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BROMOTRIFLUOROETHENE COPOLYMERS WITH TETRAFLUOROETHENE AND WITH 1,1-DIFLUOROETHENE

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Copolymers of Bromotrifluoroethene (BTFE) with Tetrafluoroethene (TFE) and with 1,1-Difluoroethene (VDF) have been synthesized in the whole composition range by solution polymerization in 1,2,2-Trichloro-1,1,2-Trifluoroethane (FC 113), free radical initiator bis(4-tert.butylcyclohexyl)percarbonate reaction temperature 40°C, monomer conversion < 10%. Monomer composition was adjusted in order to yield the desired copolymer.
Polymer composition was determined by elementary chemical analysis.
The reactivity ratios for BTFE-TFE copolymerization have been computed :

$$r_{BTFE-TFE} = 0.24, \quad r_{TFE-BTFE} = 0.82$$

^{19}F NMR spectra of BTFE-TFE and BTFE-VDF copolymers are also reported and discussed. The latter show patterns similar to those of VDF-Chlorotrifluoroethene copolymers.