It is an object of the ~~present~~ ~~invention~~embodiments disclosed herein to provide a process for the preparation of methionine which avoids the described disadvantages. The methionine obtained by the process should be readily filterable and have a high bulk density. Furthermore, the process should be able to be carried out in continuous mode and in particular should avoid the negative consequences of accumulation processes.

~~To achieve this object~~In one aspect, ~~the present invention~~there is provide~~d~~s a process for the preparation of D,L-methionine, in which carbon dioxide is fed to an aqueous potassium methioninate solution obtained by hydrolysis of 5-(2-methylmercaptoethyl)hydantoin, in order to precipitate out crude methionine, which is separated off and purified, where, for the purposes of purification, an aqueous solution of the separated-off crude methionine is prepared and subjected to a recrystallization,characterized in that. ~~In the process,~~ the solution from which the recrystallization takes place contains potassium ions and also a crystallization additive, where the crystallization additive is a nonionic or anionic surfactant, or a mixture of different nonionic or anionic surfactants. ~~According to the invention, the recrystallization takes place~~ by introducing a 60 to 110°C-hot methionine solution into a 35 to 80°C-warm methionine suspension, the temperature of which is lower than that of the introduced solution, the temperature of the methionine suspension being maintained between 35 and 80°C during the addition.

The hot methionine solution is preferably cooled rapidly by introducing it into the initial charge of cooler methionine suspension, as a result of which a superconcentration of dissolved methionine is produced and methionine precipitates out from the solution. In this way, the preference in the crystal growth spatial direction is interrupted and an isometric crystal habit is achieved. However, besides the desired isometric crystals, it is also possible for undesired new, platelet-like crystal germs to form as a result of this rapid cooling mode. In one preferred embodiment of the process according to the ~~invention~~disclosure, these can be specifically redissolved by moderately increasing the temperature by 5-15°C, preferably by 6-12°C, compared to the mixing temperature.

As a result of the combination according to the ~~invention~~disclosure of the presence of potassium ions, the addition of crystallization additive and the temperature control of the recrystallization, coarsely granular, readily filterable methionine crystals with a bulk density of above 500 g/l are obtained.

In another aspect, there is provided a D,L-methionine obtained by a process as defined above, characterized in that a silicone oil antifoam is used in said process.

In a preferred embodiment of the process, the crystallization additive is one of the compounds shown in formulae 1 to 3, or a mixture thereof:

$R^1–O–SO_3M$ (formula 1)

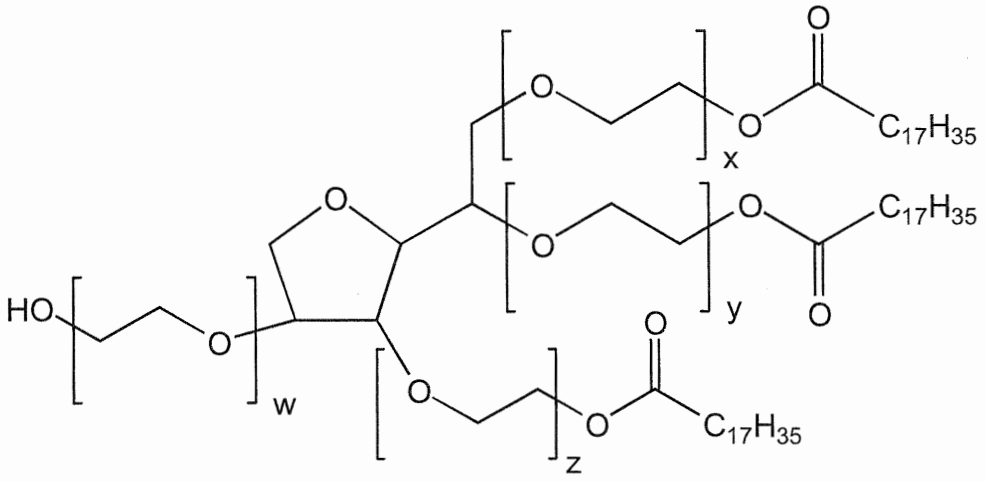
$R^2–O–(CH_2)_n–SO_3M$ (formula 2)

$R^3–(O–C_2H_4)_n–O–SO_3M$ (formula 3)

where n is an integer from 1 to 12, M is sodium or potassium and R^1, R^2 and R^3 are a linear, branched or cyclic, saturated or unsaturated C_8 to C_{20} alkyl group or an aryl group.

In a preferred embodiment of the aforementioned compounds, n = 2 and R^1, R^2 and R^3 are linear, saturated C_8 to C_{18} alkyl groups.

In a further embodiment of the process, the crystallization additive is a sorbitan fatty acid ester or a mixture of different sorbitan fatty acid esters, preferably polyethoxylated sorbitan fatty acid esters. In a particularly preferred embodiment, the crystallization additive is a polyethoxylated sorbitan stearate, and in particular a polyethoxylated sorbitan tristearate according to formula 4:



(formula 4)

where w + x + y+ z = 20.