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PERFLUOROPOLYETHER PRODUCTION III. HEXAFLUOROPROPYLENE PHOTO OXIDATION AND POLYMERIZATION.

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Perfluoropolyethers (PFPE) are well known class of fluids with excellent physical and chemical properties and high thermal stability. Perfluoropolyether production involves complex steps. The first steps have been described in previous paper of this series.

The purpose of this paper is to present the preliminary tests of condensed hexafluoropropylene photo-oxidation and polymerization at low temperature. The reaction was activated by U.V. radiation from a medium pressure mercury lamp.

The monomer was converted into a viscous polymers mixture of an average viscosity in the range from 980 to 1700 Cst that corresponds to the average molecular weight between 7000 and 8800.

Structural analysis of the polymeric products were carried out with infrared spectroscopy. These analysis showed the presence of acid groups -COOH and -COF which were determined by chemical quantitative analysis. The peroxy groups of the polymeric products were determined by iodometric titration.

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