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INTRAMOLECULAR NUCLEOPHILIC SUBSTITUTION OF FLUORINE: ISOMERISATION OF 9,10-EPOXIPERFLUORODECALINE INTO 1,9-EPOXIPERFLUORODECALINE

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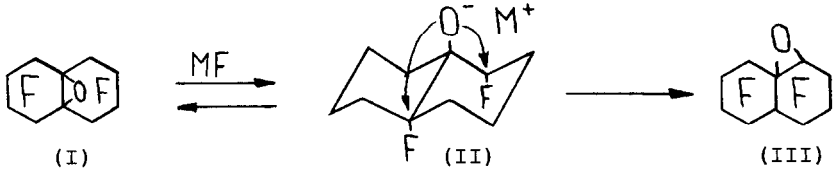
It was established that cleavage of 9,10-epoxiperfluorodecaline (I) under the action of MF (M = K, Cs) is a reversible reaction. Treatment of (I) with MF in polar aprotic solvents (glymes, DMF, DMSO) at 80-100°C resulted in quantitative formation of alcoholate (II).

Heating (II) in diglyme with simultaneous distillation brings the reaction back to (I) with quantitative yield.



(I) (II) (III)

If we heat (II) in tetraglyme at 180-200°C epoxide (III) is formed with high yield (74%).

The formation of (I) and (III) proves a rare case of nucleophilic substitution of fluorine at sp^3-hybridized carbon atom.