

Radiative Efficiency of Atmospheric Molecules to Determine Global Warming Potential (GWP)

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The influence of trace gases on climate is evaluated by their radiative efficiency (RE) — which tells how much heat a gas is able to trap in the atmosphere and their global warming potential GWP, which compares the heat-absorbing ability of each gas relative to that of CO₂ over a given period of time. The ban of ozone depleting and high GWP greenhouse gases has led to the release of many new substitutes whose impact on climate needs to be determined. The goal of this project is to provide the experimental and theoretical absorption cross-sections and global warming potential of four molecules: 1,1,2,3,3-Pentafluoropropene, 1H,1H,2H-Heptafluoro Cyclopentane, 1H Nonafluorobutane and 2,2,2-Trifluoroethyl 1,1,2,2, Tetrafluoroethyl Ether.