MICROWAVE SPECTRA AND STRUCTURES OF H_2S-CuCl AND H_2S-AgCl.

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An FT-MW spectrometer coupled to a laser ablation source has been used to obtain the pure rotational spectra of H_2S-CuCl and H_2S-AgCl. Both molecules are generated via laser ablation (532 nm) of a metal rod in the presence of CCl_4 and argon and are stabilized by supersonic expansion. Rotational constants (B_0, D_J) have been measured for four isotopomers of each molecule with substitutions at the metal and chlorine atoms in each case. The spectrum of each molecule is consistent with a linear arrangement of sulphur, metal and chlorine atoms. Nuclear quadrupole coupling constants have been measured for the chlorine atom in each molecule and also for copper in H_2S-CuCl. Nuclear spin-rotation constants have been determined for the copper atom in H_2S-CuCl. The observed trends are consistent with results previously reported for Ar-MX, OC-MX (where M is a Group 11 metal atom and X is a halogen) and N_2-CuF. Further experiments are being performed to obtain and assign the spectra of D_2S-CuCl and D_2S-AgCl. These data will allow determination of the angle defined between the axis of the D_2S molecule and that of the metal chloride unit.