It was therefore the object to provide, as far as possible, propellant-compatible polyols for rigid PU foam applications; the polyols should therefore have an OH number of at least 460 mg KOH/g, preferably at least 480 mg KOH/g. The viscosity of the polyols should nevertheless be in a justifiable range, i.e. not be excessively high, in order to ensure the processability.

It has been found, surprisingly, during investigations of the dependence of the compatibility of polyetherester polyols for rigid foam applications (having an OH number of at least 460 mg KOH/g, preferably at least 480 mg KOH/g) with hydrophobic propellants such as cyclopentane as a function of the amount of fatty acid ester used, that surprisingly no linear dependence of the amount of triglyceride to the pentane compatibility existed, as would be expected by those skilled in the art. In fact, we found a defined concentration of the amount of triglyceride, which is between 2 and 23%, at which the capacity for hydrophobic substances is at a maximum.

The present disclosure therefore relates to a polyetherester polyol, preferably a homogeneous polyetherester polyol, having an OH number of 460 to 580 mg KOH/g, preferably 480 to 580 mg KOH/g, particularly preferably 480 to 570 mg KOH/g, especially preferably 480 to 550 mg KOH/g, comprising the reaction product of

a1) 5 to 63% by weight, preferably 21 to 50% by weight, based on the total weight of the end product, of one or more compound(s) having at least two OH groups and/or compound(s) having at least two NH groups or mixtures thereof, having an average functionality of 2.5 to 8, preferably 4 to 6.5, preferably 4 to 6.0, particularly preferably 4.2 to 5.5,

a2) 2 to 23% by weight, based on the total weight of the end product, preferably 10-22% by weight, of one or more fatty acid triglycerides comprising fatty acids having 10 to 22 carbon atoms which do not have free OH groups,

a3) 25 to 70% by weight, preferably 33% to 65% by weight, based on the total weight of the end product, of one or more alkylene oxides having 2 to 4 carbon atoms.

In an aspect, there is provided a polyetherester polyol having an OH number of 480 to 580 mg KOH/g, determined according to DIN 53240, comprising the reaction product of

a1) 5 to 63% by weight, preferably 21 to 50% by weight, based on the total weight of the end product, of one or more compound(s) having at least two OH groups and/or compound(s) having at least two NH groups or mixtures thereof, having an average functionality of 2.5 to 8, preferably 4 to 6.5, particularly preferably 4 to 6.0, especially preferably 4.2 to 5.5,

a2) 10-22% by weight, based on the total weight of the end product, of one or more fatty acid triglycerides comprising fatty acids having 10 to 22 carbon atoms which do not have free OH groups,

a3) 25 to 70% by weight, preferably 33% to 65% by weight, based on the total weight of the end product, of one or more alkylene oxides having 2 to 4 carbon atoms.

The present disclosure further relates to a method for preparing a polyetherester polyol, preferably a homogeneous polyetherester polyol, having an OH number of 460 to 580 mg KOH/g, preferably 480 to 580 mg KOH/g, particularly preferably 480 to 570 mg KOH/g, especially preferably 480 to 550 mg KOH/g, wherein

a1) 5 to 63% by weight, preferably 21 to 50% by weight, based on the total weight of the end product, of one or more compound(s) having at least two OH groups and/or compound(s) having at least two NH groups or mixtures thereof, having an average functionality of 2.5 to 8, preferably 4 to 6.5, preferably 4 to 6.0, particularly preferably 4.2 to 5.5, with

a2) 2 to 23% by weight, based on the total weight of the end product, preferably 10-22% by weight, of one or more fatty acid triglycerides comprising fatty acids having 10 to 22 carbon atoms which do not have free OH groups, and

a3) 25 to 70% by weight, preferably 33% to 65% by weight, based on the total weight of the end product, of one or more alkylene oxides having 2 to 4 carbon atoms,

are reacted using a basic catalyst.

In another aspect, there is provided a method for preparing a polyetherester polyol having an OH number of 480 to 580 mg KOH/g, determined according to DIN 53240, wherein

a1) 5 to 63% by weight, preferably 21 to 50% by weight, based on the total weight of the end product, of one or more compound(s) having at least two OH groups and/or compound(s) having at least two NH groups or mixtures thereof, having an average functionality of 2.5 to 8, preferably 4 to 6.5, particularly preferably 4 to 6.0, especially preferably 4.2 to 5.5, with

a2) 10-22% by weight, based on the total weight of the end product, of one or more fatty acid triglycerides comprising fatty acids having 10 to 22 carbon atoms which do not have free OH groups, and

a3) 25 to 70% by weight, preferably 33% to 65% by weight, based on the total weight of the end product, of one or more alkylene oxides having 2 to 4 carbon atoms,

are reacted using a basic catalyst.

In another aspect, there is provided a method for preparing a polyurethane, wherein the polyetherester polyol as defined above or a polyetherester polyol which can be prepared by the method as defined above is reacted with at least one isocyanate, optionally using at least one propellant.