Patented Aug. 22, 1933 1,923,877

UNITED STATES PATENT OFFICE

1,923,877

METHOD OF PRODUCING SALTS IN GLOBULAR FORM

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No Drawing. Application August 8, 1929 Serial No. 384,501

1 Claim. (Cl. 83—91)

This invention relates to the manufacture of salt-like materials in globular form and it has particular application to the manufacture of cleaning compositions, such for example as those constituted essentially of nitre cake.

The object of the invention is to provide a method of preparing a salt material in a form which will not cake or tend to form into hard lumps. The invention likewise contemplates an improved cleaning mixture, which is free from undesirable odors and which is capable of exceptionaly rapid cleansing properties.

Many cleaning compositions which are now commonly employed contain nitre cake or sodium acid sulphate, as an essential ingredient. Granular salt compositions such as nitre cake, however, have a tendency to pack or form into lumps that are disintegrated only with difficulty. This characteristic is undesirable in that it renders the material difficult to handle, particularly when it is packed in small containers for household use.

I have found that by forming the material in globules the area of contact between individual particles is reduced to a minimum and the tendency to cake is thereby practicaly eliminated. Acording to this invention, I have provided a method of making a globular product which is les expensive than the triturating operation that has been used heretofore. In practicing my invention I force the molten nitre cake through a nozzle which reduces the liquid to a fine spray. While in this conditon, the material is cooled below the melting point before it engages a solid surface. A jet of air may be used advantageously to facilitate the spraying operation, however, I prefer to operate without the aid of air by bringing two rapidly flowing streams of molten nitre cake together at an angle of aproximately 90°.

In operating according to the latter embodiment I have found that a centrifugal pump supplies the molten nitre cake satisfactorily. The discharge end of the pump is connected with a pipe which is provided with a cap on the end thereof, the cap having formed therein two vents drilled at substantially right angle to each other. The inter-section of the axes of the vents is at the surface of the cap. The two streams of molten nitre cake, which are discharged through the two holes in the cap, produce a spray which reduces the nitre cake to a small particle size. As the particles fall, they are cooled sufficiently by the surrounding atmosphere to solidify before they engage a supporting surface. A fall of from 8 to 16 feet has been found to give satisfactory results. Obviously a change of heat transfer conditions will change the necessary height of the fall. Sufficient time must be afforded in each instance, however, for the particles to assume substantially annular shape. No difficulty has been experienced from this source when the particles are discharged upwardly and at an angle permitting a travel of from 8 to 16 feet through the air before lighting. It is essential, of course, that the pipe lines be kept sufficiently hot to prevent the molten nitre cake from freezing. Lagging and a high pressure steam line adjacent the molten nitre cake line function satisfactorily, to this end.

For household purposes the odor of commercial nitre cake is objectionable. Heretofore it has been customary to add a small amount of a perfume material to overcome this disadvantage. I have found, however, that the acidic nature of the nitre cake renders most perfuming agents inert. Furthermore, perfumed products of this nature are not always acceptable. In order to overcome the shortcomings of this prior practice, as well as to improve the quality of the nitre cake which is to be used for sanitary purposes, I mix a small quantity of dichlorbenzene or a phenolic body with the molten nitre cake prior to the spraying operation. Less than one percent of either of these materials has been found sufficient to remove permanently the objectionable acrid odors of commercial nitre cake.

When nitre cake is employed for sanitation purposes, I have found that improved results are obtained when a small amount of sodium sulphite is added to the nitre cake, care being exercised to maintain the ingredients in a dry state. When such a mixture is applied to a wetted surface, the acid in the nitre cake reacts with the sodium sulphite to form a quantity of sulphurous acid, which functions as a reducing agent and enhances and accelerates the cleansing action of the material. The amount of sulphite employed may be varied within wide limits. However, I prefer that the amount be restricted to a small percentage in order that the sulphur dioxide will not be evolved, since its presence in the air is undesirable. Mixtures containing from 2% to 30% of sodium sulphite have given satisfactory results.

The sodium sulphite may be added to the globular nitre cake in the form of a powder or it may be made into a globular form and subsequently mixed with the globular nitre cake. Any ôther means of incorporation may be employed.

What is claimed,

The method which comprises discharging at an angle with respect to each other a plurality of streams of a fusible salt while in a molten condition whereby the streams are caused to impinge, thereafter cooling the molten salt to solidify the same before it engages a confining surface.

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