United States Patent Office 3,269,845
Patented August 30, 1966

3,269,845

METHOD OF MAKING COLORED TABLE SALT

John P. Pomeroy, 306 W. Harry Ave., Hazel Park, Mich.

No Drawing. Filed July 20, 1964, Ser. No. 383,923
1 Claim. (Cl. 99—143)

The present invention is a continuation-in-part of my earlier filed application Serial Number 222,260, filed September 10, 1962, now abandoned, as well as application Serial Number 20,258, filed April 6, 1960, now abandoned, and application Serial Number 776,436, filed November 26, 1958, which has also been abandoned. All of the above identified applications relate to granulated table salt and more particularly to a new and improved colored table salt, which includes the the method of making same. In the present invention, ordinary white granulated table salt is transformed into any of several colors and shades for ornamental, as well utilitarian purposes. When ordinary white granulated table salt is tinted in the manner taught by the present invention, it facilitates recognition and distinguishes the granulated substances one from another, such as salt from sugar, bicarbonate of soda, granulated rice (cereal), white corn meal, dehydrated milk, egg whites, yeast, potatoes and many other such items as are frequently found in kitchens where food is prepared.

In order to distinguish granulated sugar from granulated salt, the two ingredients are usually placed in two distinctly different type containers. However, in some instances, the receptacles are similar and confusion is likely to exist.

Another situation in which the present invention can be employed is one in which a family manifesting certain thyroid malfunctions serves two varieties of salt: for example one of high iodine content and one of zero iodine content. Another example would be that of a family having one or more members who have a dietary problem resulting from a heart condition or other cause, wherein their intake of NaCl has been either restricted or curtailed. In this instance a white granulated salt substitute is used. At present, there is no satisfactory visual method of distinguishing between such various types of salt. This problem could be solved by the use of the teachings set forth in the present invention. The utility of such teachings would eliminate a now existent problem at a cost which would be negligible, when said salt products are produced in volume.

While the above description sets forth the need for a new and improved method of making colored table salt, it must be remembered that an attempt to solve this long standing problem was made by Collyer, in British Patent Number 1,043, which issued in 1887, some seventy-eight (78) years ago. While this was a step in the right direction, his process did not met with commercial acceptance. Collyer suggested the grinding of a block of salt together with dry pigments, or immersing a block of salt in a coloring solution. In reviewing the Collyer teachings, as well as through experimentation, I have found that the teachings relied upon produce a finished product which is far from being satisfactory or commercial, as evidenced by its lack of availability in the marketplace. When a block of salt is immersed in a coloring solution, saturation is very slow, while the grinding of wet salt also presents another very unusual problem. In addition, the salt must be dried, before it is ready to use. This condition does not present itself when the applicant's teachings are employed.

When the dry pigment is introduced into granulated dry table salt, as taught by Collyer, the resulting tint is non-adherent and tends to settle out when the salt is agitated. The application of the applicant's coloring material results in a salt product which has a uniformly adherent tint, which seals the surface of each salt granule, which ultimately enhances the pourability of the resulting product.

Therefore, a primary object of the present invention is the provision of a granulated table salt which allows me to make white granulated table salt into various colors and shades in a very simple and inexpensive manner, without adverse effect on the taste, pourability or wholesomeness of the salt.

Another object of the invention is the provision of method whereby a small amount of pigmented liquid color solution is applied to the crystal surface of each of the salt granules, thereby sealing the surface of each salt granule, while providing a granulated table salt having a uniformly adherent tint, without necessity of introducing a drying step and distinct from the introduction of a dry pigment ground into a block of salt, which results in a non-adherent, non-uniform tint.

Still another object of the invention is the provision of a white granulated table salt and method of the character described which imparts to the granulated table salt a highly attractive, unusual appearance and a definite ornamental effect which has commercial potential and utility.

I have found that the foregoing and related objects can be accomplished by the method of making colored table salt, which consists of mixing white granulated table salt in pourable form with a dilute solution of pigmented color containing 0.1 to 6 percent by weight of U.S. Certified Color, 0.1 to 3 percent by weight of tartaric acid (50% solution), 15 to 25 percent by weight of propylene glycol and 66.0 percent to 84.8 percent by weight of distilled water; which is followed by agitating a number of drops less than about 20 drops of the colored solution in a quantity of white granulated table salt to effect homogeneity; the proportion of said pigmented color solution to said granulated table salt being that amount which is sufficient to seal the surface of each granule of salt with a coating which will effect a condition of incipient or surface deliquescence, but short of complete deliquescence of a significant number of granules and thus a significant reduction in pourability, whereafter the resulting colored table salt has a uniformly adherent tint and the pourability is enhanced substantially without the necessity of a drying step.

In describing the method of the invention, it must be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

The preferred method to be employed in the making of the colored granulated table salt of the present invention is as follows:

After long and deliberate experimentation, I have found that white granulated table salt can be uniformly tinted using a color pigment disolved in tartaric acid, propylene glycol and distilled water. In the method of coloring table salt which I have perfected, I prefer to use liquid colors which have been certified by the United States as being harmless for internal use, as well as being non-toxic. The liquid colors used range from a minimum of 0.1 to a maximum of 6.0 percent by weight, mixed with a minimum of 0.1 to 3.0 maximum percentage by weight of tartaric acid (50 percent solution), which is mixed with a minimum of 15.0 to a maximum of 25.0 percent propylene glycol, with the balance of the solution being made up from a minimum of 66.0 to a maximum of 84.8 percent by weight of distilled water. A minimum of 10 drops of the pigmented color solution is agitated with approximately one pound of white granulated table salt to obtain the desired tint. The specific quantity of pig-

mented color is determined by the tint which is required.

The pigmented color which I have produced has an affinity for the crystal surfaces of the salt granules and each granule of salt is sealed with a uniformly distributed coating which is adhered through absorption and evaporation which results from agitation. Through further experimentation, I have found that the application of a liquid pigmented solution to a salt crystal is far superior to that of a dry pigment, because the dry pigment is non-adherent and does not attach to the salt granules. The resulting colored mixture therefore has a tendency to separate from the salt crystals and settle out.

Experimentation has also indicated that one should not go to the other extreme to induce deliquescence either, since the drying step which must be introduced is slow, and the recrystallization of the colored salt which results therefrom causes a loss of homogeneity, as well as a nonuniform tint. The caking which occurs could of course necessitate the introduction of another grinding or pulverization step that would not only add to the cost, but would reuslt in a less desirable finished product.

The new and improved pigmented coloring solution which I have developed is mixed in specific proportion, such as 10 drops, with a pre-determined amount of white granulated table salt and then agitated thoroughly. When the agitation is complete, it has been found that the pigmented coloring material has completely sealed each granule of salt and that the pigmented color is firmly adhered thereon, thereby imparting its color to the salt. Since such a small quantity of the pigmented coloring material is used in each pound of table salt, it will be understood that the coating applied to each granule of salt is very thin and that the density of the color is much less than it was as originally applied, due to the thickness of the coating.

In speaking of pourability, which is the flow characeristic of the granulated or powdered salt, it must be understood that in sealing each of the salt granules, pourability is enhanced substantially, since each granule of salt can no longer receive moisture or other contaminates from the atmosphere, or other place of storage. As is well known, dampness causes granulted salt to stick together, which reduces pourability. However, when white granulated table salt is treated with my pigmented coloring liquid, three different results may occur, as follows:

(1) With too little solvent, the crystal faces of the salt granules are not uniformly wetted and subsequently, a certain amount of the non-adherent pigment separates out.

(2) The addition of somewhat more solvent causes a wetting of the crystal faces of the salt granules in what might be called a "local deliquescent" and further distribution of the solvent, or drying, leaves a firmly adherent

and uniform layer of surface pigmentation on each of the surfaces of the salt granules. The proper proportion of salt does not affect the pourability, but does create in the salt, a condition of incipient deliquescence, thereby rendering the salt when tinted, less absorbent and more readily pourable in the colored condition.

(3) The addition of somewhat more solvent actually deliquesces the granulated salt; makes it impossible to pour; and if dried, yields a caked material having a non-uniform pigmentation and which requires additional treatment in the form of grinding or pulverization.

It will be noted that it is the second condition outlined above which makes possible the advantages of the present invention. In this manner, I secure a uniform film of adherent pigmentation on each crystal face of each salt granule which thereby seals same against further absorption, rather than a mixture of granulated salt which contains a non-adherent dry color pigment, which will settle out.

As stated above, I have solved a long-standing problem by providing a uniformly adherent tint to salt granules, while providing a means for color indexing salt of various chemical compositions, particularly with respect to salt having an iodine content.

Having thus described my invention, I claim:

A method of making colored granulated table salt from a white granualted table salt consisting of agitating said white granulated salt with a number of drops less than about 20 drops per pound of said salt of a solution comprising 0.1 to 6% by weight of U.S. certified color, 0.1 to 3% by weight of tartaric acid (50% solution), 15 to 25% by weight of propylene glycol and 66.0% to 84.8% by weight of distilled water for a time sufficient to uniformly coat the surfaces of substantially all of the granules of said salt with said solution, the proportions of the ingredients of said solution, the amount of said solution utilized and the degree of agitation also being sufficient to produce surface deliquescence of said granules of salt but substantially less than that which will produce complete deliquescence of a significant number of said granules of salt.

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A. LOUIS MONACELL, *Primary Examiner.*

J. M. GOLIAN, *Assistant Examiner.*