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54 **Cold water soluble soap composition transformable into particles or flakes.**

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**E. Wodatt: The manufacture of soaps, other
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Description

The present invention relates to a soap composition suitable for being transformed into particles or flakes which are readily soluble even in cold water.

5 The now generalised tendency toward a reduction in the washing temperature, either in washing machines or handwashing; either for reasons of energy saving or because washing habits have fallen into disuse in some countries, or for washing delicate textiles, requires a formulation of detergents which are readily dispersible and soluble even at low washing temperatures, this definition being intended to mean temperatures ranging from 10° to 40° C.

10 A further tendency is towards the use of washing agent compositions which contain, as components, soaps in partial or total substitution of synthetic surfactants for the washing of household laundry in washing machines or by hand.

It is known that, when using, for example, only coconut fatty acids (Dalican titre 22-24° C), saponified with sodium hydroxide, a soap is obtained which is soluble but extremely hard, and therefore not suitable, for example, for obtaining thin flakes, and which has a tendency to give rise to phenomena of pulverisation and breaking up, so that such soaps are not suitable for use, for example, in post-addition with detergent mixtures of the type envisaged, for example, in EP-A-432449 by the same Applicant.

15 From JP-A-1271500 a high density granule soap composition is known having an excellent solubility comprising a builder and a mixture of a sodium salt and a potassium salt of fatty acids, said fatty acids having a Dalican titre of 35° C or lower, preferably 30 to 20°.

However, it is known that the saponification obtained with alkalis other than sodium hydroxide can improve the solubility of the soap in the cold, although the physical characteristics do not always permit such soaps (soft soaps) to be worked to give thin flakes having physical properties which make them suitable for use in industrial post-addition processes.

25 According to the invention, it has been found, surprisingly, that it is possible to obtain a considerable improvement in the physical properties of the soap produced, such that it is rendered suitable for transformation into thin flakes and, at the same time, has outstanding properties of solubility in cold water at temperatures between 10° C to 40° C, by using mixtures of fats or oils or fatty acids having a Dalican titre of fatty acids comprised between 10° C and 20° C with the exclusion of 20° C, and saponifying such mixtures with sodium hydroxide.

30 In the examples which follow, the composition of a soap obtained by saponification with sodium hydroxide of a common tallow/coconut oil mixture (Example 1) and the composition of a sodium soap (Example 2) both referred to as comparison examples, and the composition of a sodium soap according to the invention (Example 3) are reported.

35 Example 1: Composition of a sodium soap obtained from a common tallow/coconut oil mixture.

fatty acids	% by weight
C ₈	0.9
C ₁₀	1.0
C ₁₂	7.3
C ₁₄	6.0
C ₁₆ + C ₁₆ -	27.0
C ₁₈	15.2
C ₁₈ - + C ₁₈ =	43.6

40 Dalican titre 38.0° C

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EXAMPLE 2 Composition of a sodium soap obtained from a mixture characterised by a Dalican titre of 23.0 °C.

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fatty acids	% by weight
C ₈	3.5
C ₁₀	4.0
C ₁₂	24.5
C ₁₄	9.2
C ₁₆ + C ₁₆ -	12.5
C ₁₈	3.0
C ₁₈ - + C ₁₈ =	43.4

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EXAMPLE 3 Composition of a sodium soap obtained from a mixture according to the invention, characterized by a Dalican titre of 16.0 °C.

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fatty acids	% by weight
C ₈	3.5
C ₁₀	4.0
C ₁₂	25.3
C ₁₄	10.3
C ₁₆ + C ₁₆ -	9.8
C ₁₈	2.3
C ₁₈ - + C ₁₈ =	45.1

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The soaps, to which reference is made in Examples 1 to 3 above, were transformed into flakes of 2 to 5 mm length and 0.3 mm thickness, and such flakes were introduced into water at different temperatures and the time for total dissolution of the flakes at the different temperatures was measured. In the table which follows, the relative dissolution times in water, expressed in seconds, measured as a function of the temperature of the water are reported for the soaps referred to in the above Examples 1, 2 and 3.

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TABLE 1

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T °C	Soap from Example 1	Soap from Example 2	Soap from Example 3
	Dissolution times in seconds		
20	100	17	10
30	67	11	7
40	13	9	5

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From the table, it is immediately apparent that the dissolution time values of the soap according to the invention are considerably lower than those of the soap from Example 1, taken as comparison.

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Moreover, the flakes obtained from the soap according to the invention show outstanding physical properties of cohesion and are not susceptible to phenomena of pulverisation and breaking up or of excessive stickiness during the rolling and finishing stages and in their subsequent use in detergent powders.

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The compositions indicated above also allow drying of the soap to very low values of moisture content even below 5%, while the workability properties for obtaining flakes remain unchanged and the physical properties thereof are not adversely affected, so that they can also be used in products in which the components easily disintegrate in the presence of moisture.

These properties make the soap flakes according to the invention particularly suitable for use in detergent compositions of the type described, for example, in EP-A-422449 by the same Applicant.

The higher solubility at low washing temperatures leads to an improvement in the detergency, in particular for greasy dirt, and, moreover, clearing of undissolved soap residues from the washing machine and redeposition thereof on the fabrics are avoided.

Claims

1. Soap composition transformable into flakes which are readily soluble in cold water, especially suitable for use in washing agent compositions based on detergents and soaps containing a mixture of fatty acids and neutralised with a suitable base, characterized in that the said neutralisation base is sodium hydroxide, and the Dalican titre of the fatty acid mixture is comprised between 10 ° C and 20 ° C with the exclusion of 20 ° C.
2. Soap composition according to claim 1, in which said flakes have dimensions of between 1 and 10 mm length and a thickness of the order of 0.3 mm.
3. Soap composition according to claims 1 and 2, additionally containing soluble colorants or pigments.
4. Composition according to Claims 1 to 3, containing a sodium soap obtained from the following fatty acid mixture, in percent by weight:

C ₈	3.5
C ₁₀	4.0
C ₁₂	25.3
C ₁₄	10.3
C ₁₆ + C ₁₆₋	9.8
C ₁₈	2.3
C ₁₈₋ + C _{18 =}	45.1

characterized by a Dalican titre of 16.0 ° C.

5. Use of the soap composition according to any one of the preceding claims either alone for the washing of household laundry or as post-additive to high-foaming or controlled-foaming detergents for washing machines or for washing hard surfaces.

Patentansprüche

1. Seifenzusammensetzung, die in in kaltem Wasser leicht lösliche Flocken umwandelbar ist, insbesondere geeignet zur Anwendung in Waschmittelzusammensetzungen auf der Grundlage von Waschmitteln und Seifen enthaltend ein Gemisch aus Fettsäuren und neutralisiert mit einer geeigneten Base, dadurch gekennzeichnet, daß die Neutralisationsbase Natriumhydroxid ist und der Dalican-Titer des Fettsäuregemisches zwischen 10 ° C und 20 ° C mit dem Ausschluß von 20 ° C liegt.
2. Seifenzusammensetzung nach Anspruch 1, bei der die Flocken Abmessungen zwischen 1 und 10 mm Länge und eine Stärke in der Größenordnung von 0,3 mm aufweisen.
3. Seifenzusammensetzung nach Anspruch 1 und 2, zusätzlich mit einem Gehalt an löslichen Farbstoffen oder Pigmenten.
4. Zusammensetzung nach Anspruch 1 bis 3, enthaltend eine Natriumseife, die aus dem folgenden Fettsäuregemisch, in Gewichtsprozent, erhalten wird:

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C ₈	3,5
C ₁₀	4,0
C ₁₂	25,3
C ₁₄	10,3
C ₁₆ + C ₁₆₋	9,8
C ₁₈	2,3
C ₁₈₋ + C ₁₈ =	45,1

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10 gekennzeichnet durch einen Dalican-Titer von 16,0 ° C.

5. Verwendung einer Seifenzusammensetzung gemäß irgendeinem der vorhergehenden Ansprüche entweder allein für das Waschen von Haushaltswäsche oder als Nachadditiv zu hochschäumenden oder gesteuert schäumenden Waschmitteln für Waschmaschinen oder zum Waschen von harten Oberflächen.

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Revendications

1. Composition de savon transformable en paillettes qui sont aisément solubles dans l'eau froide, convenant spécialement pour l'utilisation dans des compositions d'agent de lavage basées sur des détergents et des savons contenant un mélange d'acides gras et neutralisés avec une base appropriée, caractérisé en ce que cette base de neutralisation est l'hydroxyde de sodium, et le titre Dalican du mélange d'acides gras est compris entre 10 ° C et 20 ° C, la valeur de 20 ° C étant exclue.

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2. Composition de savon selon la revendication 1, dans laquelle les paillettes ont des dimensions comprises entre 1 et 10 mm de longueur et une épaisseur de l'ordre de 0,3 mm.

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3. Composition de savon selon les revendications 1 et 2, contenant en outre des colorants ou des pigments solubles.

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4. Composition selon les revendications 1 à 3, contenant un savon à la soude obtenu à partir du mélange d'acides gras suivant, exprimé en pourcentage en masse :

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C ₈	3,5
C ₁₀	4,0
C ₁₂	25,3
C ₁₄	10,3
C ₁₆ + C ₁₆₋	9,8
C ₁₈	2,3
C ₁₈₋ + C ₁₈ =	45,1

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caractérisée par un titre Dalican de 16,0 ° C.

5. Utilisation d'une composition de savon selon l'une quelconque des revendications précédentes, soit seule, pour le lavage de linge de maison, soit à titre de post-additif pour des détergents à moussage élevé ou à moussage limité, pour des machines à laver ou pour le lavage de surfaces dures.

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