CLAIMS

1. A process for the production of a polyether polyol with an OH number of from 15 to 120 mg of KOH/g comprising:

(a) introducing into a reactor or a reactor system

(i) a mixture of DMC catalyst and a poly(oxyalkylene) polyol

or

(ii) a mixture of DMC catalyst and the polyether polyol obtainable by the process according to the invention ("heel"),

(b) continuously metering into the reactor or a reactor system containing the mixture introduced in (a)

(i) at least one low molecular weight starter compound having (number-average) molecular weights of from 18 to 1,000 g/mol and from 1 to 8 Zerewitinoff-active hydrogen atoms

and

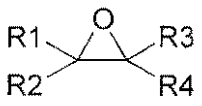
(ii) a mixture comprising

(1) from 73 to 80 parts by weight of ethylene oxide per 100 parts by weight of (b)(ii)(1) plus (b)(ii)(2),

and

(2) from 27 to 20 parts by weight of at least one substituted alkylene oxide per 100 parts by weight of (b)(ii)(1) plus (b)(ii)(2),

the substituted alkylene oxide being a compound corresponding to Formula (I)



(I)

in which

R1, R2, R3 and R4 independently of each other represent hydrogen, a C_1-C_{12}-alkyl group and/or a phenyl group, provided that:

(I) at least one of the radicals R1 to R4 does not represent hydrogen

and

(II) one or more methylene groups in any C_1-C_{12}-alkyl radical may be replaced by an oxygen atom or a sulfur atom,

in which the poly(oxyalkylene) polyol employed in (a) has polyether chains having the same weight ratio of oxyethylene units to oxyalkylene units as the mixture of ethylene oxide and substituted alkylene oxide metered into the reactor in (b).

2. The process of Claim 1 in which oxyethylene units and oxyalkylene units present in the poly(oxyalkylene) polyol or polyether polyol heel introduced in (a) are present in amounts of from 73 to 80 parts by weight of oxyethylene units and from 20 to 27 parts by weight of oxyalkylene units.

3. The process of Claim 1 in which the mixture introduced in (a) comprises mixture (ii).

4. The process of Claim 1 in which the substituted alkylene oxide is selected from the group consisting of propylene oxide, 1,2-butylene oxide, 2,3-butylene oxide and styrene oxide.

5. The process Claim 1 in which the substituted alkylene oxide is propylene oxide.

6. The process of Claim 1 in which a mixture comprising

(1) from 75 to 80 parts by weight of ethylene oxide per 100 parts by weight of (b)(ii)(1) plus (b)(ii)(2),

and

(2) from 20 to 25 parts by weight of at least one substituted alkylene oxide per 100 parts by weight of (b)(ii)(1) plus (b)(ii)(2),

is employed in (b).

7. The process of Claim 1 in which a low molecular weight starter compound having (number-average) molecular weights of from 18 to 1,000 g/mol and from 1 to 8 Zerewitinoff-active hydrogen atoms, DMC catalyst and the mixture comprising (b) (ii) (1) and (b) (ii) (2) are metered continuously, and wherein the mixture resulting from

step (b) is removed continuously from the reactor or the reactor system at one or more suitable points.

8. A process for the production of a flexible polyurethane foam comprising:

(a) introducing into a reactor or a reactor system

(i) a mixture of DMC catalyst and a poly(oxyalkylene) polyol

or

(ii) a mixture of DMC catalyst and the polyether polyol obtainable by the process according to the invention ("heel"),

(b) continuously metering into the reactor or a reactor system containing the mixture introduced in (a)

(i) at least one low molecular weight starter compound having (number-average) molecular weights of from 18 to 1,000 g/mol and from 1 to 8 Zerewitinoff-active hydrogen atoms

and

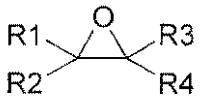
(ii) a mixture comprising

(1) from 73 to 80 parts by weight of ethylene oxide per 100 parts by weight of (b)(ii)(1) plus (b)(ii)(2),

and

(2) from 27 to 20 parts by weight of at least one substituted alkylene oxide per 100 parts by weight of (b)(ii)(1) plus (b)(ii)(2),

the substituted alkylene oxide being a compound corresponding to Formula (I)



(I)

in which

R1, R2, R3 and R4 independently of each other represent hydrogen, a C_1-C_{12}-alkyl group and/or a phenyl group, provided that:

(I) at least one of the radicals R1 to R4 does not represent hydrogen

and

(II) one or more methylene groups in any C_1-C_{12}-alkyl radical may be replaced by an oxygen atom or a sulfur atom,

in which the poly(oxyalkylene) polyol employed in (a) has polyether chains having the same weight ratio of oxyethylene units to oxyalkylene units as the mixture of ethylene oxide and substituted alkylene oxide metered into the reactor in (b), thus producing a polyether polyol with an OH number of from 15 to 120 mg of KOH/g, and

reacting a polyisocyanate with said polyether polyol.

9. The process of Claim 8, in which a low molecular weight starter compound having (number-average) molecular weights of from 18 to 1,000 g/mol and from 1 to 8 Zerewitinoff-active hydrogen atoms, DMC catalyst and the mixture comprising (b) (ii) (1) and (b) (ii) (2) are metered continuously, and wherein the mixture resulting from step (b) is removed continuously from the reactor or the reactor system at one or more suitable points.