

UNITED STATES PATENT OFFICE.

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PROCESS OF PREPARING ZINC FORMALDEHYDE SULFOXYLATE.

935,815.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, FERDINAND RADEMACHER, manufacturer, citizen of Austria, subject of the Emperor of Austria-Hungary, residing at Prague-Karolinenthal, in the Kingdom of Bohemia and Empire of Austria-Hungary, have invented certain new and useful Improvements in Processes of Preparing a Slightly-Soluble Zinc Formaldehyde Sulfoxylate, of which the following is a full, clear, and exact description:

By the known process of production of formaldehyde-sulfoxylates from formaldehyde-alkali-bisulfite, the alkaline salt of formaldehyde-sulfoxylic-acid is obtained mixed with other salts which accompany it in the solution and render it impure. The manufacture in pure form of formaldehyde-sulfoxylate from these solutions is no simple matter, as is evident from the very fact that there exist descriptions of special processes for this purpose. It has been found however that formaldehyde-alkali-bisulfite can, in a single operation, in the very easiest way, be converted into the almost insoluble zinc salt of formaldehyde-sulfoxylic-acid—the said zinc salt being free from every foreign salt after some washing—if powder of zinc is allowed to act on formaldehyde-alkali-bisulfite in the presence of zinc salts, such as acetate of zinc, chlorid of zinc, sulfate of zinc etc.

The presence of the zinc salt renders reduction so easy that in order to obtain a high rate of yield neither a considerable excess of powder of zinc is required nor does the concentration of the liquid play any part. If concentrated solutions of bisulfite, the zinc salt and formaldehyde be employed, the mixture soon thickens, and it must be stirred up until a thick dough results, which is allowed to continue on the water-bath until completion of the re-action without further stirring. In this way there is obtained a dry mass which, after cooling, may find application in that form, or else, after lixiviation with water, is converted by means of alkali and yields formaldehyde-alkali-sulfoxylate of absolute purity. When working with dilute solutions it is advisable to stir contin-

ually; the resulting formaldehyde-zinc-sulfoxylate is filtered and cleaned of foreign salts by washing.

Example I: To formaldehyde-bisulfite—produced from 250 parts by weight of sodium bisulfite of 38 degrees Baumé and 75 parts by weight of 40 per cent. formaldehyde—there are added 150 parts by weight of chlorid of zinc lye of 52 degrees Baumé and 120 parts of powder of zinc; this is heated to near boiling point and then allowed to stand in the water bath. According as the thickening mass requires, it is stirred from time to time so that it always forms a uniform dough. Within about half an hour at most the mass forms a stiff paste, which is allowed to stand for some further time in the water-bath without further stirring.

Example II: Formaldehyde-sodium-bisulfite produced from 250 parts by weight of sodium-bisulfite of 38 degrees Baumé and 75 parts by weight of 40 per cent. formaldehyde is diluted with 1000 parts of water and there are added 160 parts by weight of zinc acetate and 120 parts of zinc powder. The whole is heated, thoroughly stirring the while, for 2 or three hours until it boils. During the process the low-solubility formaldehyde-zinc-sulfoxylate separates out; it is filtered and washed.

What I claim is:

1. The process of preparing substantially insoluble zinc formaldehyde sulfoxylate which consists in reacting on a solution of an alkali formaldehyde-bisulfite with zinc powder in presence of a soluble zinc salt.

2. The process of preparing substantially insoluble zinc formaldehyde sulfoxylate which consists in heating nearly to the boiling point a solution of an alkali formaldehyde-bisulfite together with zinc powder and a soluble zinc salt.

In witness whereof, I subscribe my signature, in presence of two witnesses.

FERDINAND RADEMACHER.

Witnesses:

ARTHUR SCHWER,
M. L. BRITAIN.