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Poster 5

Study on the Isomerization of Vanadium(V)- Propylenediaminetetraacetate Complex in Solution by ^{51}V NMR Spectroscopy

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Vanadium complexes are particularly susceptible to external influence since the vanadium atom is small and readily accommodate several coordination geometries.

So it is important to understand how various factors affect the structure and properties of vanadium complexes. In the present study, the solution properties of two isomeric forms of V-PDTA complex (the symmetric α -*cis* and asymmetric β -*cis*) have been studied using multinuclear NMR spectroscopy. The [α -*cis*]/[β -*cis*] ratio was determined by integration of two peaks of ^{51}V -NMR spectra. The isomerization constant and corresponding thermodynamic parameters were determined under a variable temperature. The isomerization constant of the aqueous equilibrium mixture was changed by the addition of organic solvents (methanol, formamide, and DMSO) and various salts (NaCl, NaClO_4 , NH_4Cl).