

RE-REFINEMENT OF CRYSTAL STRUCTURE OF BIS(LIDOCAINE) DIAQUATETRATHIOCYANATONICKELATE(II)

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Abstract. This paper reports on the synthesis and structure re-refinement of bis(lidocaine) diaquatetrathiocyanatonickelate(II). The compound with the formula $(\text{LidH})_2[\text{Ni}(\text{NCS})_4(\text{H}_2\text{O})_2]$, where Lid is (2-(diethylamino)-*N*-(2,6-dimethylphenyl)acetamide, crystallizes in the monoclinic space group $P2_1/c$ with $a= 18.3509(5)$, $b= 7.6532(2)$, $c= 14.9585(4)$ Å, $\beta= 109.964(2)^\circ$, $V= 1974.57(9)$ Å³, and $Z= 2$. Coordination of the Ni^{2+} ion with thiocyanate ions and water molecules generates the slightly distorted octahedral anion $[\text{Ni}(\text{NCS})_4(\text{H}_2\text{O})_2]^{2-}$ with *N*-bonded thiocyanate groups, while two protonated cations LidH^+ remain in an outer coordination field. The anion and cations are associated through hydrogen bonds formed by sulphur atoms with amido nitrogen atoms; water molecules and an amino nitrogen atom are involved in the formation of hydrogen bonds with sulphur atoms of neighbouring unit cells arranging alternating $[\text{Ni}(\text{NCS})_4(\text{H}_2\text{O})_2]^{2-}$ anions and LidH^+ cations into endless sheets lying in the *ac* plane.

Keywords: lidocaine complex, nickel(II), crystal structure, hydrogen bond.

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