

VIBRATIONAL SPECTRA OF CHLOROFORM, FREON-11 AND SELECTED ISOTOPOMERS IN THE TERAHERTZ REGION

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The fundamental bands of the CCl₃ asymmetric deformation modes of selected isotopomers of chloroform (CHCl₃) and freon-11 (CFCl₃) have been measured between 7 and 8 THz in a static cell at ambient temperature using a laser-based source of tunable radiation in the terahertz region (0.1-10 THz) of the electromagnetic spectrum. Simulation of the rotational contour of the ν_6 fundamental transition of ¹²CH³⁵Cl₃ confirmed previously suggested values for C_6 and $C_6\zeta_6$.^b The fundamental frequencies were derived with a precision of 2 GHz for all compounds except CF³⁵Cl₃, where the precision amounted to 3 GHz. The frequencies are in agreement with values calculated *ab initio*. Extension of the experimental setup to enable measurement of THz spectra of molecules in supersonic jet expansions and partially resolve their rotational structure is in progress.

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