Preparation, Characterization and Crystal Structure of Lead(II) Tricyanomethanide

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The so far unknown lead tricyanomethanide, $Pb[C(CN)_3]_2$, was obtained from a saturated aqueous solution of $PbCl_2$ and solid $AgC(CN)_3$. Its IR spectrum and thermal behaviour are described. The crystal structure was determined by single-crystal X-ray diffraction (trigonal, $P31m$, $Z = 3$, $a = 1414.4(5)$, $c = 409.02(6)$ pm, $R_1 = 0.0249$, $wR_2 = 0.0527$). Two crystallographically independent ninefold coordinated Pb atoms are connected by planar tricyanomethanide ions in two distinct bridging coordination modes. The Pb−N distances range between 254 and 293 pm.

Key words: Pseudohalide, Lead, Tricyanomethanide, Crystal Structure