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NL-2280 GE Rijswijk (NL)(54) **Adsorption material, suitable in cleaning compositions and method for preparing, and use thereof.**

(57) An absorption material is described which is suitable for use in or in addition to a cleansing composition. The absorption material consists of at least two types of wood, at least one of the types of wood having a particle size of 0.1-0.2 mm. Because the types of wood have been subjected to a rubbing and/or pressing treatment, the absorptive power of the absorption material is increased, which has a beneficial effect on the use of the absorption material in or in addition to cleansing agents, preferably textile cleansing agents such as, for example, a carpet cleansing agent. In addition, a method is described for preparing the absorption material, as well as a method for using the absorption material in or in addition to a cleansing composition.

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The present invention relates to an absorption material, suitable for use in or with a cleansing composition, in particular a textile cleansing agent, at least comprising a finely dispersed wood material.

Such an absorption material is disclosed by the European Application EP-A-0 178 566. Herein a powdery carpet cleansing agent is described which mainly consists of cellulose powder, organic solvent and water. The absorption material, cellulose powder, here generally has a very small particle size and is prepared from beech wood.

The very small particle size of the cellulose powder according to EP-A-0 178 566 often makes it difficult to remove the powder. In addition, the absorptive effect of the cellulose powder is found to be not entirely satisfactory, so that there is still a need for an absorption material having a better absorptive effect.

The object of the present invention is to overcome the abovementioned drawbacks, to which end the invention is characterized in that the wood material originates from at least two types of wood and comprises sawdust, wood fibres or wood flour, and in that the wood material has been selected by screening to a mean particle size of 0.1-0.2 mm for at least one of the types of wood.

The use of such a wood material which comprises two types of wood, one of which has the abovementioned specific particle size, provides an absorption effect which is better than the absorption effect of known absorption agents. Furthermore, the particle size of the absorption material according to the invention is such that the particles can readily be removed after use.

Expediently, the wood material of at least one of the types of wood has a mean particle size of 0.15-0.20 mm.

Preferably, the wood material of at least one of the types of wood has a mean particle size of 0.18-0.19 mm.

Expediently, the mean particle size of the other type(s) of wood is 0.1 - 0.8 mm.

Preferably, the finely dispersed wood material originates from Norway spruce and pine wood.

These types of wood provide an absorption material which shows a very good absorptive effect with the abovementioned specific particle sizes of the types of wood.

In a very advantageous embodiment, the screened wood material has been subjected to a rubbing or pressing treatment.

By subjecting the wood material to the abovementioned treatment, the particles are, as is were, compressed so that in use they are able to swell to a greater extent and are able to absorb a relatively large amount of liquid. Rubbing or pressing therefore enhances the absorptive power of the particles.

The present invention also relates to a cleansing composition, in particular a textile cleansing agent, at least comprising a finely dispersed wood material, one or more surfactants and conventional additives. This cleansing composition is characterized in that the finely dispersed wood material is an absorption material as described above.

The surfactants or cleaning substances to be used may be of all kinds of nature, such as nonionic, anionic, sulphate-type and sulphonate-type surfactants which are known to those skilled in the art, as well as soap products. Preferably, use is made of readily biodegradable cleaning substances.

As a result of the absorption material being used in a cleansing composition, the surfactants and additives will exercise their normal cleaning effect and the absorption material will adsorb the liquid constituents present, together with the dirt.

In particular, the cleansing composition is mixed with an amount of water which is smaller than the amount of water necessary to cause maximum swelling.

As a result of the cleansing composition being mixed with an amount of water which is smaller than the amount of water which saturates the absorption material, the water may serve to dissolve the dirt which is present in the material to be cleaned, and the absorption material can, at the same time, exert an absorptive power.

In an expedient embodiment, 1 kg of cleansing composition is mixed with at most 2 kg of water.

This amount of water with respect to the cleansing composition causes almost maximal swelling.

Advantageously, 1 kg of cleansing composition is mixed with 1-1.5 kg of water.

This amount of water with respect to the cleansing composition causes swelling to the extent of the particles not yet being saturated and therefore still being able to exert an absorptive power to absorb a certain amount of liquid.

The present invention also relates to a method for preparing an absorption material, suitable for use in or with a cleansing composition according to the above description. This method is characterized in that in successive steps one or more types of wood are finely dispersed, the finely dispersed types of wood are screened and then the finely dispersed types of wood having the desired particle size are subjected to a rubbing or pressing treatment, respectively.

The fine dispersing of the types of wood generally takes place mechanically. The finely dispersed types of wood will be very different in particle size, so that a screening treatment is necessary in order to obtain a certain mean particle size. Once the particles having the desired dimensions have been obtained, they are subjected to a pressing or rubbing treatment, by which they are, as it were, compressed and attain a relatively high absorptive power when coming into contact with a liquid.

The rubbing or pressing treatment can be performed in many ways. A structure of counter-rotating plates which come into contact with one another and between which the wood material to be treated is fed appears to be particularly usable. By controlling the pressure and the speed of rotation of the plates, the degree of compression can be determined; heat may be supplied if desired. Those skilled in the art will, however, be aware of further possible treatment devices such as calenders, spindle presses etc.

The present invention also relates to a method for cleaning a carpet, in which a carpet cleansing agent is applied to a carpet and is removed after a preceding action time. This method is characterized in that before the carpet cleansing agent is removed the absorption material described above is applied to the carpet.

By applying a carpet cleansing agent, consisting of surfactants as well as conventional additives, to the carpet, the agent, possibly after moistening, will act on the dirt which is present in the carpet and dissolve or bind said dirt. After a certain action time, the absorption material can be applied. The absorption material absorbs the liquid constituents with the dirt possibly dissolved therein. Then the absorption material and the solid constituents of the cleansing agent can be removed.

In another embodiment, the absorption material is present in the cleansing composition and said carpet cleansing agent is applied to the carpet and then moistened with water.

In this case, the carpet cleansing agent consists of the previously described finely dispersed wood material, one or more surfactants and conventional additives. By applying said carpet cleansing agent to the carpet and then moistening it with water, the dirt will dissolve in, or at least be absorbed by, the surfactants and additives. The absorption material present, the finely dispersed wood material, is already present and can absorb the liquid constituents which contain the dirt.

In a subsequent embodiment, a carpet cleansing composition is used which has previously been moistened with water, after application thereof to the carpet an amount of absorption material as described above being added in addition. Because of the carpet cleansing agent being moistened prior to its application it is possible for the absorption material present in the carpet cleansing agent to be already largely saturated. The subsequent addition of an amount of absorption material, however provides sufficient absorptive power to absorb the liquid constituents, with the dirt dissolved therein.

The present invention will now be explained in more detail with reference to a few examples.

Example 1

Finely dispersed wood material, consisting of a mixture of Norway spruce and pine wood, which had been subjected to a rubbing and/or pressing treatment, was compared to finely dispersed wood material of corresponding type and particle size which, after screening, had not been subjected to any further treatment. To this end, the amounts of liquid the particles were able to absorb were compared. The results are shown in Table 1 below.

TABLE 1

Particles	Amount of liquid absorbed
1 kg of wood material, subjected to rubbing treatment	1.8 litres
1 kg of wood material, subjected to pressing treatment	2.1 litres
1 kg of wood material, subjected to both rubbing and pressing treatments	2.5 litres
1 kg of wood material not subjected to any treatment	0.6 litres

The table shows that wood material which has been subjected to both a rubbing and a pressing treatment is able to absorb the largest amount of liquid. Wood materials which have been subjected to either a rubbing or a pressing treatment absorb a slightly smaller amount of liquid, roughly the same in both cases. Wood material which has not been subjected to any treatment at all absorbs approximately 4 times less liquid than wood material which has been subjected to both treatments and roughly 3 times less than wood material which has been subjected to one of the two treatments.

Example 2

The absorptive power of wood particles was measured on the basis of their increase in volume when liquid was added to the particles. To this end, 1 kg of finely dispersed wood material according to the invention, which had been subjected to a rubbing and/or pressing treatment, was admixed with water until the particles absorbed no more water. The volume of the particles was now three times as large. The same experiment was carried out with particles which had not been subjected to a rubbing and/or pressing treatment. The volume of these particles increased only 1.66 times upon the addition of water.

Example 3

Absorption material according to the invention, consisting of a sawdust mixture of Norway spruce and pine wood, which has been subjected to a rubbing and pressing treatment and in which the Norway spruce particles have a mean particle size of 0.185 mm, was compared, in terms of the absorptive power, with absorption material, consisting of a different type of wood which likewise has been subjected to a rubbing and pressing treatment. The results are shown in Table 2 below.

TABLE 2

Wood material	Amount of liquid absorbed
Norway spruce/pine wood (1 kg)	2.5 litres
Beech wood (1 kg)	2 litres

The table shows that subjecting a type of wood to a rubbing and pressing treatment confers a very good absorptive effect to the wood. By using two types of wood, in particular Norway spruce and pine wood, the absorptive effect increases yet further, compared with the use of a single type of wood.

Claims

1. Absorption material, suitable for use in or with a cleansing composition, in particular a textile cleansing agent, at least comprising a finely dispersed wood material, **characterized in that** the wood material originates from at least two types of wood and comprises sawdust, wood fibres or wood meal, and in that the wood material has been selected by screening to a mean particle size of 0.1-0.2 mm for at least one of the types of wood.
2. Absorption material according to claim 1, **characterized in that** the wood material of at least one of the types of wood has a mean particle size of 0.15-0.20 mm.
3. Absorption material according to claim 2, **characterized in that** the wood material of at least one of the types of wood has a mean particle size of 0.18-0.19 mm.
4. Absorption material according to one or more of claims 1-3, **characterized in that** the mean particle size of the other type(s) of wood is 0.1 - 0.8 mm.
5. Absorption material according to one or more of claims 1-3, **characterized in that** the finely dispersed wood material originates from Norway spruce and pine wood.
6. Absorption material according to one or more of claims 1-4, **characterized in that** the screened wood material has been subjected to a rubbing and/or pressing operation.
7. Cleansing composition, in particular a textile cleansing agent, at least comprising a finely dispersed wood material, one or more surfactants and conventional additives, **characterized in that** the finely dispersed wood material is an absorption material according to one or more of claims 1-5.
8. Cleansing composition according to claim 7, **characterized in that** the cleansing composition is mixed with an amount of water which is smaller than the amount of water necessary to cause maximum swelling in the absence of free moisture.

9. Cleansing composition according to claim 8, **characterized in that** 1 kg of cleansing composition is mixed with at most 2 kg of water.

5 10. Cleansing composition according to claim 8 or 9, **characterized in that** 1 kg of cleansing composition is mixed with 1-1.5 kg of water.

10 11. Method for preparing an absorption material for a cleansing composition according to one or more of claims 1-5, **characterized in that** in successive steps one or more types of wood are finely dispersed, the finely dispersed types of wood are screened and then the finely dispersed types of wood having the desired particle size are subjected to a rubbing or pressing treatment, respectively.

15 12. Method for cleaning a carpet, in which a carpet cleansing agent is applied to a carpet and is removed after a preceding action time, **characterized in that** before the carpet cleansing agent is removed the absorption material according to claims 1-5 is applied to the carpet.

13. Method according to claim 11, **characterized in that** the carpet cleansing agent comprises a cleansing composition according to claim 7 which, after application to the carpet, is moistened with water.

20 14. Method according to claim 12, **characterized in that** the carpet cleansing agent is a cleansing composition according to one or more of claims 7-10 and, after application thereof to the carpet, there is additionally added an amount of absorption material according to one or more of claims 1-5.

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EUROPEAN SEARCH REPORT

Application Number
EP 94 20 2559

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.6)		
D,A	EP-A-0 178 566 (HENKEL) * claims; example 4 * ---	1,5, 7-10,12	C11D3/382 C11D7/44 C11D3/00		
A	DE-A-40 07 522 (VEB KUNSTSEIDENWERK) * claims * ---	1,7-10			
A	DE-A-15 19 186 (B.M. HULSH) * page 4, line 22 - line 31; claim 1 * ---	1-4,7			
A	PATENT ABSTRACTS OF JAPAN vol. 014, no. 453 (C-0764) 28 September 1990 & JP-A-02 180 635 (MITSUBISHI HEAVY IND LTD) 13 July 1990 * abstract * -----	1,6			
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)		
			C11D		
The present search report has been drawn up for all claims					
Place of search THE HAGUE		Date of completion of the search 14 December 1994	Examiner Grittern, A		
<table border="0"><tr><td>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</td><td>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</td></tr></table>				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
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