Moreover, in the methods described in the prior art for preparing polyarylethersulfone-polylalkylene oxide block copolymers, unsatisfactory incorporation rates of the polyalkylene oxide used to increase the hydrophilicity are usually attained. In this context, incorporation rate is understood to mean the amount of polyalkylene oxide incorporated into the polyarylethersulfone-polyalkylene oxide block copolymer obtained, based on the amount of polyalkylene oxide originally used in the polycondensation reaction. Moreover, for the methods described in the prior art for preparing polyarylethersulfone-polyalkylene oxide block copolymers, very wide molecular weight distributions are usually obtained. A measure of the molecular weight distribution is the polydispersity (Q). The polydispersity (Q) is defined as the quotient of the weight average molecular weight (M_W) and the number average molecular weight (M_n). In the methods described in the prior art, polydispersities (Q) of significantly greater than 4 are usually obtained, for example, polydispersities (Q) in the range of 4.1 to 6.3.

The object of the embodiments disclosed herein is therefore to provide a method for preparing polyarylethersulfone-polyalkylene oxide block copolymers (PPC), which does not have, or has only to a reduced degree, the disadvantages of the methods described in the prior art. The method should be simple to carry out, as far as possible not prone to error, and inexpensive. The method according to the disclosure should achieve good incorporation rates based on the polyalkylene oxide used. In addition, the method according to the disclosure should make available polyarylethersulfone-polyalkylene oxide block copolymers (PPC) having a narrow molecular weight distribution and therefore a low polydispersity (Q). The polyarylethersulfone-polyalkylene oxide block copolymers (PPC) should have, in addition, a high glass transition temperature and also a low fraction of impurities such as azeotroping agent.

The object is achieved according to a first aspect of the present disclosure by a method for preparing polyarylethersulfone-polyalkylene oxide block copolymers (PPC) comprising the polycondensation of a reaction mixture (R_G) comprising the components:

(A1) at least one aromatic dihalogen compound,

(B1) at least one aromatic dihydroxyl compound,

(B2) at least one polyalkylene oxide having at least two hydroxyl groups,

(C) at least one aprotic polar solvent and

(D) at least one metal carbonate,

where the reaction mixture (R_G) does not comprise any substance which forms an azeotrope with water.

In another aspect, there is provided a polyarylethersulfone-polyalkylene oxide block copolymer (PPC) obtainable as defined above.