~~Claims "as enclosed to IPRP"~~ ~~1~~

We claim:

1. A process for producing rigid polyurethane foams by reaction of

A) at least one polyisocyanate,
B) at least one polyetherester polyol obtainable by esterification of
b1) 10 to 70 mol% of a dicarboxylic acid composition comprising
b11) 50 to 100 mol%, based on the dicarboxylic acid composition, of one or more aromatic dicarboxylic acids or derivatives thereof,
b12) 0 to 50 mol%, based on said dicarboxylic acid composition b1), of one or more aliphatic dicarboxylic acids or derivatives thereof,
b2) 2 to 30 mol% of one or more fatty acids or fatty acid derivatives,
b3) 10 to 70 mol% of one or more aliphatic or cycloaliphatic diols having 2 to 18 carbon atoms or alkoxylates thereof,
b4) 2 to 50 mol% of a polyether polyol having a functionality of not less than 2 and an hydroxyl number from 300 to 1250 mg KOH/g, prepared by alkoxylating a polyol having a functionality of above 2,
all based on the total amount of components b1) to b4), wherein said components b1) to b4) sum to 100 mol%,
C) optionally further polyester polyols other than those of component B),
D) at least one polyetherol polyol,
E) optionally flame retardants,
F) one or more blowing agents,
G) catalysts, and
H) optionally further auxiliaries or admixture agents,

wherein the mass ratio of total components B) and optionally C) to component D) is at least 7.

2. The process according to claim 1 wherein the mass ratio of polyetherester polyols B) to the further polyester polyols C), which are different from those of component B), is at least 0.1.

3. The process according to claim 1 or 2, wherein no further polyester polyols C) are utilized.

4. The process according to one or more of claims 1 to 3, wherein the polyether alcohol b4) has a functionality of > 2.

5. The process according to one or more of claims 1 to 4, wherein said polyether alcohol b4) is prepared by alkoxylating a polyol selected from the group consisting of sorbitol, pentaerythritol, trimethylolpropane, glycerol, polyglycerol and mixtures thereof.

6. The process according to one or more of claims 1 to 5, wherein said polyether alcohol b4) is prepared by alkoxylation with ethylene oxide.

7. The process according to one or more of claims 1 to 6, wherein said component b11) comprises one or more compounds selected from the group consisting of terephthalic acid, dimethyl terephthalate, polyethylene terephthalate, phthalic acid, phthalic anhydride and isophthalic acid.

8. The process according to one or more of claims 1 to 7, wherein said dicarboxylic acid composition b1) comprises no aliphatic dicarboxylic acids b12).

9. The process according to one or more of claims 1 to 8, wherein said fatty acid or fatty acid derivative b2) is selected from the group consisting of castor oil, polyhydroxy fatty acids, ricinoleic acid, hydroxyl-modified oils, grapeseed oil, black cumin oil, pumpkin kernel oil, borage seed oil, soybean oil, wheat germ oil, rapeseed oil, sunflower seed oil, peanut oil, apricot kernel oil, pistachio oil, almond oil, olive oil, macadamia nut oil, avocado oil, sea buckthorn oil, sesame oil, hemp oil, hazelnut oil, primula oil, wild rose oil, safflower oil, walnut oil, and fatty acids, hydroxyl-modified fatty acids and fatty acid esters based on myristoleic acid, palmitoleic acid, oleic acid, vaccenic acid, petroselic acid, gadoleic acid, erucic acid, nervonic acid, linoleic acid, α- and γ-linolenic acid, stearidonic acid, arachidonic acid, timnodonic acid, clupanodonic acid and cervonic acid.

10. The process according to claim 9, wherein said fatty acid or fatty acid derivative b2) is selected from the group consisting of oleic acid and methyl oleate.

11. The process according to one or more of claims 1 to 10, wherein said aliphatic or cycloaliphatic diols b3) are selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol, 1,3-propanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 2-methyl-1,3-propanediol and 3-methyl-1,5-pentanediol and alkoxylates thereof.

12. A rigid polyurethane foam obtainable from the process according to one or more of claims 1 to 11.

13. The use of rigid polyurethane foam according to claim 12 for producing sandwich elements having rigid or flexible outer layers.

14. A polyol component for producing rigid polyurethane foams comprising
10 to 90 wt% of polyetherester polyols B),
0 to 60 wt% of further polyester polyols C),
0.1 to 11 wt% of polyether polyols D),
2 to 50 wt% of flame retardants E),
1 to 45 wt% of blowing agents F),
0.5 to 10 wt% of catalysts G),

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0.5 to 20 wt% of further auxiliary and admixture agents H),
in each case as defined in one or more of claims 1 to 11, wherein the mass ratio of total components B) and C) to component D) is at least 7.

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