<sub>2</sub>H<sub>2</sub>) and 128°C (CF<sub>4</sub>), methane boils at 161°C. Because chloride is even

more abundant than fluorine, the boiling point of chloromethane is much lower than that of fluoromethane. Due to their low toxicity, reactivity, and inflammability, CFCs and HCFCs are utilized in numerous applications. The majority of perfluoromethane is transformed into tetrafluoroethene, billions of kilograms of chlorodifluoromethane are produced annually.

CFCs' effects on the atmosphere go beyond their role as ozone-depleting chemicals. The earth's atmosphere is kept warm at that wavelength by infrared absorption bands. CFCs and other unreactive fluorine-containing gases like perfluorocarbons, HFCs, HCFCs, bromo uorocarbons, SF<sub>6</sub>, and NF<sub>3</sub> create a "super" greenhouse effect because of the strength of CFC absorption bands beyond the atmospheric window.

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of the ozone layer over Antarctica. By the end of the century, 12 nations of the European Community had agreed to prohibit the production of all CFCs. When diplomats met in London in 1990, they decided to call for the complete elimination of CFCs by the year 2000, which would significantly strengthen the Montreal Protocol. CFCs ought to have been completely eliminated from developing nations as well by 2010.

Prices for CFCs have skyrocketed as a result of the fact that recycling