

UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING FORMALDEHYDE SULFOXYLATES.

No. 841,999.

Specification of Letters Patent.

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To all whom it may concern:

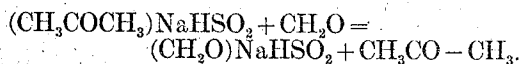
Be it known that we, RUDOLF MÜLLER, Ph. D., and WOLDEMAR WOLLENBERG, Ph. D., chemists, citizens of the Empire of Germany, residing at Höchst-on-the-Main, Germany, have invented certain new and useful Improvements in Formaldehyde Sulfoxylates and Processes of Making Same, of which the following is a specification.

As by the action of formaldehyde on hydrosulfite ketone sulfoxylates may also be obtained by the action of acetone or ethylmethylketone on alkaline hydrosulfites, which may be isolated afterward by crystallization. These ketone sulfoxylates can also be produced by reducing the products of reaction of bisulfites, sulfurous acid, or hydrosulfite on acetone or ethylmethylketone or by subjecting these compounds to reduction in presence of said ketones.

The ketone sulfoxylates are obtained, for instance, as follows: Into a solution of sixty-five parts of acetone in one thousand parts of water are introduced sixty-four parts of sulfur dioxide. One hundred and twenty parts of zinc-dust are then added while stirring and well cooling, and if no further spontaneous heating occurs the temperature is raised to 50° to 60° centigrade. After heating for some hours a solution of acetone zinc sulfoxylate is obtained, which when treated with sodium carbonate is transformed into acetone sodium sulfoxylate.

We have found that ketone sulfoxylates may be transformed into the more stable formaldehyde sulfoxylates if the former are treated with formaldehyde. By the action of the formaldehyde on ketone sulfoxylates the ketone is eliminated with formation of formaldehyde sulfoxylate, which is readily observed in that the solution of the ketone sulfoxylates treated with the equivalent pro-

portion of formaldehyde no longer reduces indigo sulfonic acid in the cold. The reaction of this process may be interpreted by the following equation:



The process for obtaining formaldehyde sulfoxylate from ketone sulfoxylates may be carried out, for instance, as follows: To a solution containing one hundred and forty parts of acetone sodium sulfoxylate of one hundred per cent. strength in one liter of water are added while stirring seventy-five parts of formaldehyde of forty-per-cent. strength. The combination occurs rapidly, and the formaldehyde sodium sulfoxylate may then be obtained in solid form by evaporating in a vacuum, while the acetone is distilled off. For the acetone sodium sulfoxylate other salts—such, for instance, as the zinc salt—may be used in a like manner.

Having now described our invention, what we claim is—

1. The herein-described process for the manufacture of formaldehyde sulfoxylates, which consists in treating the sulfoxylates of ketones having the formula CH_3COX , where in X means methyl or ethyl, with formaldehyde.

2. The herein-described process for the manufacture of formaldehyde sulfoxylates, which consists in treating the sulfoxylates of acetone with formaldehyde.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

RUDOLF MÜLLER.

WOLDEMAR WOLLENBERG.

Witnesses:

JEAN GRUND,
CAPL GRUND.