

## HETEROAROMATIC POLYMERS WITH TRIFLUOROMETHYLSUBSTITUENTS

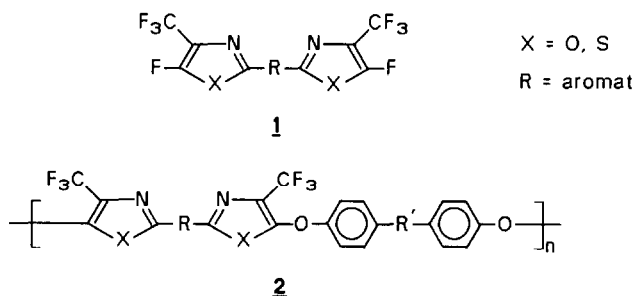
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The introduction of trifluoromethyl groups into polymers usually results in improvement of several important properties of the products. Enhanced thermooxidative stability, solubility, chemical resistance, and flame retardance are examples.

We synthesized a new class of monomers of the general structure **1**, which are suitable for formation of aromatic polyethers **2**.



The monomers of type **1** can react with bisphenols under very mild conditions in a polycondensation reaction to form polyarylethers by nucleophilic aromatic substitution of the fluorine atoms at the heterocycle. A reaction temperature of 80°C to 100°C in DMSO with triethylamine as a base is sufficient, whereas common industrial processes need temperatures of 150°C to 350°C. The molar masses of the products are between 25000 and 35000 g/mol (number average). The polymers are amorphous with glass transition temperatures between 120°C and 205°C, they are soluble in common organic solvents like THF, toluene, chloroform, acetone, and they form stable, transparent films from solution. The polymers are thermally stable up to 320°C-410°C, depending on the structure of the heterocycle.