EMISSION SPECTRA OF $H_2{}^{17}O$ AND $H_2{}^{18}O$ FROM 320 TO 2500 CM^{-1}

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Emission spectra of water enriched by oxygen-17 and by oxygen-18 have been recorded in the 322-850, 1136-1790, and 1654-2500 cm^{-1} spectral regions with pressures 1-18 mbar and temperature up to 1950 K using Bruker IFS 120 HR spectrometer. The measurements were performed in an alumina cell with an effective length of hot gas of about 50 cm. The relative concentrations of the $H_2{}^{16}O$, $H_2{}^{17}O$, and $H_2{}^{18}O$ species were from 75/15/10 up to 50/30/20 percents respectively for different spectra. A lineshape analysis using the SpectrumFit program[a] was done for a precise determination of the line positions. Totally the line parameters of more then 12000 water lines were derived.

Main part of observed lines assigned to transitions of the (000), (010), (020), (100), (001), (030), (110), and (011) states of mentioned above water isotopomers. New results for the line positions of different ro-vibrational bands and energy levels of the $H_2{}^{17}O$ and $H_2{}^{18}O$ molecules are presented. A comparison of the observed line positions with previous experimental and theoretical studies is discussed.

[a] http://www.spectrumfit/symath.com