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RADICAL REACTIONS OF 1,1-DIFLUOROETHENE

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Radical reactions of 1,1-difluoroethene (VDF) in the presence of halogenated telogens R-X have been widely investigated in the literature; they give products of general formula $R(CH_2CF_2)_nX$ where n ranges mainly from 2 to 8 [1].

The present work is concerned with the study of peroxide induced telomerization of vinylidene difluoride in the presence of bromofluoroethanes as CF_3-CF_2Br, CF_3-CFBr_2 and CF_2Br-CF_2Br.

Reactions were carried out at 150°C in the presence of di-tert-butylperoxide (0.5-40 mol % based on VDF) with telogen/VDF molar ratios ranging from 1/20 to 5/1. Liquid, waxy and solid telomers are obtained with $n < 30$. The different behaviour of the telogens is also reported and discussed. For instance in the same reaction conditions CF_3-CF_2Br gives n values higher than CF_2Br-CF_2Br.

The structure of the telomers has been determined by ^{19}F and ^1H NMR spectroscopy.

Glass transition temperatures of the telomers are reported and discussed.

1 M. Hauptschein, M. Braid, F. Lawlor, J. Am. Chem. Soc., 80, (1958) 846.