Synthese und Charakterisierung des Fullerene-Kokristallsats

C$_{60}$*SiH(C$_6$H$_5$)$_3$

Synthesis and Characterisation of the Fullerene Co-Crystal C$_{60}$*SiH(C$_6$H$_5$)$_3$

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Fullerene C$_{60}$, Synthesis, Crystal Structure

A new fullerene co-crystal C$_{60}$*SiH(C$_6$H$_5$)$_3$ has been synthesized by crystallisation from a melt of SiH(C$_6$H$_5$)$_3$ and C$_{60}$ in sealed duran tubes at 80°C. X-ray investigations led to triclinic symmetry, space group P1, \(a = 10.086(1)\), \(b = 14.431(2)\), \(c = 14.911(2)\) Å, \(\alpha = 79.13(1)\), \(\beta = 74.943(9)\), \(\gamma = 88.33(1)\)°, \(V = 2058.0(4)\) Å$^3$, \(Z = 2\). The crystal structure consists of isolated fullerene and silane molecules. At –80°C, C$_{60}$ is still rotationally disordered. Temperature dependent Guinier powder diagrams do not show any phase transformation between 25 and –165°C. The compound is stable in air.

* Sonderdruckanforderungen an Prof. Dr. M. Jansen.