

UNITED STATES PATENT OFFICE

2,287,864

BETA OXY NAPHTHOIC ACID AND PROCESS
FOR PREPARING THE SAMEJohn Burton and Philip I. Bowman, Passaic, N. J.,
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New York, N. Y., a corporation of New YorkNo Drawing. Application October 28, 1940,
Serial No. 363,183

7 Claims. (Cl. 260—520)

In preparing beta oxy naphthoic acid in the usual process of manufacture, it is precipitated as flat plate-like crystals in an aqueous solution, filtered and dried. Prior to drying it contains up to 25% of moisture and in the drying operation, the individual crystals become stuck together in the form of lumps so that the dried product is not free-flowing.

In order to produce a uniform powder which dissolves more readily, it is the usual practice to grind the lumps to a fine powder in some form of milling machine. In this grinding the crystals in the form of flat plates are broken up and some reduced to a fine powder. As a result, the product is not free-flowing and is excessively dusty. As the crystals as well as the powder are not readily wetted by water solutions and as they tend to form aggregates which are not quickly soluble, considerable time is often required in order to put the product into solution for use.

The main object of the present invention is to provide a form of beta oxy naphthoic acid which is composed of free-flowing crystals substantially free from lumps, aggregates and fine powder, and which may be readily put into aqueous alkaline solution.

In carrying out our invention, the original damp mass as obtained from the centrifuge, is dried under conditions which do not involve any substantial breaking up of the crystals but which prevent the crystals from directly adhering to each other, and which render the crystals rapidly soluble in aqueous alkaline solutions.

In carrying out our invention, a small amount of a suitable wetting agent is incorporated in the wet crystalline mass coming from the centrifuge and the mixture is dried in a current of heated air. The wetting agent is preferably sodium lauryl sulphate although other suitable wetting agents may be employed. The amount of the wetting agent may be comparatively small in respect to the wet crystalline mass, for instance, it may be about 0.1% to 1.0%. Since the product is not subjected to any grinding, the crystals are not broken up, and when the drying is completed the crystals are free-flowing and do not stick together. The wetting agent becomes intimately mixed with the crystals during the drying and thus forms a thin coating on them so that they are more readily wetted by water, and hence, more quickly soluble in aqueous alkaline solutions.

In carrying out our process, we prefer to feed the beta oxy naphthoic acid and wetting agent into the upper portion of a slightly inclined, substantially horizontal rotating drum, equipped with

internal flights to keep the material in contact with the air. A current of heated air is passed upwardly through the cylinder and acts to dry the crystals so that they no longer hold together as a damp mass, and the dried crystals together with the adhering wetting agent are carried along by the hot air current. The air stream with the crystals is then passed to a conventional air separator where the crystals are recovered. Any lumpy or undried material will not be picked up and carried along by the air current and is gradually carried to the lower end of the cylinder where it is collected. By employing a moderate air velocity through the cylinder, no lumpy or undried material is carried over to the air separator, thus insuring a completely dry and lump-free product.

As examples of wetting agents, we may employ fatty alcohol sulphates, $R-SO_3Na$; sulphated fatty acid amides, $R-CONHC_2H_4SO_3Na$; sulphated fatty acid esters, $R-COOC_2H_4SO_3Na$; alkylaryl sulphonates, $R'-Ar-SO_3Na$; and various other analogous compounds. The particular wetting agent selected should be one which will not be an objectionable ingredient in the solution which may be later formed from the crystals.

Other procedures may be employed for removing the moisture while keeping the material agitated and preventing crystals from remaining in contact during the removal of the moisture so as to form lumps or aggregates. It is possible to operate successfully by feeding the air in at the upper end of the cylinder and separating the undried lumps at the lower end before the air stream comes to the air separator.

Our invention is independent of the particular apparatus described and can be carried out in any type of equipment in which the undried mass is agitated without grinding in a stream of heated air from which the dried product can be recovered.

In case it is merely desired to apply a wetting agent to previously produced and dried separate crystals, it will be obvious that the same general process may be employed but the dried crystals are delivered to the cylinder instead of delivering the damp mass directly from the centrifuge.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. The process for preparing an improved form of beta oxy naphthoic acid, which consists in adding a wetting agent to a moisture-containing mass of crystals of beta oxy naphthoic acid, feeding the mixture into a current of air to evaporate

the moisture and effect distribution of the wetting agent on the crystals, and separating the crystals from the air current.

2. The process as described in claim 1, in which sodium lauryl sulphate is used as the wetting agent. 5

3. The process as described in claim 1, wherein the mixture of wet crystals and wetting agent is fed into a revolving cylinder equipped with flights to keep the material in suspension in the air 10 current.

4. The process for preparing an improved form of beta oxy naphthoic acid, which consists in removing moisture from crystals of the beta oxy naphthoic acid, and simultaneously blending a 15 wetting agent with said crystals.

5. The process as defined in claim 4, in which a current of heated air is employed to effect the removal of the moisture and the blending of the wetting agent with the crystals.

6. As a new product free-flowing crystals of beta oxy naphthoic acid substantially free from lumps, aggregates and fine powder, and having a wetting agent blended therewith.

7. A new product consisting of free-flowing crystals of beta oxy naphthoic acid substantially free from lumps, aggregates and fine powder, and rapidly and completely soluble in aqueous alkaline solutions.

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