A new family of chiral chelating diamines with transition-metal stereocenters: synthesis, structure, and reactivity of the enatiomerically pure dirhenium-substituted 1,2-diamine (η^5-C_5H_5)Re(NO)-(PPh_3)($CH_2N(CH_3)CH_2CH_2(H_3C)NCH_2$)($Ph_3P$)(ON)Re($\eta^5$-$C_5H_5$).

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Streszczenie

Reaction of enantiopure (*S*)-(η^5-C_5H_5)Re(NO)(PPh_3)(CH_3) ((*S*)-**1**) with $Ph_3C^+BF_4^-$ (1 equiv) and then the *N*,*N*‘-dimethyl 1,2-diamine $HN(CH_3)CH_2CH_2(H_3C)NH$ (0.5 equiv) gives the diammonium salt ($S_{Re}S_{Re}$)-[(η^5-C_5H_5)Re(NO)(PPh_3)($CH_2NH(CH_3)CH_2CH_2(H_3C)HNCH_2$)($Ph_3P$)(ON)Re($\eta^5$-$C_5H_5$)]$^{2+}$($BF_4^-$)$_2$ (94%) as a mixture of Re/N configurational diastereomers. Reaction with *t*-BuOK yields the title compound ($S_{Re}S_{Re}$)-**4** (66%) as an air-stable orange powder. Reaction with $(PhCN)_2PdCl_2$ gives a single diastereomer of a chelate complex, (80%), the configuration and approximate C_2 symmetry of which has been established crystallographically. Racemic **1**, $Ph_3C^+BF_4^-$ (1 equiv), and the *N*,*N*‘-dimethyl 1,2-diamine $HN(CH_2CH_3)CH_2CH_2(H_3CCH_2)NH$ (1 equiv) give [(η^5-C_5H_5)Re(NO)(PPh_3)($CH_2NH(CH_2CH_3)CH_2CH_2NH(CH_2CH_3)$)]$^+BF_4^-$, and the crystal structure of the $S_{Re}S_N$,$R_{Re}R_N$ diastereomer is determined. The $ReCH_2N$ conformations of the preceding compounds, and their influence upon the diastereoselectivities, are analyzed in detail

Słowa kluczowe

Cations, Coordination compounds, Molecular structure, Nitrogen, rhenium

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