

### FLUOROALCOHOLS AS SOLVENTS FOR ALIPHATIC POLYAMIDES

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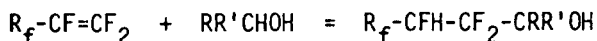
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Some fluoroalcohols have been prepared by free-radical addition of methanol, ethanol and isopropanol to fluoroolefins as  $C_3F_6$ ,  $CFH=CF-CF_3$ ,  $(CF_3)_2CFCF=CFCF_3$ ,  $H(CF_2)_4CF=CF_2$ .

The general reaction is (1)



where  $R_f$  is a fluoroalkyl group, R and R' are H or  $CH_3$ .

NMR data of these alcohols are reported.

2,2,3,4,4,4-hexafluorobutanol (HFB) shows the best solvent ability among the compounds of this class. Its properties and solvent power have been evaluated and compared to the ones of trifluoroethanol (TFE) and hexafluoroisopropanol (HFIP).

Some toxicological data related to HFB, TFE and HFIP are also reported.

Owing to their strong tendency to form hydrogen bonds, fluoroalcohols are excellent solvents for polymeric materials which possess receptive sites for hydrogen bonding formation.

The bonding power of the -OH has been investigated by IR and NMR Spectroscopy on amide-group containing substrates.

The properties and the correlations observed have pointed out that HFB may be usefully used as solvent for some aliphatic polyamides as Nylon 6.

The polymer-solvent system Nylon 6-HFB has been studied and the constants of Mark-Houwink equation determined.

1 J.D. La Zerte and R.J. Koshar, J. Am. Chem. Soc., 77, 910 (1955)