

The Stereochemistry of Chloro-bis(N-morpholino)phenylsilane

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Z. Naturforsch. **54 b**, 18–20 (1999); received October 15, 1998

Silylamines, Aminosilanes, Symmetry, NMR Data, Crystal Structure

Treatment of phenyltrichlorosilane with an excess of morpholine and N-lithium-morpholide in pentane/toluene affords only the disubstitution product Cl(Ph)Si(Mor)_2 with $\text{Mor} = \text{O(CH}_2\text{CH}_2)_2\text{N-}$. The third halogen atom is not replaced owing to sterical hindrance. The title compound crystallizes with two independent molecules in the unit cell. These two molecules can be classified as enantiomers, because a disrotatory twist of the two morpholino ligands away from the potential mirror plane induces a chiral conformation. In benzene solution there is racemization owing to completely free rotation, chair/boat interconversion, and nitrogen inversion of the morpholino groups on the NMR time scale, but all CH_2 protons remain anisochronous (diastereotopic).

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