Measurement of Raman $\chi^{(3)}$ and Theoretical Estimation of DOVE Four Wave Mixing of Hydrogen Peroxide

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SUPPORTING INFORMATION

1. Stability of 30% H_2O_2-THF Mixtures

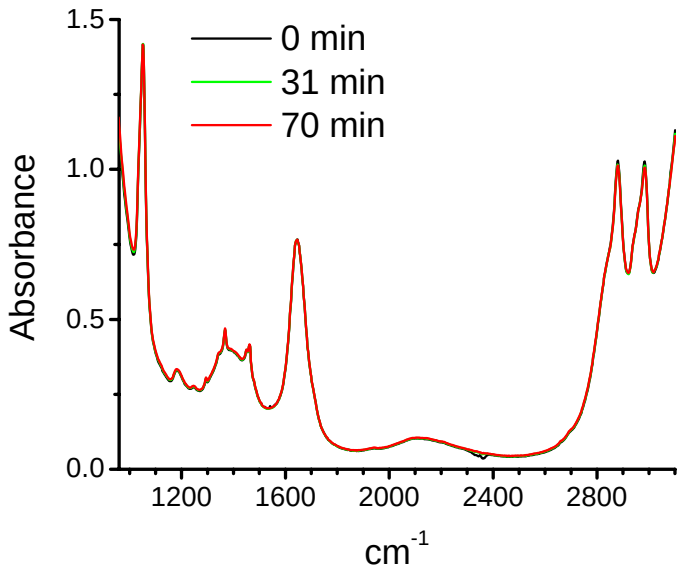

Fig. 1S. Time-dependent IR spectra of a THF-30% H_2O_2 mixture (1:1 in volume) measured over time after mixing. There are no time-dependent spectral intensity changes in THF and H_2O_2, suggesting no reaction occurring in the mixture over time under the experimental condition.

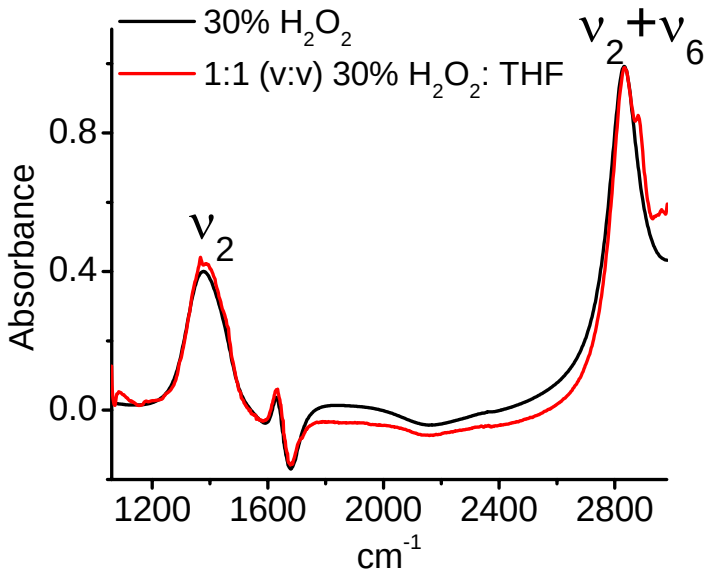

Fig. 2S. Difference IR spectra showing H_2O_2 absorption features ν_2 and $\nu_2+\nu_6$ in a 30% H_2O_2 sample after subtracting H_2O absorption (in black), and in a 30% H_2O_2-THF mixture (1:1 in volume, measured at 70 min after mixing) after subtracting the absorption of a H_2O-THF mixture (1:1 in volume) (in red). The later spectrum times a factor of 2 for dilution correction. The two spectral curves are overlapping in peak position and intensity, indicating that H_2O_2 molecules are stable and do not change after mixing with THF.

2. FWM Spectra of Neat THF and 30% H_2O_2 Solution

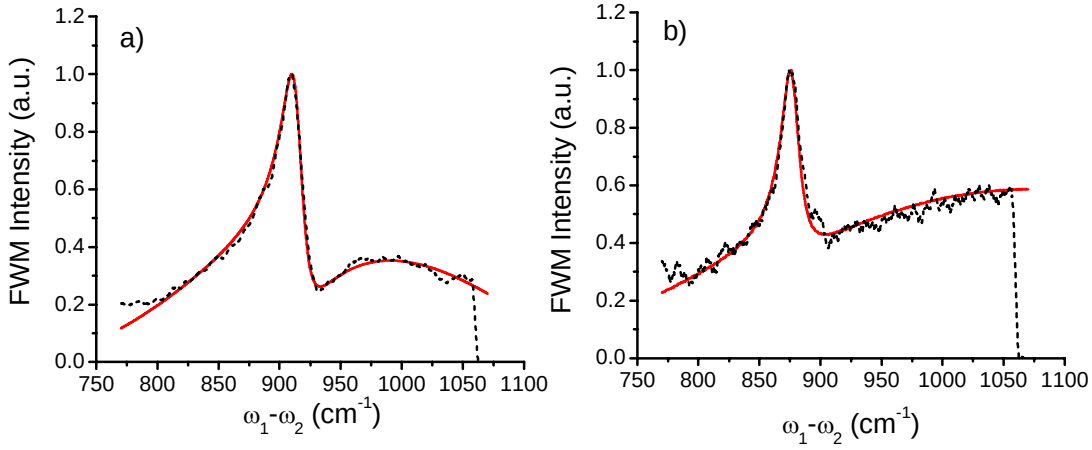

Fig. 3S. FWM spectra of neat THF (a) and 30% H_2O_2 aqueous solution (b). The fitting curves are shown in red.