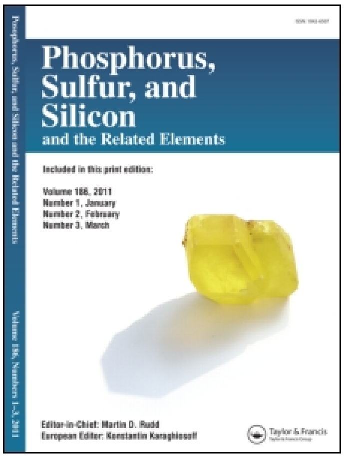

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Cyclic Fluoro- and Hydrogen - Functional Silylhydrazines

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CYCLIC FLUORO- AND HYDROGEN - FUNCTIONAL SILYLHYDRAZINES

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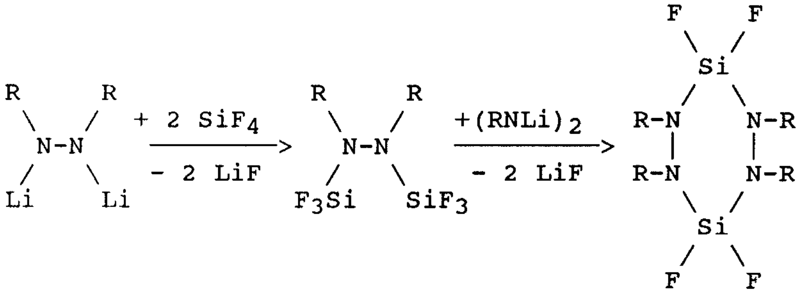
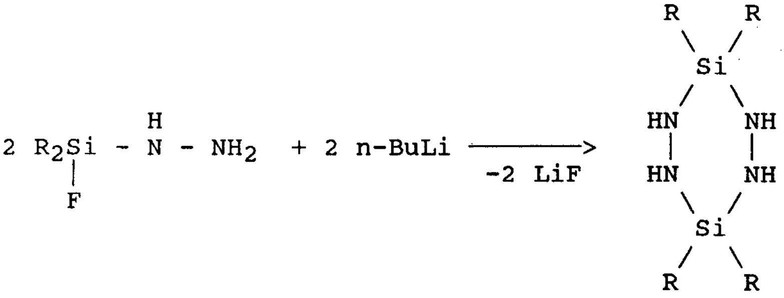
Abstract: Dilithium derivatives of hydrazines react with fluorosilanes to yield fluorosilylhydrazines. Cyclic fluorosilylhydrazines are formed when these compounds are reacted again with dilithiated hydrazines.



Starting with lithium derivatives of stable fluorosilylhydrazines hydrogen-functional six-membered rings are formed by intermolecular LiF-elimination.

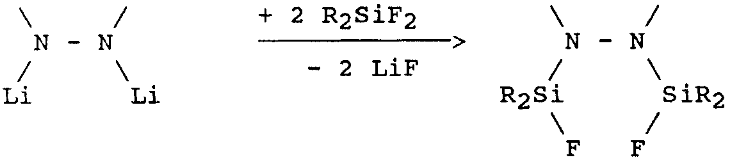


Reaction and X-ray analyses of both ring systems are discussed.

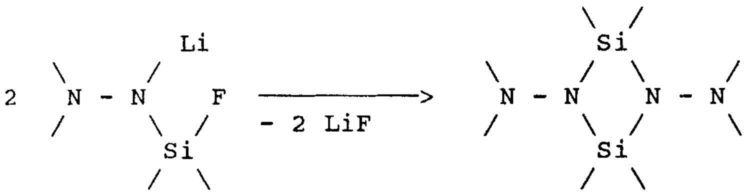
Lithiumderivatives of substituted hydrazines react with fluorosilanes in an impressive variety to a lot of cyclic and acyclic hydrazines.

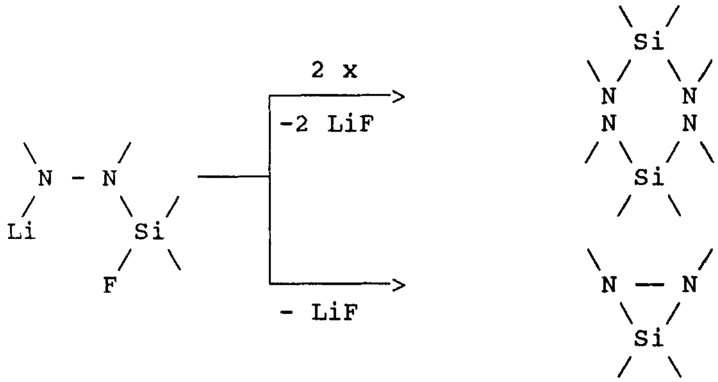
The grade of lithiation and the bulkiness of the fluorosilanes determine the type of acyclic or cyclic hydrazine that is obtained.

Dilithiated derivatives of substituted hydrazines react with many fluorosilanes to yield fluorosilylhydrazines according to the following scheme.



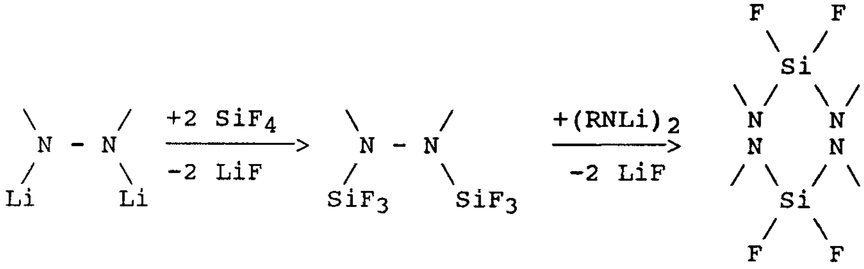
Three-, four- and six-membered ring systems are formed when fluorosilyl substituted hydrazines are treated with metallorganic bases like butyllithium [1].



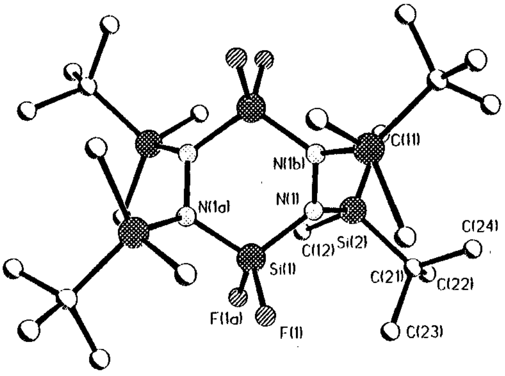


If the size of the substituent is increased three-membered rings are obtained. For example, bulky ditert-butyl-groups enforce the formation of three-membered SiNN-ring systems.

On treatment with SiF_4 dilithiated hydrazines form six-membered inorganic hydrazine ring species [2,3].



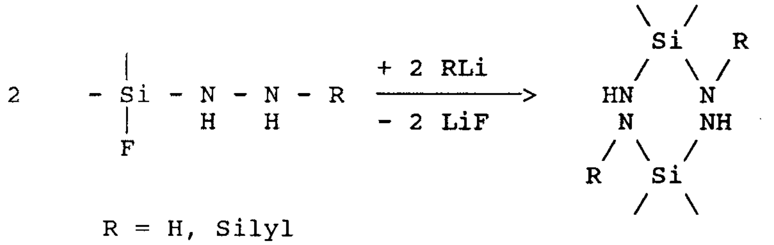
These rings are fluoro-functional. The fluorine atom can be substituted [3], ring coupling is possible. The structure of one six-ring has been determined from X-ray diffractometer data. The ring is far from planar, and has a twist conformation.



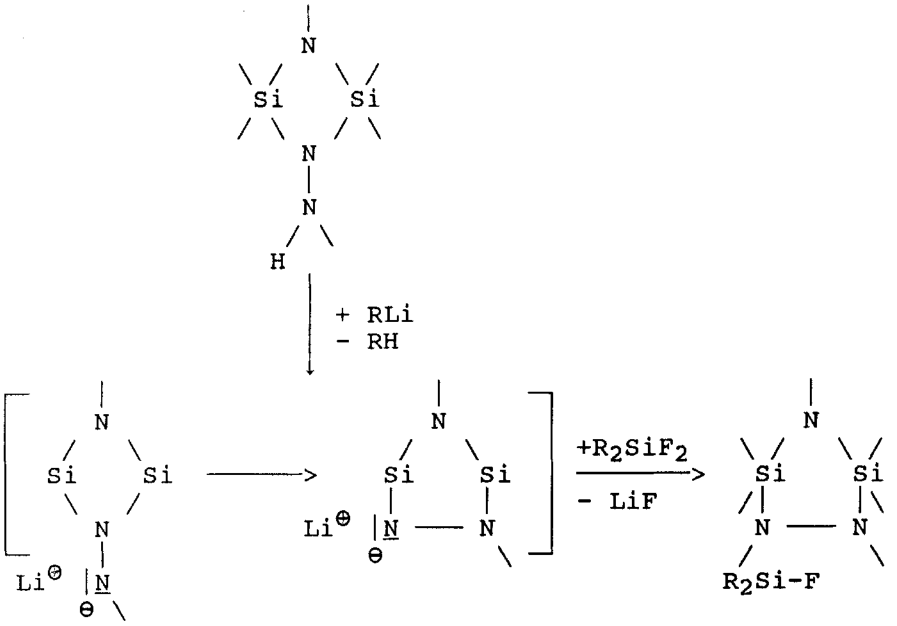
bond lengths [pm]

Si(1)-F(1)	157.1(4)
Si(1)-N(1)	170.5(4)
Si(2)-N(1)	179.5(5)
N(1)-N(1b)	149.1(8)

NH-functional hydrazine ring systems are received when lithium derivatives of stable mono- or disubstituted fluorosilylhydrazines are treated with organolithium bases [3].



Ring expansion occurs in the reaction of 1-amino-1,3-diaza-2,4-disila-cyclo-butanes with organolithium bases. The isomerisation is proved in reactions of four-membered rings with fluorosilanes.



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