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(54) Title: IRONING AID COMPOSITION
(57) Abstract

An ironing aid composition for use in the steam chamber of a steam iron comprises propylene glycol, glycerine and optionally a volatile fragrance. The composition can be used drop-wise in concentrated form or can be diluted with water. Use of said compositions improves the efficiency of said steam iron, thereby enhancing the iron's wrinkle-removing capability.
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IRONING AID COMPOSITION

This invention relates to an ironing aid composition which is suitable for pouring directly into the well of a steam iron, the composition being released through the steam vents of the iron. In one aspect, the invention relates to a liquid concentrated ironing aid additive to be poured, along with water, into the steam chamber. In another aspect, the invention relates to an aqueous composition containing the ironing aid ingredients of said concentrated additive, said composition designed to be poured into the steam chamber in place of the distilled water or tap water.

Garments, particularly those produced from natural cotton, wool or linen fibers, often wrinkle badly when washed and require considerable time and effort with an iron to restore them to satisfactory wrinkle-free appearance. In the last half-century, textile manufacturers have developed so called wash-and-wear garments with "permanent press" characteristics. Garments manufactured from these fabrics have considerably less tendency to wrinkle in the washing process and, as a result, the need to iron such garments has been significantly reduced. Nevertheless, there remain some wrinkling problems in wash-and-wear garments and these problems are more severe when the directions for care have not been followed. For example, a garment may tend to wrinkle when the wash water is too hot, when

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not removed immediately from the dryer. Under such circumstances, it is often necessary to do some touch-up ironing with a steam iron. Also, garments made from fibers containing all cotton or a high percentage of cotton (70% or more) continue to be manufactured since many wearers prefer such garments over those containing cross-linking resins or blends of cotton and synthetic fibers. Such garments are subject to wrinkling during the laundering process and therefore almost always require ironing.

Ironing of garments is a tedious task and it is, of course, desirable to ease the effort to the extent possible. Most of the ironing aids heretofore available are in the form of spray starches or sizing products offered in conventional aerosol or trigger spray delivery systems. For example, U.S. Patent No. 4,238,057 discloses a spray-type sizing composition comprising a modified low viscosity starch and, to make the iron move smoothly during the ironing operation, a minor amount of dipropylene glycol is added. PCT Patent Publication No. WO91/19037 discloses the use of a silicone gel for ease of ironing and improvement in the appearance of ironed garments.

U.S. patent No. 4,806,254 is principally concerned with a wrinkle-removing spray composition comprising a low molecular weight alcohol, glycerine and a non-ionic surfactant, with the only essential ingredient being glycerine. There is a statement that use of the composition may make ironing easier but no indication that the composition can be introduced into the chamber of a
steam iron.

The principal object of this invention to develop an ironing aid composition which, rather than being sprayed onto garments, can be used in the steam chamber (well) of a steam iron.

This invention provides a ironing aid composition comprising from about 60% to about 95% propylene glycol, from about 5% to about 40% of glycerine and from 0% to about 10% of a volatile fragrance. A concentrated composition of this type can be added, along with water, to the chamber of a steam iron in sufficient amount so that steam chamber contains from about 0.4% to about 10% of the ironing aid composition. Alternatively, the ingredients of the ironing aid composition can be added to water, thus forming an aqueous composition suitable for pouring directly into the steam chamber. Such aqueous compositions contain from about 0.2% to about 5% of propylene glycol, from about 0.1% to about 3% of glycerine, and optionally up to about 0.5% of a volatile fragrance.

The invention also encompasses the use of said compositions to improve the efficiency of steam irons, thereby enhancing the wrinkle-removing capability of said steam irons.

The ironing aid composition of this invention is a liquid composition designed for introduction into the steam chamber (well) of a conventional domestic steam iron. The liquid composition is capable of use in a variety of ways, for example (1) as a concentrate intended to be added drop-
wise into the steam chamber simultaneously with the
addition of water, or (2) diluted with distilled water in
a composition which to be introduced into the steam chamber
in place of ordinary distilled water or tap water.

The ironing aid composition of this invention
comprises, by weight, from about 60% to about 95% of
propylene glycol, from about 5% to about 40% of glycerine
and optionally up to about 10% of a volatile fragrance.
Preferably, the ironing aid composition comprises from 70%
to 90% propylene glycol, from 10% to 30% glycerine and
optionally up to 5% of fragrance. Propylene glycol and
glycerine are completely volatile and leave no residue
behind in the steam chamber. If it is intended to
incorporate a fragrance into the ironing aid composition,
the fragrance should be a liquid fragrance which, like the
other ingredients, completely volatizes at or slightly
below the boiling point of water, thereby leaving behind no
residue.

The concentrated ironing aid composition according to
this invention is introduced in a small amount - for
example, drop-wise - into the steam chamber of an iron,
most conveniently simultaneously with the introduction of
ordinary distilled water or tap water. The amount of
concentrated ironing aid composition in the steam chamber
should be in the range of about 0.4% to about 10%,
preferably about 1% to about 5%. The concentrated ironing
aid composition according to this invention can be
dispensed by means of a dropper arrangement which provides
substantially accurate measurements, the volume of the dropper dose being set with regard to the volume of the steam chamber.

For most domestic purposes, it will be more convenient to take advantage of the second aspect of this invention, namely an aqueous composition containing the ingredients of the concentrated ironing aid composition. More particularly, the aqueous composition comprises from about 0.2% to about 5% of propylene glycol, from 0.1% to about 3% of glycerine, optionally up to about 0.5% of a volatile fragrance, and from about 92% to about 99.7% water. Preferably, the aqueous composition contains from 1% to 3% propylene glycol, from 0.2% to 1% glycerine, optionally up to 0.2% fragrance and from 96% to 98.8% water. Among advantages deriving from aqueous compositions of this type is that the user of the composition will be employing distilled water, rather than tap water, thereby avoiding the deposit of mineral salts which can clog the vents of a steam iron. Although manufacturers of steam irons regularly advise the use of distilled water, this advice is very seldom heeded.

Ironing in the ordinary manner with an ironing aid composition according to this invention provides improved glide characteristics and thereby eases the task of ironing. The use of the compositions thus improves the efficiency of steam irons and results in an improved method for removing wrinkles from garments.

This invention will be better understood by reference
to the following examples, which are included here for illustrative purposes only and are not intended as limitations.

**Example 1**

12.5 grams of propylene glycol and 2.5 grams of glycerine were mixed together and 485 grams of distilled water then added to the mixture, resulting in a solution containing 2.0 weight % propylene glycol and 0.5% weight glycerine. 10 grams of this solution were placed in a beaker and then boiled to evaporation. No residue was left behind in the beaker, thereby indicating that the composition would not clog the vents of a steam iron.

**Example 2**

135 grams of the solution of example 1 were poured into the well of a steam iron. A panel consisting of 15 persons were then requested to iron creases of 100% cotton T-shirt material having the approximate dimensions of 18 cm by 35 cm, with said aqueous composition and with said steam iron filled with 135 grams of distilled water. Twelve of the panelists reported that ironing was easier with the use of the aqueous composition of this invention. Two of the panelists reported that ironing was easier with pure distilled water. One panelist reported no difference in the compositions' effects.
CLAIMS

1. An ironing aid composition for use in a steam chamber of a steam iron consisting essentially of, by weight, from 60% to 95% propylene glycol, from 5 to 40% glycerine, and from 0 to 10% of a volatile fragrance.

2. An ironing aid composition according to claim 1 which consists essentially of from 70% to 90% propylene glycol, from 10% to 30% glycerine and from 0% to 5% fragrance.

3. An ironing aid composition according to claim 2 which consists essentially of about 80% propylene glycol and about 20% glycerine.

4. An aqueous composition suitable for use in a steam chamber of a steam iron which consists essentially of from 0.2% to 5% of propylene glycol, from 0.1% to 3% of glycerine, from 0 to 0.5% of a volatile fragrance and from 92% to 99.7% water.

5. An aqueous composition according to claim 4 which consists essentially of from 1% to 3% propylene glycol, from 0.2% to 1% glycerine, from 0% to 0.2% fragrance, and from 96% to 98.8% water.
6. An aqueous composition according to claim 5 which consists essentially 2.5% propylene glycol, 0.5% glycerine and about 97.5% water.

7. A method for improving the efficiency of a steam iron which comprises introducing into the steam chamber of said iron an aqueous composition consisting essentially of from 0.2% to 5% of propylene glycol, from 0.1% to 3% of glycerine, from 0 to 0.5% of a volatile fragrance and from 92% to 99.7% water.

8. A method according to claim 7 in which the composition consists essentially of from 1% to 3% propylene glycol, from 0.2 to 1% glycerine, from 0 to 0.2% fragrance, and from 96% to 98.8% water.

9. A method according to claim 8 in which the aqueous composition consists essentially of 2.5% propylene glycol, 0.5% glycerine and 97.5% water.

10. A method for removing wrinkles from garments which comprises ironing said garments with a steam iron whose chamber contains an aqueous composition consisting essentially of from 0.2% to 5% of propylene glycol, from 0.1% to 3% of glycerine, from 0 to 0.5% of a volatile fragrance and from 92% to 99.7% water.

11. A method according to claim 10 in which the
11. A method according to claim 10 in which the composition consists essentially of from 1% to 3% propylene glycol, from 0.2 to 1% glycerine, from 0 to 0.2% fragrance, and from 96% to 98.8% water.

12. A method according to claim 11 in which the aqueous composition consists essentially of 2.5% propylene glycol, 0.5% glycerine and 97.5% water.
A. CLASSIFICATION OF SUBJECT MATTER
IPC(6) :D06M 13/148, 13/17
US CL : 252/8.6, 170, 173
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
U.S. : 252/8.6, 170, 173

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database consulted during the international search (name of database and, where practicable, search terms used)
APS: (PROPYLENE GLYCOL #) OR (PROPYLENE DIOL #) (GLYCEROL # OR GLYCERINE #)

C. DOCUMENTS CONSIDERED TO BE RELEVANT
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<td>US.A, 1,852,891 (Whitehead) 05 April 1932, see col. 1 lines 23-45.</td>
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<td>US.A, 3,932,125 (Wasley et al.) 13 January 1976, see abstract, col. 3 lines 5-10, example 8 and claims.</td>
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<td>JP 63-172798 (Tanigaki) 16 July 1988, see abstract.</td>
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<td>JP 3-115497 (Kao Corporation) 16 May 1991, see abstract.</td>
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<td>US.A, 1,780,927 (Jordan) 11 November 1930, see col. 1 lines 23-38, col. 1 line 48 to col. 2 line 2, col. 2 lines 74-80.</td>
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Further documents are listed in the continuation of Box C.

Date of the actual completion of the international search: 26 OCTOBER 1994

Date of mailing of the international search report: 1 DEC 1994

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<td>US,A, 4,806,254 (Church) 21 February 1989, see abstract.</td>
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