duration of the solid state polymerization is considered too long. An improvement is described in WO 2013/062408, wherein the dimethyl ester of FDCA is transesterified with ethylene glycol, or bis(2-hydroxyethyl)-2,5-furandicarboxylate is used as starting material. The transesterification product or this starting material is then subjected to polycondensation and after a drying/crystallization step the polycondensate is subjected to solid state polymerization. The polycondensation was shown to take three hours. In an example the solid state polymerization takes two days.

KR 20140003167 describes a polyester polymer with excellent transparency which is manufactured by using a biomass originated furandicarboxylate ester compound with ethylene glycol. In comparative examples also furandicarboxylic acid has been used. The molar ratio of furandicarboxylate ester to ethylene glycol may be from 1:1.1 to 1:4. The ratio of furandicarboxylic acid to ethylene glycol varies between1:1.2 to 1:2.

US 2013/171397 describes the preparation of copolyesters formed from 2,5-furandicarboxylic acid or a lower alkyl ester thereof, at least one aliphatic or cycloaliphatic C3-C10 diol and terephthalic acid. In a comparative experiment the patent application describes the polymerization of furandicarboxylic acid and ethylene glycol in a molar ratio of 1: 1.5.

In WO 2013/120989 a continuous process for the preparation of poly(ethylene furandicarboxylate) is described wherein FDCA or a diester thereof is mixed with ethylene glycol at elevated temperature to give a paste or a homogeneous solution, the paste or solution is converted to an esterification product of FDCA and ethylene glycol, the esterification product is polycondensed under reduced pressure, wherein the polycondensation is performed in two stages. According to an example the dimethyl ester of FDCA was reacted with ethylene glycol in a molar ratio of 1:1.7. In this example the stages following the production of the esterified product took 5 hours. The polycondensation product can be subjected, if desired, to a solid stating polymerization.

It is therefore apparent that there is need for a process for the preparation of poly(ethylene furan dicarboxylate) that comprises a faster polycondensation step, but also allows a shorter solid state polymerization and still yield polyesters with a sufficiently high molecular weight.

**Summary**

In one aspect, the present invention provides polyester comprising ethylene 2,5-furandicarboxylate units, which polyester has an intrinsic viscosity of at least 0.45 dL/g, and which polyester has a relative content of carboxylic acid end groups, expressed as the fraction of the molar amount of carboxylic acid end groups divided by the sum of the molar amounts of hydroxyl end groups and carboxylic acid end groups, in the range of 0.10 to 0.70.

In another aspect, the present invention provides a composition comprising the polyester according to any one of claims 1 to 8, which has a moisture content of at most 100 ppmw.

In yet another aspect, the present invention provides a method for the preparation of a polyester, wherein a starting mixture comprising 2,5-furandicarboxylic acid and ethylene glycol is subjected to esterification to form an ester composition, wherein the molar ratio of 2,5-furandicarboxylic acid to ethylene glycol in the starting mixture is 1:1.01 to 1:1.15; and wherein the ester composition thus obtained is subjected to polycondensation at reduced pressure in the presence of a polycondensation catalyst to obtain a polycondensate, wherein water, that is formed during the reaction between 2,5-furandicarboxylic acid and ethylene glycol, and some ethylene glycol are removed in a distillation system, and wherein ethylene glycol that is removed with water is separated from water and at least partly recycled.

**Description**

It has now surprisingly been found that when the polyester that is subjected to solid state polymerization fulfils some characteristics as to its structure, the solid state polymerization can be shortened significantly. The characteristics relate to the end groups of the polyesters. It was further found that the preparation of such polyesters can be effected at a higher reaction rate than that of the polycondensation steps in US 2551731.

Accordingly, the present invention provides a polyester comprising ethylene 2,5-furandicarboxylate units, which polyester has an intrinsic viscosity of at least 0.45 dL/g, and which polyester has a relative content of carboxylic acid end groups, expressed as the