Using infrared spectroscopy, H-O-H and O-H stretching and bending frequencies were studied for several combinations of compounds. The peak at 3500 cm^{-1} for KBr and also for NaCl following H_2O addition; the peaks at 3500 cm^{-1}, 1600 cm^{-1}, and 1400 cm^{-1} were also studied for NaOH addition with molar absorption coefficients of 3.2 $x10^{-2}$, 3.4x 10^{-3}, and 9.4x 10^{-3}, respectively; and the peaks at 3500 cm^{-1} and 1400 cm^{-1} were studied for Na_2CO_3 addition to NaCl with molar absorption coefficients of 2.6 x10-^{2} and 4.6x 10^{-2}, respectively. The studies involving NaOH addition to NaCl showed the possible formation of a water complex, H_2O:OH-, when combined with conclusions drawn from Na_2CO_3 addition to NaCl.