

ALIEN PROPERTY CUSTODIAN

METHOD OF MANUFACTURING DRY POWDERED SUGAR

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The present invention relates to a method of manufacturing dry powdered sugar, which consists in atomising the clarified and concentrated juice obtained by compressing the sugar-cane or sugar solution in the form of fine sprays with or without the addition of a suitable nutriment, food of taste, etc. into a tightly closed dry chamber containing the minute solid particles of sugar scattered at the starting of the operation, and thus drying and solidifying them on the said particles of solid phase. The object thereof is to obtain the less-hygroscopic solid powdered sugar easily from sugar solution containing relatively large quantities of molasses and other non-crystallizable substances.

If sugar is separated as crystals by evaporating and concentrating the juice obtained by compressing the sugar-cane and other sugar solution containing a relatively large quantity of molasses, the molasses attaches on the surfaces of the crystals and consequently the product is so hygroscopic and deliquescent that it is difficult to produce the powdered sugar that stands preservation. Such inclination is especially remarkable when the sugar is mixed with alimetically and flavorously-effective substances which as a whole are hard to crystallise. Also, if it is applied to the spraying and drying process to be dried in powder form by atomising it as fine sprays in a heated tightly closed chamber, the atomised fine sprays present an oversaturated condition and fall down as such and are accumulated so that they cannot be dried in fine powder form. Now, according to this invention, sugar-cane juice, or sugar solution is atomised in the form of fine sprays with or without the addition of one or more kinds of suitable nutriments or food of taste, for example, the aromatic and flavorous substances contained in a special kind of sugar only, such as vitamins, enzyme, salts and Japanese white sugar, in the air or inert gas in a tightly-closed dry chamber containing a small quantity of fine sugar particles scattered beforehand at the starting of the operation so that said fine sugar particles already present in the chamber may act as the nuclei of crystals to destroy the oversaturated condition of the surfaces of the fine sprays of liquid phase and breed numerous crystals. The thus-produced minute

crystal particles are agglomerated into small masses as the molasses and other non-crystallizable substances contained in the fine sprays remain attached on said particles. They are thus made into the coarse particles which envelope the non-crystallizable substances. The dry powder accumulated on the floor in this way is carried out of the chamber. Thus, it is possible to form easily the less hygroscopic powdered sugar of great nutritive value and good taste fit as the material for canned food, condensed milk, powdered milk, confectionery etc. When the regular spraying and drying operation is reached, the masses of sugar particles formed by spraying are knocked against one another and destroyed, as the result of which the sugar crystals on their surfaces are partly pulverized into the finer powder particles and scattered and suspended in the drying chamber. Said particles being thus naturally utilized as the nuclei of crystals, the operation may be carried out continuously without the necessity of any further supply of the minute sugar particles to the chamber as the nuclei of crystals.

The following are the examples of carrying out this invention into practice:

Example 1

The juice from a crude cane-sugar factory or a factory for manufacturing white sugar directly from the cane juice is concentrated to brix 40-70° and atomised in the form of fine spray with the addition of vitamin B complex compound and vitamin C by dry carbonic acid gas into a dry chamber held at 50-60° C., at the same time supplying and scattering fine sugar particles from below. Then, the sugar solution suspending in the hot atmosphere in the chamber is turned into dry powder by evaporation and accumulated on the floor, after which it is carried out and collected.

Example 2

If in the above example the sugar solution concentrated to brix 40-65° is added to the clarified cane sugar juice obtained by compressing the top of sugar cane, it is possible to obtain dry powdered sugar of peculiar sweet flavor containing vitamin B complex compound.

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