the methionine hydantoin in the presence of soda is carried out, and a portion of sodium carbonate formed during the alkaline hydrolysis is separated and can be recycled in the saponification step, enabling to obtain a methioninate aqueous solution less concentrated in sodium carbonate. Thus, according to US4391987A, sodium carbonate is separated by cold precipitation, at a temperature ranging from -10°C to 5°C. This has the disadvantage of using refrigerants and having to cool a saponification solution being at more than 100°C, resulting in a significantly high energy cost. US6126972A provides an improvement of this separation by concentrating the saponification solutions in order to hot-precipitate (100-130°C) sodium carbonate and separate it by hot-filtration (100-130°C). The purpose of this separation is to obtain sodium methioninate which can be granulated thereafter via a fluidized bed.

Summary

In one aspect, the present invention refers to a continuous process for manufacturing methionine by alkaline hydrolysis of methionine hydantoin in aqueous phase, removing NH_3 and CO_2 from the hydrolysis medium, and neutralizing the obtained methioninate salt, characterized in that, after removing NH_3 and CO_2, the hydrolysis reaction medium is concentrated to precipitate Na_2CO_3, said Na_2CO_3 being separated then recycled for alkaline hydrolysis, the latter being carried out in the presence of NaOH and Na_2CO_3.

Detailed Description

The invention relates to the development of a process enabling the production of highly pure solid methionine which has the advantage of being much more effective for animal nutrition, at equal weight, than its salt, the sodium methioninate, and so far, is still not remedied to the excessive co-production of sodium sulfate during the neutralization of methioninate into methionine.

The invention provides a solution with a process for manufacturing methionine including an additional step enabling to significantly reduce the amount of formed sodium sulfate. This process can be implemented on the industrial scale via a continuous or discontinuous process. The methionine yields are nearly quantitative and the quality of methionine is not affected by the provided modification.

Thus, the method of the invention comprises alkaline hydrolysis of methionine hydantoin in aqueous phase, the removal of NH_3 and CO_2 from the hydrolysis medium, and the neutralization of the methioninate salt, said method

including a step of concentrating the hydrolysis reaction medium, after removing NH_3 and CO_2, this concentration allowing precipitating Na_2CO_3, said Na_2CO_3 being separated then recycled in the previous alkaline hydrolysis step. The alkaline hydrolysis step of the method of the invention is thus carried out in the presence of NaOH and Na_2CO_3, which allows, on the one hand, significantly reducing the required amount of soda, this reduction being compensated by a supply of sodium carbonate from the method itself, and on the other hand, decreasing the amount of sodium sulfate formed at the end of the neutralization.