

FOREWORD

This report is the result of work carried out under the title, "Monitoring of ozone depleting substances in the atmosphere FY2007". The Ministry of the Environment has observed the status of changes in the atmospheric concentrations of ozone depleting substances and has published the results in accordance with the "Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures" (the Ozone Layer Protection Law) Article 22. The ministry contracted with Japan Environmental Sanitation Center Foundation (JESC) for this work to obtain basic data to monitor the status of the selected ozone depleting substances.

Due to their highly inert and non-toxic properties, chlorofluorocarbons (CFCs) and other halogenated hydrocarbons were widely used as refrigerants, solvents, insulators, and so on. However, it became clear scientifically through many studies that these substances are stable or less decomposable in the troposphere and reach the stratosphere and eventually destroy the stratospheric ozone. Therefore, international efforts to protect the ozone layer from this destruction by artificial ozone depleting substances represented by CFCs concluded in the "Vienna Convention for the Protection of the Ozone Layer" adopted in 1985 and the "Montreal Protocol on Substances that Deplete the Ozone Layer" adopted in 1987. In Japan, the Ozone Layer Protection Law, which controls the production of CFCs and other ozone depleting substances based on the Montreal Protocol, was established in 1988 and steady efforts has been made for a reduction in the emissions of these substances.

In developed countries, the production of CFCs, halons, carbon tetrachloride, and 1,1,1-trichloroethane has already been banned. The growth rates of these substances in the atmosphere have been diminishing. Furthermore, the atmospheric concentrations of several substances are already on the decline. However, in the meantime, abundances of the dominant halons are still increasing, and abundances of substitutes for CFCs, such as hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs), are also increasing. Although their potential contribution to ozone depletion is estimated to be less than that of CFCs, HCFCs are still ozone depleting substances and are controlled under the Montreal Protocol. In addition, HFCs are controlled under the Kyoto Protocol due to their strong global warming potential. The impact of these substances on stratospheric ozone depletion and on global warming is of great concern.

In assessing the present efforts to protect the ozone layer, this report should be useful as a study on the status of ozone depleting substances and other related issues. I therefore deeply appreciate the efforts of those involved in carrying out this work.

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