

STUDY OF THE PERFLUOROPOLYETHER FLUORINATION

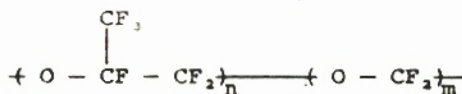
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Perfluoropolyethers (PFPE) are polymers whose structure consist only of carbon, oxygen and fluorine atoms and its chain structure has been demonstrated to be:



These fluids commercially known as Fomblin, have special characteristics such as: high specific weight, low surface tension, inertness towards all plastics and elastomers, compatibility with most metals and over a wide range of temperature immiscibility with almost all organic solvents except some fluorinated fluids.

PFPE's were obtained by the following processes: hexa fluoropropene oxidation and polymerization; polymer fluorination and PFPE distillation in various cuts.

Molecules having an inert perfluoropolyether chain but with one or more chemically reative groups are easily obtained from the raw photooxidation products.

This paper relates a process for neutralizing end groups of acid and of ketonic nature, which are present in the molecule of perfluoropolyethers. The most convenient procedure, for obtaining oils with extreme chemical inertness, is through fluorination.

The fluorination was carried out used a special fluorine/nitrogen gas cylinder. The fluorination process was determinated by IR-spectroscopy and viscosimetry.

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IPEN-DOC- 4486

These reactions showed large polymer degradation probably due to very exothermal reactions involved in the process, and it wasn't observed in the IR absorption due the -COOH and -COF groups.

The results obtained showed total fluorination of the PFPE in these preliminary tests.