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DYEING COMPOSITION.

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My present invention relates to dyeing compositions, particularly in paste or liquid form, and aims to provide such compositions as are uniform, avoid spotting, streaking and smearing, may be readily, conveniently and economically packaged and dispensed, and are in such condition that, while the dyestuff is not entirely in solution, nevertheless permit the ready and complete solution of the dyestuff immediately upon the addition of the composition to water.

For purposes of illustration, I shall, in the accompanying specification, describe an illustrative embodiment of my present invention, it being understood that my invention is not limited to the embodiment thereof herein described for purposes of illustration only.

In my Patent 1,569,915, Jan. 19, 1926, entitled "Coloring composition" has been substituted therefor. I have described and claimed a carrier for dyeing, coloring and tinting substances, and have further described and claimed such substances themselves, in paste or liquid form, in which the dyestuff is completely dissolved in the carrier, these substances, due to the comparative dilution of the dyestuff, rendered necessary by its complete solution in the carrier, which is generally of a saponaceous character, and which preferably contains a hygroscopic substance, such as glycerine, are suitable principally for coloring and tinting, as distinguished from dyeing.

I have discovered that I may use the carrier referred to above for a highly concentrated dyeing composition, as distinguished from a dilute tinting or coloring substance, in which composition the dyestuff is not completely dissolved in the carrier, but is present in the carrier partly in solution and partly in moist or wet suspension.

Referring to said illustrative embodiment, I may, for the dyeing composition prepared in accordance with the present invention, use any suitable dyestuff, preferably a water-soluble dye, either acid, direct or basic. While varying amounts of this dyestuff may be employed, I prefer, for the purposes of the present invention, that the finished composition shall contain from about 3% to about 10%, by weight, of the dyestuff.

Intimately mixed with the other ingredients of which the dyeing composition of the present invention may be made up, and particularly intimately mixed with the dyestuff itself, is a saponaceous substance, which preferably comprises a pure neutral soap, such as "Lux", "Ivory", "Fairy" or "Castille" soap. The soap serves to give body to the dyeing composition, particularly where, as is preferred, the same is to be in the form of a paste or liquid. The soap serves also, at the same time, to exercise a highly desirable cleansing action on the fabric being dyed, colored or tinted, and serves also, at the same time, to help fix the dyestuff on the fabrics to which it is being applied. While varying amounts of the saponaceous body, such as one of the soaps described above, may be employed, I prefer to use about 1%, by weight, of the soap in the finished composition.

In order to at least partly dissolve the dyestuff, and to provide for the moist or wet suspension of the undissolved dyestuff in the finished composition, so as to avoid the usual disadvantages of spotting, streaking or smearing the fabric to which the composition is applied, which disadvantages are commonly present in the dye soaps, in powder or cake form, hitherto used, I prefer to employ enough of a liquid carrier, such as water, to at least partly dissolve the dyestuff and to provide for the wet or moist suspension of the undissolved dyestuff, and to convert the final mixture into a paste or liquid. For this purpose, I prefer to employ the liquid carrier, such as the water, in an amount, for example, of from about 66 to about 59% by weight, of the finished product. It may here be noted that the water and the soap together form a liquid or pasty saponaceous body or carrier in which the dyestuff is partly dissolved and partly in wet or moist suspension.

In order to avoid any undesired caking or hardening of the dyeing composition on exposure, particularly by contact with the air, a condition hardly to be avoided in the ordinary use and manipulation of such dyeing compositions unless special means are adopted to prevent such caking and hardening, and in order to facilitate and maintain the solution of one portion and the wet or moist suspension of the remaining portion of the dyestuff in its liquid carrier, I may employ a hygroscopic substance, preferably in liquid form, such as glycerine, in an amount, for example, equal to about 30%, by weight, of the finished product. I find that

this substance not only prevents caking, hardening and solidification of the dyeing composition on exposure, as to the air, but also prevents a more or less substantial drying of the composition which might otherwise occur and interfere with its successful use, and prevents also the formation of any undesirable insoluble film of solid soap which would otherwise form on the composition, as by exposing the same to the air, and which might thus interfere with the convenient and successful application of the dyeing composition to the fabric to which it is to be applied.

The ingredients specified above are intimately and carefully mixed so that the product is of as uniform a composition as possible. The finished product is, therefore, a liquid or paste dyeing substance in which the dyestuff is partly in solution and partly in wet or moist suspension. This highly desirable result, which renders possible a concentrated dyeing composition in paste or liquid form and so prepared as to substantially avoid smearing, streaking or spotting of the fabric to which the composition may be applied, is largely facilitated by the presence in the composition of the hygroscopic substance, such as the glycerine, which acts as a partial solvent for the dyestuff, and which also maintains the paste or liquid in its original condition, with the undissolved portion of the dyestuff in such a condition of moist or wet suspension as to render possible its almost immediate solution upon being added to water.

The advantages of the present composition are numerous and of great practical importance. Since the dyestuff is present in the composition in the form partly of a true solution and partly of a wet or moist suspension, the product is highly uniform and may be readily standardized so that uniform results may always be obtained. In this way, the uncertain and variable results of the dyeing soaps in solid, powder or cake form, such as have been hitherto employed in the art, are entirely overcome, and the spotting so frequently met with in the use of the powdered dye soaps, and the smearing and streaking generally resulting from the use of the cake dye soaps, are substantially avoided.

The composition, being in the form of a paste or liquid, may be readily packaged in collapsible tubes, which has a distinct advantage, since these substances, due to their great coloring power, should, for reasons of neatness and cleanliness, be contained within receptacles from which they can cleanly and economically be distributed. The presence of the hygroscopic substance, such as the gylcerine, the use of which is preferred, in the dyeing composition, materially assists the water or other liquid carrier in keeping the dyestuff partly in solution and partly in wet or moist suspension, and, at the same time, prevents the composition from caking or solidifying, and the contents of the tube from hardening. In particular, the hygroscopic substance, such as the glycerine, prevents the formation of an insoluble soap film which generally consists of stearic, oleic, or palmitic acid, or combinations of the same, which film would interfere with the convenient and ready dispensing of the liquid or paste from the tube in which it is contained, and which would also interfere with the ready and convenient application of the dyeing composition to the fabric to which it is to be applied.

The dyestuff being already partly in true solution and the rest of it in wet or moist suspension in the carrier, and being of uniform composition, renders possible the obtaining of results by using the same which are uniform and dependable, so that a neat, clean job may be made of the dyeing, coloring or tinting operations by persons, such as housewives, ordinarily unskilled in the manipulation of dyes.

The presence of the soap, substantially all of which is in true solution, not only lends body to the composition, but serves also to cleanse the fabric and to fix the dyestuff on the same. This action of the soap is much facilitated by its being substantially all in solution and by the dyestuff itself being at least partly in true solution. The result is further improved by the presence of the hygroscopic substances, such as the glycerine. The soap serves also, at the same time, to remove any trace of hardness in the water in which the dyeing, coloring or tinting operation takes place, which hardness might otherwise serve to interfere with the successful fixing of the dyestuff on the fabric.

It is of course, to be understood that my invention is not limited to the particular embodiment thereof herein shown and described for purposes of illustration only.

What I claim is:

1. A dyeing composition in fluent form comprising, in combination, a neutral saponaceous body, a liquid carrier, a dye, and a hygroscopic substance in sufficient quantity to substantially prevent caking of the mixture on exposure to the air, said dye being partly in solution and in excess of the quantity held in true solution.

2. A dyeing composition in fluent form comprising, in combination, a neutral saponaceous body, a liquid carrier, a dye carried by said liquid carrier, and a hygroscopic substance in sufficient quantity to substantially prevent hardening of the mixture on exposure to the air, said dye being partly in solution and in excess of the quantity held in true solution.

3. A dyeing composition in fluent form comprising, in combination, a neutral saponaceous body, a liquid carrier, glycerine in

sufficient quantity to substantially prevent caking of the mixture on exposure to the air, and a dye partly dissolved in said liquid carrier and in said glycerine, and being in excess of the quantity held in true solution.

4. A dyeing composition in fluent form comprising, in combination, a neutral saponaceous body in paste or liquid form, glycerine in sufficient quantity to substantially prevent hardening of the mixture on exposure, and a dye partly dissolved in said saponaceous body and in said glycerine, and being in excess of the quantity held in true solution.

5. A dyeing composition in fluent form comprising, in combination a dye, a neutral saponaceous body, a liquid carrier, and glycerine in sufficient quantity to substantially prevent caking of the mixture on exposure to the air, said dye being partly in solution and in excess of the quantity held in true solution.

6. A dyeing composition in fluent form comprising, in combination, a dye, a neutral saponaceous body in paste or liquid form, and glycerine in sufficient quantity to substantially prevent hardening of the mixture on exposure, said dye being partly in solution and in excess of the quantity held in true solution.

7. A dyeing composition in fluent form comprising a carrier and a dyestuff partly in solution and in excess of the quantity held in true solution.

8. A dyeing composition in fluent form comprising a hygroscopic carrier and a dyestuff partly in solution and in excess of the quantity held in true solution.

9. As a new article of manufacture, adapted for use in preparing aqueous dyebaths, a stock composition comprising dye, glycerin, and a neutral saponaceous carrier, wherein the said dye is present in excess of the quantity which will go into true solution in the solvent ingredients thereof.

10. A dyebath comprising a dye in solution in water prepared by adding the said dye to the water in the form of a fluent composition comprising a dye, glycerin, and a neutral saponaceous body, wherein the dye is present in excess of the quantity which will go into true solution in the solvent ingredients of the said composition.

11. A fluent dyeing composition comprising in combination a saponaceous body, a liquid carrier, glycerin, and a dye in excess of the quantity which is present in true solution in the said liquid carrier and the glycerin.

12. A fluent dyeing composition comprising in combination a saponaceous body, a liquid carrier, glycerin in sufficient quantity to substantially prevent caking of the mixture on exposure to air, and a dye in excess of the quantity which is present in true solution in the said liquid carrier and the glycerin.

In testimony whereof, I have signed my name to this specification this 9th day of January, 1922.

ALBERT DAVID.