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(54) **SELF ADHESIVE HARD SURFACE CLEANING BLOCK**

SELBSTHAFTENDER REINIGUNGSBLOCK FÜR HARTE OBERFLÄCHEN

BLOC DE NETTOYAGE POUR SURFACE DURE AUTO-ADHÉSIF

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Description**Field of the invention**

5 [0001] The present invention relates to self adhesive hard surface cleaning blocks, and their use.

Background prior art

10 [0002] Hard surface cleaning blocks, such as lavatory blocks are known in the art and are typically configured to provide an automatic and sustained release of active ingredients to a liquid passing the block and/or the release of perfume to the air. For example, they may be suspended in a container under the rim of a lavatory bowl or urinal such that, during a flushing cycle, water from the cistern flows over the block thereby dissolving a portion of the block and releasing active ingredients of the block into the lavatory bowl. They may also be used inside a dish washing machine or even for the purpose of manual dishwashing.

15 [0003] Different means of applying blocks to a toilet have been disclosed in the art. Holders for solid detergent blocks are for instance disclosed in EP-B1-586 137. An alternative to the lavatory block is a liquid dispenser device, such as the device disclosed in GB2389123.

20 [0004] Both the liquid and the solid rim device require a holder connecting the lavatory block to the toilet rim. Present day consumers do not like the idea of having to touch and handle a device that has been in the toilet for weeks, when refilling or replacement is required. Due to environmental reasons, disposal of such devices is also not appreciated by the consumers.

25 [0005] Attempts have been made to solve this problem, by various means. One such alternative is a tablet for use in the water cistern. However, this kind of device cannot be used in built-in water cisterns that are becoming more and more popular. Another alternative is a pump device having a dispenser at the toilet rim and a separate bottle with cleaning liquid outside the toilet. This option has the disadvantage of a tube connecting the rim device to the bottle with cleaning liquid.

30 [0006] Yet another alternative can be found in EP-A1-1 086 199, where a self adhesive paste is disclosed that can be applied to the toilet surface for instance from a tube. However, the concept of a paste applied to the toilet surface, demands that the consumer performs a number of actions inside the toilet bowl, such as squeezing the tube and positioning the paste. On top of that, the consumer does not like the appearance of paste strip or blob.

[0007] A detergent block that can be easily positioned on a hard surface, remains to be desired.

[0008] It is an object of the present invention to provide a detergent block that can be easily positioned onto a hard surface; even a wet surface.

35 [0009] It is a further object of the invention to provide a detergent block that rinses away in a number of flushes, and does not leave behind any residue that cannot be easily removed with e.g. a toilet brush.

[0010] It is a further object of the invention not to compromise the possibilities to shape the detergent block in any appealing way.

[0011] We have surprisingly found that a hard surface cleaning block comprising an adhesive phase meets at least one of these objects.

Summary of the invention

[0012] Accordingly, the invention provides a self-adhesive hard surface cleaning block, comprising

- 45 - A detergent phase,
- An adhesive phase;

wherein the adhesive phase comprises a hydrophobic adhesive material comprising:

- 50 - 25-60% by weight of at least one hydrophobic compound, having an aggregate melting point of 30-60°C; and
- 5-75% by weight of a polymer,

as further specified in claim 1.

55 [0013] The invention further provides methods for providing hygiene to a toilet and methods for washing dishes with the hard surface cleaning block of the invention as further explained herein below.

[0014] These and other aspects, features and advantages will become apparent to those of ordinary skill in the art from a reading of the following detailed description and the appended claims. For the avoidance of doubt, any feature of one aspect of the present invention may be utilised in any other aspect of the invention, It is noted that the examples

given in the description below are intended to clarify the invention and are not intended to limit the invention to those examples per se. Similarly, all percentages are weight/weight percentages unless otherwise indicated. Numerical ranges expressed in the format "from x to y" are understood to include x and y. When for a specific feature multiple preferred ranges are described in the format "from x to y", it is understood that all ranges combining the different endpoints are also contemplated.

Detailed description of the invention

[0015] The hard surface cleaning block according to the invention comprises of an adhesive phase and a detergent phase.

[0016] The purpose of the adhesive phase is to apply the detergent phase to a hard surface.

[0017] The purpose of the detergent phase is to release detergent material and other components incorporated in the detergent phase to the hard surface for treatment thereof. This normally happens when the block comes in contact with water, e.g. by flushing of a toilet in application as a toilet block, or by wetting the block before use in dishwashing applications. The block is then partially dissolved upon each contact with water.

[0018] The composition of the block is preferably selected in such a way that there is a balanced level of surfactant and structurant to give proper foam and strength to the block.

[0019] One of the aspects of the invention is to develop an adhesive system which can easily be washed away by gentle rubbing of the surface on which the block is applied. Thus, on the one hand, it is preferred that the block is adhered sufficiently strong to take the pressure of passing water in a toilet, sink or shower, while on the other hand the adhesion is not so strong that it is difficult to remove the adhesive material from the surface after the product is used up.

Detergent phase

[0020] The detergent phase may be any kind of detergent phase. It may for instance be a solid, a semi solid or a gel. The detergent phase may be transparent, translucent, opaque, or not transparent at all. The detergent phase may be directly attached to the adhesive phase or indirectly, e.g. in a cage or with a separation layer between the phases.

[0021] The detergent phase comprises surfactants. Suitable surfactants are described in "Surface Active Agents" Vol. 1, by Schwartz & Perry, Interscience 1949, Vol. 2 by Schwartz, Perry & Berch, Interscience 1958, in the current edition of "McCutcheon's Emulsifiers and Detergents" published by Manufacturing Confectioners Company or in "Tenside-Taschenbuch", H. Stache, 2nd Edn., Carl Hauser Verlag, 1981.

Adhesive phase

[0022] The adhesive phase is suitable for attaching the detergent phase to the hard surface.

[0023] In general the self adhesive detergent blocks of the invention, are challenged by the flow of water, whether the block is adhered to a sink, dishwashing machine, or toilet. The force that water applies to a toilet block, with a frontal surface of 10cm², is 0.3 N at an average flush. Therefore, the force required to release the block from the surface is preferably more than said 0.3 N.

[0024] The adhesive phase comprises a hydrophobic adhesive material and optionally a hydrophilic adhesive material. The hydrophobic adhesive material is required for the invention to obtain suitable resistance to water. To obtain even stronger adhesion, the composition may further comprise a hydrophilic adhesive material.

[0025] The hydrophobic adhesive material comprises at least one of a hydrophobic compound with an aggregate melting point of 30 to 60 °C, preferably 45 to 55 °C and a polymer. The hydrophobic compound is present in the hydrophobic adhesive material in a concentration of 25-60%, preferably 35-55%, more preferably 40-50% by weight based on the hydrophobic adhesive material. The adhesive phase further comprises a polymer in a concentration of 5-75%, preferably 20-70%, more preferably 40-65%, most preferably 50-60% by weight based on the hydrophobic adhesive material.

[0026] The hydrophobic compound is selected from natural or mineral oils, petrolatum, thickened oils, partially hydrogenated oils or fats, silicon oils and derivatives, thickened non polar solvent or low HLB non ionic surfactant and combinations thereof. Low HLB as defined herein means preferably less than 12, more preferably less than 10.

[0027] The polymer is selected from natural and synthetic cellulosic polymers, such as carboxymethyl cellulose, polyacrylates, polyvinyl pyrrolidone, maleic/vinyl copolymers, silicon based polymers and mixtures thereof.

[0028] The polymers in the hydrophobic adhesive material are preferably water insoluble and preferably swell in contact with water.

[0029] The adhesive phase optionally comprises a hydrophilic adhesive material. To prevent instant dissolution of the hydrophilic adhesive phase upon contact with water, the hydrophilic adhesive material, if present, is preferably positioned in such a way that it is connected to both the hard surface and the detergent phase or an intermediate phase between

the detergent phase and the adhesive phase, while it is surrounded by the hydrophobic adhesive material on all other sides. Even though one would expect the hydrophilic adhesive material to be quickly dissolved by water, it is postulated, without wishing to be bound by a theory, that it is possible to obtain said further improved adhesion by the combination of hydrophobic adhesive material surrounding hydrophilic adhesive material, because the hydrophobic adhesive material stops the penetration of water while the hydrophilic adhesion material further improves the adhesive strength to the block.

[0030] The hydrophilic adhesive phase is preferably selected from starch based adhesive materials, hydrophilic polymers, fatty acid salts and/or mixtures thereof. One example of such a hydrophilic adhesive is a mixture comprising PVP polymer and sodium stearate.

[0031] The hydrophilic adhesive material is present in an amount of 0-60% by weight of the total adhesive phase. Preferably the ratio of hydrophobic:hydrophilic adhesive material is between 10:1 and 1:10, more preferably, between 5:1 and 1:5, still more preferably 4:1 and 1:2, most preferably between 2:1 and 1:1.

[0032] Either one or both of the adhesive materials may further comprise a suitable rheology modifier. Preferably, the rheology modifier is present in a concentration of 0-10%. Polymeric thickeners are an example of suitable rheology modifiers for fumed silica or silica oil; hydrogenated triglycerides or fatty acids are an example of suitable rheology modifiers for fatty acids and triglycerides; and an example of a suitable rheology modifier for anhydrous, hydrophobic oils is 12-Hydroxy stearic acid.

Optional components

[0033] The hard surface cleaning block according to the invention may further comprise builders, dyes, perfume, hygiene agents, antioxidants, radical scavengers, chelating agents, hydrotropes, anticorrosion agents, opacifiers, brighteners, preservatives and/or abrasives.

[0034] Each of the optional components, if present, may be included in the detergent phase, in the adhesive phase or in both phases

Intermediate phase

[0035] For some purposes, it may be beneficial to separate the adhesive phase and the detergent phase by means of an intermediate phase. Such an intermediate phase may for instance be present to prevent interaction between phases or to improve the adhesion between the phases. The intermediate phase is preferably a water resistant film. The intermediate layer, when present, acts as a protective layer that does not allow water to penetrate between the adhesive phase and the detergent phase, thus providing additional protection to the adhesive phase.

[0036] It has been observed the presence of a water resistant film between the detergent phase and the adhesive phase further improves the adhesion of the block to the hard surface during the desired number of flushes and/or rinses.

[0037] The intermediate phase may be a polymer film, a solid barrier, or any other known barrier layer. Suitable polymer films are described in co-pending applications WO-02/090475 or WO-03/046119. Suitable non-polymer based barrier layers may be found in e.g. EP-B-1 491 622, EP-B-1 522 575 or EP-B-1 705 241. The thickness of the intermediate layer is at least 50 microns, an preferably less than 500 microns. The most preferred range is 100-200 microns. If the thickness is less than about 50 microns, the strength of the coating is not sufficient to protect the glue. More than 500 micron is uselessly expensive.

[0038] Alternatively, the detergent phase may also be surrounded by a casing, to which the adhesive phase is attached. Such casing may be similar to the commonly used types in most housing cages for solid toilet blocks.

Block size and shape

[0039] The shape of the hard surface cleaning block may affect the adhesive properties of the block. It is preferred to have hydrodynamic shapes of the block, which help in better control of the erosion properties of the block which in turn helps in better adhesion of the block to the surface. Thus, round, smooth shapes are preferred over square/rectangular blocks with sharp edges, due to superior hydrodynamic behaviour.

[0040] The block life is directly related to the formulation and the size of the block. A normal size toilet block is between 30 and 50 grams, usually about 40 grams. This sort of block typically lasts for at least 100 flushes, preferably more than 200 flushes. The blocks preferably last for up to about 300 flushes.

[0041] The required amount of the adhesive phase is determined by the surface of the detergent block. To form a suitable adhesive phase layer, the amount of adhesive phase material is preferably at least 0.01 g/cm², more preferably at least 0.05 g/cm², still more preferably at least 0.1 g/cm², but preferably not more than 1.5 g/cm², more preferably not more than 0.3 g/cm², still more preferably not more than 0.2 g/cm².

Methods for use

[0042] The hard surface cleaning block may be used for cleaning hard surfaces of any kind. The most suitable surfaces are those that are regularly contacted with water, such as toilet surfaces, kitchen sinks and showers.

[0043] Thus the present invention provides a method for providing hygiene in a toilet comprising the step of applying the block according to the invention to the toilet surface. When the detergent phase is spent, the remains of the adhesive phase are preferably brushed or flushed away.

[0044] The present invention further provides a method for washing dishes comprising the steps of applying the block according to the invention to a kitchen sink and filling the sink with water. Thereby the water comes in contact with the block and releases part of the detergent phase to the water.

[0045] The present invention further provides a method for washing dishes, the method comprising the step of applying the block according to the invention to the inside of a dishwashing machine.

[0046] The adhesive layer of the present invention preferably adheres the detergent phase to a hard surface hard surface directly. However, it is not excluded from the scope of the invention that the detergent phase is held by a cage and the cage be adhered to the surface.

Examples:

[0047] The invention is now illustrated by means of the following non limiting examples.

Example 1

[0048] Four examples of compositions for the adhesive phase (Adh 1-4) are given in Table 1 below.

Table 1: Adhesive phase composition in %

Ingredients	Adh 1	Adh 2	Adh 3	Adh 4
Petroleum jelly	24.1	40	35	
Vaseline (mineral) oil	19.6		5	
Carbopol 974	9.8			
Sunflower Seed Oil				40
12-Hydroxy Stearic Acid				5
Fumed Silica				5
PVP	1.9			
CMC	9.8	30	40	25
Maleic copolymer	34.8	30	20	30

[0049] The adhesive phases of the example are made by the following process.

[0050] Petrolatum and Vaseline® are melted in a mixer by heating it at about 60°C (sunflower seed oil was suitable for processing as is). Polymers and other ingredients are added in the clear melt and mixed slowly to avoid any aeration. If aeration takes place during the mixing then it is necessary to apply vacuum to de-aerate the mix before cooling. The de-aerated mass can be poured in an application tank from where it is directly pumped on the surface of the product. Colour and fragrance components may be added to the adhesive phase to give better performance of the product.

[0051] Four examples of detergent phase compositions (Det 1-4) are given in Table 2 below.

Table 2: Detergent phase composition in %

Ingredients	Det 1	Det 2	Det 3	Det 4
Coco soap	28	15	15	24
Sodium Stearate	25	10		16
Sodium Oleate	29			
Sodium Cocoyl Isethionate		35	35	

(continued)

Ingredients	Det 1	Det 2	Det 3	Det 4
Alfa Olefine sulfonate	3			
Stearic Acid		25	25	
12-Hydroxy Stearic acid			10	
Sucrose				
Glycerin		5	5	10
Propylene Glycol		5	5	15
Water	15	5	5	20

[0052] The detergent phases of the example are made by the following process.

[0053] The detergent block can be made by conventional extrusion or melt cast processes, depending upon the type of formulation. In extrusion process the ingredients are mixed together and then extruded in the form of billets. These billets are then cut in desired size of the blocks and the adhesive phase is applied. In melt cast process the ingredients are mixed and melted by heating at elevated temperature. Additional ingredients, such as colour and fragrance components may be added to the detergent phase in this stage to give better performance of the product. The homogeneous mass is then poured in molds and cooled to room temperature to solidify. Once the block is solidified, the adhesive phase is applied to the block. The amount of adhesive phase used is about 100 mg/cm².

[0054] When applied to a toilet surface, any combination of adhesive phase (100 mg/cm², from Table 1) and detergent phase (40 grams, from Table 1) was found remain firmly attached to the toilet bowl for at least 100 flushes.

[0055] After the block is used up during the dissolution process, the thin layer of the adhesive phase is removed by gentle rubbing of the surface using a toilet brush. There is no residue left on the surface after brushing.

Example 2

[0056] In example 2 the detergent phases and adhesive phases of Tables 1 and 2 have been used, but now separated from each other by an intermediate layer.

[0057] The intermediate layer in this example consisted of epoxy acrylate based uncured material as disclosed in WO03/046119 with a layer thickness of about 100 microns.

[0058] About 100 mg/cm² adhesive phase was applied.

[0059] When applied to a toilet surface, any combination of adhesive phase (from Table 1), intermediate phase and detergent phase (from Table 2) was found remain firmly attached to the toilet bowl for their whole life of about 200 flushes.

[0060] After the block is used up during the dissolution process, the thin layer of the adhesive phase is removed by gentle rubbing of the surface using a toilet brush. There is no residue left on the surface after brushing.

Example 3

[0061] Determination of Adhesive Force is done with a Texture Analyser, rigged for the determination of horizontal force. In this experiment the a Lloyd Instruments LRX Plus texture analyser was used. However, similar texture analysers are available from for instance Instron.

[0062] In these examples, three adhesive phase compositions according to the invention are compared.

	Ingredients	C	B	A
		[wt %]	[wt %]	[wt %]
Hydrophobic compound	Petrolatum	24.10	18.18	9.00
	Mineral Oil	19.60	31.81	41.00
Polymers	Carbopol 974	9.80	11.00	11.00
	Polyvinyl pyrrolidone	1.90	5.00	5.00
	Carboxy Methyl Cellulose	9.80		
	Gantrez MS955	34.80	34.00	34.00

[0063] The texture analyser; rigged for measuring horizontal force, was used to determine the adhesive forces of different adhesive phase systems. 2 g of adhesive material was applied on the (flat) bottom surface (15 cm²) of a detergent block. The surface with the adhesive layer was pressed on a ceramic surface attached to the texture analyser. The block is moved horizontally, parallel to the ceramic surface, and the data for the applied force (N) is recorded. The force (in N) that is required to move the detergent block is given in the table below.

[0064] The viscosity of the adhesive phase was measured with a Brookfield (RVT), using a TD-20.4 mm spindle, at a temperature TR of 25°C, at a rotation speed of 5 rpm. The unit for viscosity is in mPa·s (cps).

[0065] All experiments were carried out in duplicate. The mean value is given in the table below.

Ex	Time (s)	Mean Vertical Force (N)	Glue Viscosity
A	3.10	2.15	100,000 mPa·s (cps)
B	3.95	2.60	300,000 mPa·s (cps)
C	7.70	3.95	800,000 mPa·s (cps)

[0066] The time required to move the block is also given to be able to calculate the effort (i.e. force x time = effort).

[0067] A detergent block, adhered to the bowl of a toilet, is challenged by the flow of water at every flush. The force that the water applies to such a toilet block, with a frontal surface of 10cm², is 0.3 N.

[0068] It can be seen in the table above that the adhesive phase compositions according to the invention, applied on the bottom of such a toilet block (15 cm²) are suitable for use under such circumstances, as the adhesion force is much higher than the force water when flushing the toilet.

Claims

1. A self-adhesive hard surface cleaning block, comprising

a. A detergent phase.

b. An adhesive phase;

wherein the adhesive phase comprises a hydrophobic adhesive material comprising:

i. 25-60% by weight of at least one hydrophobic compound, selected from natural or mineral oils, petrolatum, thickened oils, partially hydrogenated oils or fats, silicon oils and derivatives, thickened non polar solvent or low HLB non ionic surfactant and combinations thereof, having an aggregate melting point of 30-60°C ; and

ii. 5-75% by weight of a polymer, selected from natural and synthetic cellulosic polymers, polyacrylates, polyvinyl pyrrolidone, maleic/vinyl copolymers, silicon based polymers and mixtures thereof, and

wherein the adhesive phase is suitable for attaching the detergent phase to a hard surface.

2. A block according to claim 1, wherein the block is a toilet block with a frontal surface of 10cm², wherein the force required to release the block from the surface is more than 0.3N.

3. A block according to any one of claims 1-2, wherein the adhesive phase further comprises a hydrophilic adhesive material.

4. A block according to claim 3, wherein the hydrophilic adhesive material is selected from starch bases adhesives and/or adhesive hydrophilic polymers and/or combinations thereof.

5. A block according to any one of claims 1 - 4, wherein the hydrophobic adhesive material further comprises a rheology modifier.

6. A block according to any one of claims 1 to 4, wherein the hydrophilic adhesive material further comprises a rheology modifier.

7. A block according to any one of claims 1 - 6, wherein the adhesive phase further comprises surfactant.

8. A block according to any one of claims 1-7, further comprising an intermediate phase between the detergent phase and the adhesive phase.
9. Method for providing hygiene in a toilet comprising the step of applying the block according to claims 1 - 8 to the toilet surface.
10. Method according to claim 9, wherein the remains of the adhesive phase are easily brushed or flushed away when the detergent phase is spent.
11. Method for washing dishes comprising the steps of applying the block according to claims 1 - 8 to a kitchen sink and filling the sink with water.
12. Method for washing dishes comprising the step of applying the block according to claims 1 - 8 to the inside of a dishwashing machine.

Patentansprüche

1. Selbsthaftender Reinigungsblock für harte Oberflächen, umfassend

- a. eine Reinigungsmittelphase,
- b. eine Klebstoffphase;

wobei die Klebstoffphase ein hydrophobes Klebstoffmaterial umfasst, umfassend:

- i. 25 bis 60 Gew.-% wenigstens einer hydrophoben Verbindung, ausgewählt aus natürlichen oder Mineralölen, Petrolatum, verdickten Ölen, teilweise hydrierten Ölen oder Fetten, Siliciumölen und -derivaten, verdicktem nichtpolarem Lösungsmittel oder nicht-ionischem Tensid mit niedrigem HLB und Kombinationen davon, die einen Aggregatschmelzpunkt von 30 bis 60 °C hat, und
- ii. 5 bis 75 Gew.-% eines Polymers, ausgewählt aus natürlichen und synthetischen Cellulosepolymeren, Polyacrylaten, Polyvinylpyrrolidon, Malein/VinylCopolymeren, Polymeren auf Siliciumbasis und Gemischen davon, und

wobei die Klebstoffphase zum Befestigen der Reinigungsmittelphase an einer harten Oberfläche geeignet ist.

2. Block gemäß Anspruch 1, wobei der Block ein Toilettenblock mit einer vorderen Oberfläche von 10 cm² ist, wobei die Kraft, die erforderlich ist, um den Block von der Oberfläche abzulösen, mehr als 0,3 N beträgt.
3. Block gemäß einem der Ansprüche 1 bis 2, wobei die Klebstoffphase außerdem ein hydrophiles Klebstoffmaterial umfasst.
4. Block gemäß Anspruch 3, wobei das hydrophile Klebstoffmaterial aus Klebstoffen auf Stärkebasis und/oder hydrophilen Klebstoffpolymeren und/oder Kombinationen davon ausgewählt ist.
5. Block gemäß einem der Ansprüche 1 bis 4, wobei das hydrophobe Klebstoffmaterial außerdem ein Rheologie-Modifizierungsmittel umfasst.
6. Block gemäß einem der Ansprüche 1 bis 4, wobei das hydrophile Klebstoffmaterial außerdem ein Rheologie-Modifizierungsmittel umfasst.
7. Block gemäß einem der Ansprüche 1 bis 6, wobei die Klebstoffphase außerdem ein Tensid umfasst.
8. Block gemäß einem der Ansprüche 1 bis 7, der außerdem eine Zwischenphase zwischen der Reinigungsmittelphase und der Klebstoffphase umfasst.
9. Verfahren zur Bereitstellung von Hygiene in einer Toilette, das den Schritt des Anbringens des Blocks gemäß den Ansprüchen 1 bis 8 an der Toilettenoberfläche umfasst.
10. Verfahren gemäß Anspruch 9, wobei die Reste der Klebstoffphase einfach weggebürstet oder weggespült werden,

wenn die Reinigungsmittelphase verbraucht ist.

11. Verfahren zum Spülen von Geschirr, das die Schritte des Anbringens des Blocks gemäß den Ansprüchen 1 bis 8 an einem Küchenspülbecken und Füllen des Spülbeckens mit Wasser umfasst.
12. Verfahren zum Spülen von Geschirr, das den Schritt des Anbringens des Blocks gemäß den Ansprüchen 1 bis 8 an der Innenseite einer Spülmaschine umfasst.

Revendications

1. Bloc de nettoyage auto-adhésif pour surface dure, comprenant

- a. une phase détergente,

- b. une phase adhésive ;

- dans lequel la phase adhésive comprend une matière adhésive hydrophobe comprenant :

- i. 25 à 60 % en poids d'au moins un composé hydrophobe, choisi parmi les huiles naturelles ou minérales, le pétrolatum, les huiles épaissies, les huiles ou graisses partiellement hydrogénées, les huiles et dérivés de silicium, un solvant non polaire épaissi ou un tensioactif non ionique à HLB faible et les combinaisons de ceux-ci, ayant un point de fusion de l'agrégat de 30 à 60 °C ; et

- ii. 5 à 75 % en poids d'un polymère, choisi parmi les polymères cellulotiques naturels et synthétiques, les polyacrylates, le polyvinyl pyrrolidone, les copolymères maléiques/vinyl, les polymères à base de silicium et les mélanges de ceux-ci, et

- dans lequel la phase adhésive est appropriée pour fixer la phase détergente à une surface dure.

2. Bloc selon la revendication 1, le bloc étant un bloc pour toilette avec une surface frontale de 10 cm², la force nécessaire pour libérer le bloc de la surface étant supérieure à 0,3 N.

3. Bloc selon l'une quelconque des revendications 1 à 2, dans lequel la phase adhésive comprend en outre une matière adhésive hydrophile.

4. Bloc selon la revendication 3, dans lequel la matière adhésive hydrophile est choisie parmi les adhésifs à base d'amidon et/ou les polymères hydrophiles adhésifs et/ou des combinaisons de ceux-ci.

5. Bloc selon l'une quelconque des revendications 1 à 4, dans lequel la matière adhésive hydrophobe comprend en outre un modificateur rhéologique.

6. Bloc selon l'une quelconque des revendications 1 à 4, dans lequel la matière adhésive hydrophile comprend en outre un modificateur rhéologique.

7. Bloc selon l'une quelconque des revendications 1 à 6, dans lequel la phase adhésive comprend en outre un tensioactif.

8. Bloc selon l'une quelconque des revendications 1 à 7, comprenant en outre une phase intermédiaire entre la phase détergente et la phase adhésive.

9. Méthode pour assurer l'hygiène dans les toilettes comprenant l'étape consistant à appliquer le bloc selon les revendications 1 à 8 sur la surface desdites toilettes.

10. Méthode selon la revendication 9, dans laquelle les restes de la phase adhésive sont facilement brossés ou éliminés lorsque la phase détergente est passée.

11. Méthode pour laver la vaisselle comprenant les étapes consistant à appliquer le bloc selon les revendications 1 à 8 sur un évier de cuisine et à remplir l'évier avec de l'eau.

12. Méthode pour laver la vaisselle comprenant l'étape consistant à appliquer le bloc selon les revendications 1 à 8 à

l'intérieur d'une machine à laver la vaisselle.

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REFERENCES CITED IN THE DESCRIPTION

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