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54 **Synthetic toilet soap.**

57 The invention relates to a synthetic soap which comprises a binder consisting of a mixture of one or more glycols, one or more alkali salts and one or more higher fatty acid derivatives having from about 12 to about 22 carbon atoms. Said binder may as well consist of a mixture of one or more glycols and one or more alkali soaps of one or more higher fatty acid derivatives having from about 12 to about 22 carbon atoms. The glycols used are preferably chosen from the group consisting of the lower glycols and the lower polyglycols.

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Synthetic toilet soap.

The invention relates to a synthetic soap comprising at least one binder.

Although synthetic soap and also combinations of synthetic soap and fatty acid alkali soap have already been known for a long time, they take up only a small market share in the total quantity which is marketed. The most important reason that the fatty acid alkali soaps still dominate the entire market is that, in addition to having good functional properties, said soaps can be manufactured cheaply and easily. It has been found that it is very difficult to manufacture a piece of synthetic soap whose price is approximately equal to the price of the hitherto generally known pieces of soap and which has qualitatively the same properties, such as a smooth surface. Usually cheap pieces of synthetic soap have a granular surface. In manufacturing good pieces of synthetic soap it has been found that, in general, the price of the binder together with the detergent component is significantly higher than the price of the combination of oils, fats and lye taken together from which the fatty acid alkali soaps are manufactured.

The object of the invention is to manufacture a synthetic soap by a simple production method starting from cheap raw materials, as a result of which the price of a piece of synthetic soap is comparable with that of an alkali soap; a second object is to manufacture a piece of synthetic soap whose properties equal or even exceed the traditional fatty acid alkali soaps in properties. Important properties are, for example, the appearance, the smoothness of a piece of soap, and the foamformation.

These objects are achieved with a piece of synthetic soap according to the invention in that the binder consists of a mixture of one or more glycols, one or more alkali salts and one or more higher fatty acid derivatives containing from about 12 to about 22 carbon atoms, or in that the binder consists of a mixture of one or more glycols and one or more alkali soaps of one or more higher fatty acid derivatives containing from about 12 to about 22 carbon atoms. The use of the binder according to the invention for manufacturing a synthetic soap achieves the result that, by a simple method, a piece of synthetic soap can be manufactured whose cost price is low and which has remarkably good properties, such as a smooth appearance and ease of filling, while the binder according to the invention is miscible with the usual detergents and foamstabilizing agents and also with the usual fillers, dyestuffs and perfume compositions. After the constituents of the binder have been jointly melted, a product with a strongly film-

forming action is produced.

The synthetic soap according to the invention contains at least 10% by weight of one or more glycols such as monoethylene glycol, monopropylene glycol or butylene glycol or a polyglycol such as dipropylene glycol, di-, tri- or tetraethylene glycol or a mixture of two or more of the above-mentioned glycols, in the preferred composition.

With considerable advantage a quantity of water which exerts an action similar to hydrolysis on the binder according to the invention and has a stabilizing action, may be added to a composition of the binder according to the invention. This property makes it possible to use the cheaper, aqueous detergents, such as, for example, Texapon N-40, which is a 28 per cent solution of sodium lauryl ether sulphate in water, and Texapon N-70, which is an approximately 70 per cent solution of said detergent.

The invention will be explained in more detail with reference to a number of examples, the invention not being limited by said examples.

An example of a composition of a synthetic soap which falls within the scope of the invention is (in percentages by weight):

ethylene glycol	35%
sodium carbonate	10%
stearic acid	17%
water	27%
sodium lauryl ether sulphate	11%.

The condensation product of ethylene oxide and water in this composition has been chosen because of the low price of said glycol. The 27% water and the 11% sodium lauryl ether sulphate represent 38% of the composition, and the composition of said 38% corresponds to the composition of the above-mentioned Texapon N-40.

An example of a composition according to the invention which is particularly preferred owing to the production simplicity is as follows (in percentages by weight):

propylene glycol	40%
sodium stearate	19%
Comperlan KD	3%
Texapon N-40	38%

Comperlan KD is coconut-alkyldiethanolamide and acts as a foam-stabilizing agent.

Hardness-regulating substances for the binder can be added to the synthetic soap composition according to the invention, as shown in the following examples (in percentages by weight):

A. ethylene glycol	38%
sodium stearate	19%
Texapon N-70	38%

polyethylene glycol molecular weight 6000 5%

or

B. ethylene glycol 42.5%
sodium stearate 19%
Texapon N-70 38%
Borax 0.5%

Fillers, such as potato flour, maize flour, chalk, precipitated calcium carbonate, bentonite etc. may be added to the synthetic soap according to the invention in the usual quantities.

An example of a composition of a synthetic soap according to the invention which is perfumed and dyed is the following composition:

ethylene glycol 400 parts
sodium carbonate 150 parts
stearic acid 150 parts
alkane sulphonate 20 parts
sodium lauryl sulphate 280 parts
borax 5 parts
titanium dioxide 5 parts
perfume composition 15 parts

An example of the composition of synthetic soap according to the invention which is transparent and/or fairly transparent consists of:

diethylene glycol 380 parts
sodium stearate 190 parts
Texapon N-40 380 parts
Polyethylene glycol 6000 50 parts

An example of a composition of a synthetic soap according to the invention which when used produces copious and stable foam is as follows (in percentages by weight):

butylene glycol (1,3-butanediol) 35%
sodium stearate 15%
water 25%
alkane sulphonate 93% 25%

The method for preparing a synthetic soap according to the invention is as follows:

The necessary quantity of glycol and sodium carbonate is heated to 80-100°C in a boiling kettle with a stirring mechanism. The necessary stearic acid is then added very gradually via a shaking sieve or a hopper and stirred into the heated mixture. The supply of stearic acid should be adjusted to prevent excessive foam formation. Excessive foam formation may result in too much gas being left in the mixture. The other constituents, except the perfume compositions, are then stirred into the mixture. After the mixture has been cooled to approximately 60°C, the required perfume composition is added to the mixture. The mixture is then poured into the required moulds at a temperature of approximately 60°C or is further cooled and then extruded (rod-shaped pieces of soap). To enable a plodder and a soap press to be used, the constituents of the mixture may be adjusted so that a mixture with the required properties is obtained at

a particular temperature. Additional glycol produces a lower solidification temperature. Additional water also brings about a reduction of the solidification temperature, while increasing the quantity of anhydrous detergents or sodium stearate increases the solidification temperature.

If the corresponding alkali soap (sodium stearate) is used in a composition of synthetic soap according to the invention instead of soda (sodium carbonate) and stearic acid, said sodium stearate is stirred into the heated glycol and melted down and then the other constituents, except the perfume composition, are added. Any perfume required is added only when the mixture has reached a temperature of 60°C, at which temperature the mixture can then be poured out into the required moulds.

If butylene glycol, di-, tri-and/or tetraethylene glycol are used as constituents of the mixture, it is advisable to have already mixed a proportion of the quantity of water to be added with the glycol beforehand before starting the mixing and melting down procedure.

Claims

1. Synthetic soap comprising at least a binder, characterized in that the binder consists of a mixture of one or more glycols, one or more alkali salts, and one or more higher fatty acid derivatives containing from about 12 to about 22 carbon atoms.

2. Synthetic soap comprising at least a binder, characterized in that the binder consists of a mixture of one or more glycols and one or more alkali soaps of one or more higher fatty acid derivatives containing from about 12 to about 22 carbon atoms.

3. Synthetic soap according to one of the Claims 1 or 2, characterized in that synthetic soap comprises at least 10% by weight of one or more glycols and in that said glycols are chosen from the group consisting of the lower glycols, such as monoethylene glycol, monopropylene glycol or butylene glycol or the polyglycols, such as dipropylene glycol, di-, tri- or tetraethylene glycol, or a mixture thereof.

4. Synthetic soap according to one of the Claims 1 or 3, characterized in that the soap contains:

from 10 to 60 per cent by weight of glycol,
from 3 to 60 per cent by weight of alkali salt
from 3 to 60 per cent by weight of higher fatty acid derivatives.

5. Synthetic soap according to one of the Claims 2 or 3, characterized in that the soap comprises:

from 10 to 60 per cent by weight of glycol and from 3 to 60 per cent by weight of alkali soaps of one or more higher fatty acid derivatives.

6. Synthetic soap according to one of the Claims 1, 3 or 4, characterized in that the alkali salt or the alkali salts is or are the carbonate or carbonates of sodium, potassium or ammonium.

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7. Synthetic soap according to one of the Claims 2, 3 or 5, characterized in that the alkali soap or alkali soaps is or are the neutralisation product of one or more higher fatty acids in the range of approximately 12 to approximately 22 carbon atoms with the carbonate or the carbonates of sodium, potassium or ammonium.

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8. Synthetic soap according to one of the preceding claims, characterized in that, in addition to the binder, the composition also comprises one or more detergents and foam-stabilizing agents.

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9. Synthetic soap according to one of the preceding claims, characterized in that the soap comprises:

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from 10 to 70 per cent by weight of detergent and foam-stabilizing agent and

from 2 to 25 per cent by weight of polyethylene glycol 400 - 8000.

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10. Synthetic soap according to one of the preceding claims, characterized in that the composition comprises a quantity of water.

11. Synthetic soap according to one of the preceding claims, characterized in that the soap comprises a quantity of polymerized glycol.

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12. Synthetic soap according to one of the preceding claims, characterized in that the soap comprises a quantity of borax.

13. Synthetic soap according to one of the preceding claims, characterized in that the soap also comprises fillers, perfume compositions and/or colouring agents.

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14. Synthetic soap according to one of the preceding claims, characterized in that the constituent components are mixed with each other and melted.

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
X	US-A-3 903 008 (E.M. DEWEEVER et al.) * Claims * ---	1-14	C 11 D 9/26 C 11 D 10/04
X	DE-B-1 002 492 (UNILEVER) * Whole document * ---	1-3, 9, 10, 11	
Y	CHEMICAL ABSTRACTS, vol. 83, 1975, page 141, no. 133864v, Columbus, Ohio, US; & JP-A-75 14 652 (TAISHO PHARMACEUTICAL CO., LTD.) 29-05-1975 * Abstract * ---	1-8	
Y	DE-A-1 617 093 (FMC) * Examples; claims * ---	1-8	
Y	US-A-2 714 093 (A. BLUMENTHAL) * Examples; claims * ---	1-8	
X, E	EP-A-0 239 165 (C. VAN BUUREN) * Examples; claims * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			C 11 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-06-1988	Examiner GOLLER P.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	