Dimethyl-, Disilyl- and Digermylsulfide: Different Intermolecular Contacts in the Solid State

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Z. Naturforsch. **59b,** 635 – 638 (2004); received March 22, 2004

The compounds $(H_3C)_2S$, $(H_3Si)_2S$ and $(H_3Ge)_2S$ have been crystallised *in situ* on a diffractometer and their crystal structures determined by low-temperature X-ray diffraction. The molecules are present as monomers in the crystals. The aggregation of the molecules through secondary intermolecular contacts in the crystal is different: $(H_3C)_2S$ is weakly associated into dimers by S···S contacts, whereas $(H_3Si)_2S$ and $(H_3Ge)_2S$ form Si···S and Ge···S contacts in an ice-analogous aggregation motif. Important geometry parameters are $(H_3C)_2S$: C-S 1.794(av) Å, C-S-C 99.2(1)°; $(H_3Si)_2S$: Si-S 2.143(1) Å, Si-S-Si 98.4°; $(H_3Ge)_2S$ Ge-S 2.223(2) and 2.230(2) Å, Ge-S-Ge 98.2(1)°.

Key words: Silicon, Germanium, Sulphur, Crystal Structure, Secondary Bonds