# Bis(*n*-pentanethiolato)mercury(II), $Hg(SC_5H_{11})_2$ – Preparation, Characterization, Crystal and Molecular Structure; Reactivity towards Organic Thiols

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The preparation of bis(*n*-pentanethiolato)mercury(II), $Hg(SC_5H_{11})_2$, and *n*-pentanethiolato-mercury(II) iodide, $IHgSC_5H_{11}$, starting from $HgI_2$ and *n*-pentanethiol, is presented; the X-ray crystal structure determination of $Hg(SC_5H_{11})_2$ reveals a layered structure of the bis(thiolate) molecule. With 178.69(1.02)° the S-Hg-S moiety is nearly linear. The Hg-S bond length is shorter then the sum of the covalent radii of sulphur and mercury atoms indicating a primary co-ordination number of two, which is supported by the IR and Raman spectra. Assignments of $\nu_{sym}$(Hg-S) and $\nu_{asym}$(Hg-S) are given. The mass spectrum reveals the title compound to be monomeric in the gas phase. Melting and thermal decomposition have been investigated by DTA methods. The behaviour towards organic thiols is discussed. In addition, IR and Raman spectroscopic data of $IHgSC_5H_{11}$ are presented and discussed.