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(71) Applicant(s)
Jeyes Group PLC

(Incorporated in the United Kingdom)

Brunel Way, THETFORD, Norfolk, IP24 1HA, United Kingdom

(72) Inventor(s)
Russell Norman
Brian Murie Wilson
John Marshall

(74) Agent and/or Address for Service
Marks & Clerk
57-60 Lincoln's Inn Fields, LONDON, WC2A 3LS, United Kingdom

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(56) Documents Cited
EP 0526437 A1 **EP 0462643 A1** **EP 0206725 A2**
WO 94/12612 A1 **WO 92/18605 A1** **US 4269723 A**

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(54) Lavatory cleansing

(57) A solid lavatory cleansing composition comprises:
(i) a halogen-release agent:
(ii) a non-oxidisable, substantially anhydrous surfactant component; and
(iii) a non-oxidisable solubility retardant agent.

The halogen-release agent may be halogenated dimethyl-hydantoin derivatives, isocyanuric acid or teraglycoluril.

The surface active agents are anionic especially sodium alkyl sulphates, alkane sulphonates or olefin sulphonates.

The solubility retardant may be a wax, fatty acid ester or mineral oil.

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LAVATORY CLEANSING

This invention is concerned with improvements in and relating to lavatory cleansing.

In particular, the present invention is concerned with solid lavatory cleansing compositions intended to be brought into contact with the flush water of a lavatory or urinal whereby a part of the composition is dissolved in the flush water to release active ingredients thereto for cleaning the lavatory or urinal. The compositions are immersed in the water cistern of a lavatory or urinal, either as free-standing blocks or may be placed or contained in a dispensing device, to be sited in a lavatory cistern. The invention is also concerned with lavatory cleansing compositions for intermittent contact with the flush water of a lavatory or urinal, e.g., a so-called "rim block" for placing in a container to be held under the rim of a lavatory.

A desirable component of such blocks is a halogen release agent, that is a compound which on contact with water releases hypohalous acid and/or hypohalite ions to the water, since these are powerful sanitising and cleansing agents.

However, such compounds are highly reactive and hence may be difficult or even dangerous to incorporate in lavatory cleansing blocks. This is especially the case with the more highly reactive halogen release agents such as the halogenated hydantoins, halogenated glycolurils or trichloro-isocyanuric acid. These more highly active halogen-release components may be characterised by their halogen content, typically having an active halogen content of 30 mole%, or higher.

It has now been found, in accordance with the present invention, that halogen-release agents may readily be incorporated in certain lavatory cleansing compositions, as hereinafter defined.

According to the invention, therefore, there is provided a solid lavatory cleansing composition comprising:-

(i) a halogen-release agent, especially a more highly active halogen release-agent;

(ii) a non-oxidisable, substantially anhydrous surfactant component; and

(iii) a non-oxidisable solubility retardant agent.

Thus, a particular embodiment of the invention provides a solid lavatory cleansing block formed of a composition comprising (A) from 5 to 80%, preferably from 1 to 30%, by weight of a surface active component comprising one or more anhydrous, non-oxidisable anionic surface active agents; (B) from 1 to 90, preferably from 1 to 30% by weight of halogen-release agent; and (C) from 1 to 50%, preferably from 1 to 30%, by weight of a non-oxidisable solubility control agent (as hereinafter defined).

Examples of highly active halogen-release agents which may be employed in this system include:- N,N'-dichloro-dimethyl-hydantoin (DCDMH-av. halogen 34 mole%), N-bromo-N'-chloro-dimethyl-hydantoin (BCDMH-av. halogen 48 mole%) and N,N'-dibromo-dimethyl- hydantoin (NBDMH-av. halogen 56 mole%), and trichloroisocyanuric acid (TCC, av halogen 46 mole%), N,N,N,N-tetraglycoluril (av. halogen 50 mole%).

Suitable surface active agents for use in the composition of the invention are anionic surface active agents, especially alkali metal, typically sodium, alkyl sulphates, alkane sulphonates or olefin sulphonates.

The solubility control agent should be non-oxidisable and examples of these are described in detail in WO 94/12612.

Particularly preferred examples of such solubility control agents include waxes; saturated fatty acid esters; and mineral oils. It has been found that the use of a mixture of non-oxidisable solubility control agents may often prove useful. Thus a mixture of an essentially hydrocarbon material, such as paraffin wax and/or a mineral oil, with an ester of a fatty acid such as isononyl stearate or triethylene glycol caprate/caprylate, may be employed. Further, it is often useful to employ, in admixture, a combination of both a solid and a liquid hydrocarbon material. Other non-osciliable solubility control agents include glycolurils and inorganic compounds such as aluminium hydroxide.

Inert fillers, typically mineral fillers, may be present in the blocks and are suitably present in amounts of from 1 to 50% by weight, preferably 1 to 30% by weight. The filler is often required to increase the density of the block and suitable examples are salts such as calcium sulphate and magnesium sulphate, clays such as laponite.

As will be appreciated, any other ingredient present in the compositions of the invention (whether surfactant-containing or not) should be resistant to attack by the halogen release agent. Most perfumes which are commonly employed in lavatory cleansing blocks are also subject to attack by halogen-release agent although some odiferous materials may be adequately resistant (and additionally serve as solubility control agents); examples of these being substituted quinolines, cedryl methyl ether and cineole.

Lavatory cleansing blocks commonly contain a germicide or preservative but this is not generally necessary in the case of the blocks of the invention since they already contain a powerful germicides, namely the hydrogen-release agent.

Some insoluble pigments are resistant to halogen-release agent and may be incorporated in the blocks of the invention to impart a colouration. Examples of suitable pigments include copper phthalocyanine pigments which can be conveniently incorporated in the blocks of the invention in the forms of dispersions in suitable media.

Solid blocks may suitably be formed by a compression process, especially an extrusion process, comprising the steps of forming a mixture of the components of the composition, extruding this mixture into rod or bar form and then cutting the extruded rod or bar into appropriately sized pieces or blocks.

Alternatively, blocks may be prepared by a tabletting process or by a melting and casting process, e.g. one in which fusible components of the block are fuse melted, the non-fusible components adhere to the melt, and the resultant mixture cast into moulds.

When an extrusion process is employed the mixture to be extruded should contain up to 25% by weight, of a liquid component or a solid component which is liquefied under extrusion conditions to act as a processing aid. Suitable such liquids include hydrocarbons (e.g. liquid alkanes), chlorinated hydrocarbons, silicone oils, liquid ketones (e.g. 2-decanone), liquid tertiary alcohols (e.g. 2-methyl-hexan-2-ol), and liquid esters [e.g. simple esters such as methyl decanoate, and more complex esters such as glycerol, propylene glycol, triethylene glycol esters of C_8-C_{10} fatty acids and/or succinic acid. Examples of such complex esters are those sold under the trade names Miglyol 812,

Miglyol 829, Miglyol 840, Plasthall 4141, Crodamol GTCC, Crodamol PC and Radia 7108. These liquid components can also serve as solubility control agents.

In order that the invention may be well understood the following example is given by way of illustration only.

Blocks having a weight of 50g were prepared by melting and casting the following composition:-

DBDMH	20% by weight
Sodium lauryl	25% " "
Sulphate	15% " "
Laponite	10% " "
Paraffin wax	10% " "
Mineral oil	15% " "
Isononyl stearate	15% " "

CLAIMS:

1. A solid lavatory cleansing composition comprising:

(i) a halogen-release agent;:

(ii) a non-oxidisable, substantially anhydrous surfactant component; and

(iii) a non-oxidisable solubility retardant agent.

2. A composition as claimed in claim 1 in which the halogen-release agent is a highly active material containing at least 30 mole% active halogen.

3. A composition as claimed in claim 1 comprising (A) from 5 to 80% by weight of surface active component one or more anhydrous, non-oxidisable anionic surface agent; (B) from 1 to 90% by weight of halogen-release; and (C) from 1 to 50% by weight of a non-oxidisable solubility control agent (as herein defined).

4. A composition as claimed in any one of the preceding claims also containing from 1 to 50% by weight of a mineral filler serving to increasing the density of the block.

Patents Act 1977 Examiner's report to the Comptroller under Section 17 (The Search report)	Application number GB 9506172.7
Relevant Technical Fields (i) UK Cl (Ed.N) C5D (DHX) (ii) Int Cl (Ed.6) C11D 17/00	Search Examiner M J CONLON Date of completion of Search 7 JULY 1995
Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii) ONLINE: WPI	Documents considered relevant following a search in respect of Claims :- 1-4

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
X	EP 0526437 A1	(KIWI BRANDS)	1-4
X	EP 0462643 A1	(UNILEVER)	1-4
X	EP 0206725 A2	(JEYES)	1-4
X	WO 94/12612 A1	(JEYES)	1-4
X	WO 92/18605 A1	(JEYES)	1-4
X	US 4269723	(JEYES)	1-4

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