C6-C12 carboxylic acids were referred to as suitable for use as plasticizers. The synthesis of isosorbide di-n-octanoate (IsDO) and isosorbide di-2-ethylhexanoate (IsDEH) was exemplified.

WO2006/103338 describes a method of producing *inter alia* isosorbide esters by using a combination of two catalysts, one of which is hypophosphorous acid. This appears to give esters having better colour numbers and higher purities than described in WO2001/083488 for example. Again, only 2-ethylhexanoic acid and n-octanoic acid were explicitly referred to as carboxylic acids which can be reacted using this method.

WO 2008/095571 describes synthesis and use of mixtures of isosorbide esters obtainable by esterifying isomeric nonanoic acids (branched and linear) with isosorbide. However, plastisols based on this plasticizer have a significantly higher viscosity than that of the current standard plasticizer diisononyl phthalate (DINP), portending worse processability. Similarly, the glass transition temperatures are very significantly inferior to that of DINP.

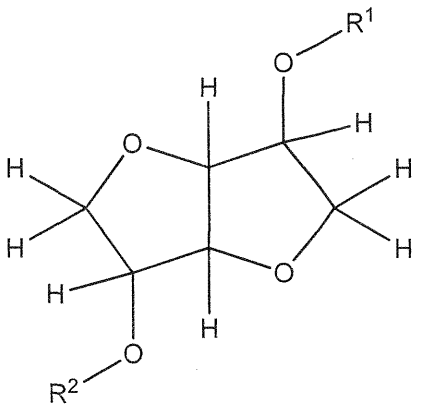
The melting point of the pure isosorbide diester of n-octanoic acid is only just below room temperature, so using the ester at lower temperatures would be uncommercial in many processing methods of PVC plastisol technology.

The corresponding pure isosorbide di-n-decanoate even has a melting point above 35°C, and is largely incompatible with PVC.

The problem addressed by the present invention was that of finding a dianhydrohexitol-based diester or diester mixture having improved performance characteristics.

The problem is solved by an ester mixture as defined in Claim 1.

In a first aspect, there is provided Aan ester mixture comprising a compound conforming to formula I:



I

wherein R^1 and R^2 are each independently selected from: C8-alkyl linear, C8-alkyl branched, C8-alkene wherein said C8-alkene may be partially or completely epoxidized, C10-alkyl linear, C10-alkyl branched, C10-alkene wherein said C10-alkene may be partially or completely epoxidized, and

wherein the carbon atom which binds the particular R^1 or R^2 moiety directly to the oxygen in formula I is linked via a double bond to a further oxygen atom, and

wherein the ester mixture has a mean chain length of from 8.3 to 9.2.

In a second aspect, there is provided a composition comprising:

- an ester mixture as defined above,
- a high boiler and/or a low boiler.

In a third aspect, there is provided a polymer composition comprising:

- an ester mixture as defined above,
- a polymer.

In a fourth aspect, there is provided the use of an ester mixture as defined above as a plasticizer.

In a fifth aspect, there is provided a method comprising the steps of

a) providing a dianhydrohexitol,

b) admixing n-octanoic acid and n-decanoic acid,

c) esterifying the acids of b) with the alcohol of a) in the presence of at least one catalyst.

d) terminating the esterifying reaction of c) as soon as the proportion of monoester has fallen below 2.0 area%.

C8 or as the case may be C10 refers to the number of carbon atoms in the carbon chain.

In connection with this invention, "chain length" is to be understood as meaning the mean chain length of the R^1 and R^2 moieties in the ester mixture.

The procedure which will now be described relates to the determination of the mean chain length of the side chains of the isosorbide esters, but can also be applied *mutatis mutandis* to other dianhydrohexitol diester mixtures.

The mean chain lengths of the fatty acids in dianhydrohexitol di-fatty acid esters are determined via ^1H NMR spectroscopy. The spectra are recorded by, for example, dissolving 50 mg of substance in 0.6 ml of $CDCl_3$ (comprising 1% by mass of TMS) and charging the solution to an NMR vial 5 mm in diameter. Both the substance to be investigated and the $CDCl_3$ used are first dried over molecular sieve in order to forestall errors in the values measured due to any water present.

In principle, any commercially available NMR equipment can be used for the NMR-