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(54) **Washing process**

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Procédé de lavage

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Description

[0001] This invention relates to a washing process.

[0002] It is known to wash fabrics in washing machines introducing perforated containers containing materials such as detergents, bleaches and conditioners into the washing machine. The introduction in this way of bleach or other powders is disclosed in US patent 3,400,808, of aqueous solutions of surface active synthetic anionic non ionic or cationic fabric conditioning agents is disclosed in US patent 4,014,105 and of detergent formulations is disclosed in UK patent specifications 2,157,718 and 2,157,717 and European patent specification 248,341.

[0003] European patent application 216,415 discloses a device for use in washing laundry by machine which diffuses a liquid detergent into a washing machine. It has the form of a hollow body with an aperture equipped with means of dispensing and diffusing the product, having a shaft provided with orifices and extending inside the body. It also possesses means of fastening it removably to a receptacle or to the stopper of the latter. The said shaft extends substantially up to the wall of the body opposite the said aperture, so that, particularly when the device is fitted on the receptacle, the shaft is capable of functioning at the same time as a support to keep the body intact.

[0004] European patent specification 269,543 discloses a container formed by a rounded transparent or translucent hollow body closed by a cover with an opening for charging and discharging the container. It can be charged with a liquid detergent and used in a washing machine for washing clothes.

[0005] Whereas there is a benefit in the slow release of bleaches in order to avoid undue concentrations it is a disadvantage with detergents in that the early part of the washing process may be carried out with insufficient detergent available. The problem is more serious with comparatively viscous liquid detergents, whereas liquid detergents of low viscosity may leak through the holes in a container quite quickly. Viscous liquid detergents may however be difficult to introduce into washing machines by certain conventional washing machine mechanisms. and a simple method of introduction which avoids slow release and renders unnecessary the use of complex plastics containers is desirable.

[0006] This invention comprises a process of washing fabrics in a washing machine which comprises introducing a quantity of liquid detergent (2), having a viscosity of from more than 0.3 to 20 newton seconds per square metre 6300 to 20,000 centipois) as measured at a low shear rate at 25°C into an open topped vessel (5) in which the open upper aperture of the vessel (5) is 20 to 40% of the area of the remaining external surface area of the vessel (5) through the open top, placing the vessel (5) containing said liquid detergent (2) and fabrics to be washed in said washing machine, carrying out a washing process in the presence of the said vessel (5) without

either wholly or partly closing the open top or securing the vessel to any part of the washing machine, and removing said vessel (5) from the washing machine after the washing process. The reference numerals relate to the accompanying drawing and are not to be construed as limiting the claims.

[0007] The open topped vessel is suitably a bowl or cup, for example a cap of a bottle of the detergent. It should be made of a material for example a plastics material, which will not break in the washing process.

[0008] By leaving the vessel with the fabric during the washing process the detergent is dissolved substantially completely in the wash water.

[0009] The vessel may be of any convenient shape. It preferably has no projections which would catch fabrics and suitably has a flattened or upwardly dished base on which it can stand during introduction of the liquid detergent. Suitably the open upper aperture of the vessel is preferably 25 to 35% of the area of the remaining external surface area of the vessel. It is suitably calibrated to show suitable quantities of detergent for use.

[0010] The process is suitable for liquid detergents of viscosity more than 0.3 newton seconds per square meter (300 centipoise) preferably more than 1 newton second per square meter (1000 centipoise) and more preferably more than 1.5 newton seconds per square meter (1500 centipoise) and suitably at most 20 newton seconds per square meter (20,000 centipoise) and preferably at most 10 newton seconds per square meter (10,000 centipoise), for example 2 - 8 newton seconds per square meter (2000 to 8000 centipoise) as measured at a low rate of shear for example using a Brookfield RVTD viscometer using a No 4 spindle at 10 revolutions per minute at 20 to 25°C.

[0011] The invention also comprises a package of liquid detergent for laundry use which comprises a bottle (1) containing a liquid detergent (2) of viscosity of 1.5 to 10 newton seconds per square meter (1,500 to 10,000 centipoise) as measured at low shear at 25°C, means to close the bottle (4) and in addition to the said means a vessel (5) which has no external projections, is made of a breakage resistant material and is calibrated (7, 8) to indicate suitable quantities of detergent for use in a washing machine, detachably secured to the bottle (1) and constituting whilst secured to the bottle (1) a secondary means to close the bottle (1) and which on removal from the bottle (1) has an open top, the open upper aperture of the vessel (5) being 20 to 40% of the area of the remaining surface area of the vessel.

[0012] One form of the invention will now be described with reference to the accompanying drawings which shows a bottle 1 in cross section which holds a liquid detergent 2 and which is formed with a nozzle 3 closed with a hinged flap 4. A vessel 5 serves as an outer protective cap to the bottle to which it is screwed by screw threads 6. Vessel 5 is calibrated by marks 7 and 8 to show appropriate measures of liquid detergent.

[0013] In use, the vessel 5 is unscrewed and prefer-

ably placed on its base, the flap 4 is lifted and the vessel 5 filled to the desired mark. Flap 4 is then closed and vessel 5 placed in a front loading washing machine with the fabrics to be washed and the washing process carried out.

[0014] After the washing process vessel 5 can be recovered and replaced on the bottle.

Claims

1. A process of washing fabrics in a washing machine which comprises introducing a quantity of liquid detergent, having a viscosity of from more than 0.3 to 20 newton seconds per square metre (300 to 20,000 centipoise) as measured at a low shear rate at 25°C, into an open topped vessel in which the open upper aperture of the vessel is 20 to 40% of the area of the remaining external surface area of the vessel through the open top, placing the vessel containing said liquid detergent and fabrics to be washed in said washing machine, carrying out a washing process in the presence of the said vessel without either wholly or partly closing the open top or securing the vessel to any part of the washing machine, and removing said vessel from the washing machine after the washing process.
2. A process as claimed in claim 1 in which the vessel is formed with a base on which it can stand during introduction of the liquid detergent.
3. A process as claimed in any preceding claim in which the vessel is calibrated internally to show a suitable quantity of detergent for use and is filled to said calibration.
4. A process as claimed in any preceding claim in which the liquid detergent has a viscosity of 1.5 to 10 newton seconds per square metre (1,500 to 10,000 centipoise) as measured at a low shear rate at 25°C.
5. A process as claimed in any preceding claim in which the vessel is a cup without external projections which is made of a breakage-resistant material.
6. A package of liquid detergent for laundry use which comprises a bottle containing a liquid detergent of viscosity of 1.5 to 10 newton seconds per square metre (1,500 to 10,000 centipoise) as measured at a low shear rate at 25°C, means to close the bottle and in addition to the said means a vessel which has no external projections, is made of a breakage resistant material and is calibrated to indicate suitable quantities of detergent for use in a washing machine, detachably secured to the bottle and consti-

tuting whilst secured to the bottle, a secondary means to close the bottle and which on removal from the bottle has an open top, the open upper aperture of the vessel being 20 to 40% of the area of the remaining surface area of the vessel.

Patentansprüche

1. Verfahren zum Waschen von Stoffen in einer Waschmaschine, umfassend das Einführen einer Menge an flüssigem Reinigungsmittel mit einer Viskosität von mehr als 0,3 bis 20 Newtonsekunden pro Quadratmeter (300 bis 20000 Centipoise), gemessen bei einer geringen Scherrate bei 25 °C, in einen offenen Behälter durch dessen Öffnung, wobei die offene obere Mündung des Behälters 20 bis 40% der Fläche der restlichen Außenoberfläche des Behälters ausmacht, das Einbringen des das flüssige Reinigungsmittel enthaltenden Behälters und der zu waschenden Stoffe in die Waschmaschine, das Durchführen eines Waschverfahrens in Gegenwart des Behälters, ohne daß die Öffnung vollständig oder teilweise geschlossen wird oder der Behälter an irgendeinen Teil der Waschmaschine befestigt wird, und das Entfernen des Behälters aus der Waschmaschine nach dem Waschverfahren.
2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß der Behälter mit einem Boden geformt wird, auf dem der Behälter während des Einführens des flüssigen Reinigungsmittels stehen kann.
3. Verfahren nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß der Behälter innen geeicht ist, um eine geeignete Menge des Reinigungsmittels zur Anwendung anzuzeigen, und daß der Behälter bis zur Eichung gefüllt wird.
4. Verfahren nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß das flüssige Reinigungsmittel eine Viskosität von 1,5 bis 10 Newtonsekunden pro Quadratmeter (1500 bis 10000 Centipoise), gemessen bei einer geringen Scherrate bei 25 °C, aufweist.
5. Verfahren nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß der Behälter ein Becher ohne äußerliche Vorsprünge ist, welcher aus einem bruchresistenten Material hergestellt ist.
6. Flüssigreinigerpackung für den Wäschegebrauch, umfassend eine Flasche, welche ein flüssiges Reinigungsmittel einer Viskosität von 1,5 bis 10 Newtonsekunden pro Quadratmeter (1500 bis 10000 Centipoise), gemessen bei einer geringen Scherrate bei 25 °C, enthält, eine Einrichtung zum Verschließen der Flasche und zusätzlich zu dieser Ein-

richtung einen Behälter, welcher keine äußeren Vorsprünge aufweist, aus einem bruchresistenten Material hergestellt ist und geeicht ist, um geeignete Mengen Reinigungsmittel zum Gebrauch in einer Waschmaschine anzuzeigen, wobei der Behälter abnehmbar an der Flasche befestigt ist und gleichzeitig mit der Befestigung an der Flasche, eine zweite Einrichtung zum Verschließen der Flasche ausbildet, und welcher nach Entfernung von der Flasche eine Öffnung aufweist, wobei die offene oberer Mündung des Behälters 20 bis 40% der Fläche der restlichen Oberfläche des Behälters ausmacht.

Revendications

1. Procédé de lavage d'étoffes dans une machine à laver qui consiste à introduire une quantité de détergent liquide ayant une viscosité de plus de 0,3 à 20 newtons-secondes par mètre carré (300 à 20 000 centipoises) telle que mesurée à une faible vitesse de cisaillement à 25°C, dans un récipient ouvert à sa partie supérieure dans lequel l'ouverture supérieure dégagée du récipient constitue de 20 à 40 % de l'aire de la surface extérieure restante du récipient passant par la partie supérieure ouverte, à placer le récipient contenant ledit détergent liquide et des étoffes à laver dans ladite machine à laver, à effectuer un processus de lavage en présence dudit récipient sans fermer totalement ou partiellement la partie supérieure ouverte ou fixer le récipient à une partie quelconque de la machine à laver, et à enlever ledit récipient de la machine à laver après le processus de lavage.
2. Procédé selon la revendication 1, dans lequel le récipient est formé de façon à comporter une base sur laquelle il peut être posé debout pendant l'introduction du détergent liquide.
3. Procédé selon l'une quelconque des revendications précédentes, dans lequel le récipient est gradué intérieurement afin de présenter une quantité convenable de détergent à utiliser et est rempli jusqu'à ladite graduation.
4. Procédé selon l'une quelconque des revendications précédentes, dans lequel le détergent liquide a une viscosité de 1,5 à 10 newtons-secondes par mètre carré (1 500 à 10 000 centipoises), telle que mesurée à une faible vitesse de cisaillement à 25°C.
5. Procédé selon l'une quelconque des revendications précédentes, dans lequel le récipient est une coupelle sans saillies extérieures, qui est formée d'une matière incassable.
6. Emballage pour détergent liquide à utilisation en

blanchisserie, qui comporte une bouteille contenant un détergent liquide d'une viscosité de 1,5 à 10 newtons-secondes par mètre carré (1500 à 10 000 centipoises) telle que mesurée à une faible vitesse de cisaillement à 25°C, un moyen destiné à fermer la bouteille et, en plus dudit moyen, un récipient qui ne comporte aucune saillie extérieure, est formé d'une matière incassable et est gradué pour indiquer des quantités appropriées de détergent à utiliser dans une machine à laver, fixé de façon amovible à la bouteille et constituant, pendant qu'il est fixé à la bouteille, un moyen secondaire pour fermer la bouteille et qui, en étant retiré de la bouteille, présente une partie supérieure ouverte, l'ouverture supérieure dégagée du récipient étant de 20 à 40 % de l'aire de la surface restante du récipient.

