is both long and costly. Moreover, for dianhydrohexitols in powder form, it is suitable to provide, in addition to the abovementioned operations, a step of pelletizing with a view to avoiding problems of caking.

Now, and against all expectations, the applicant company has been able to observe, following numerous studies, that there is a very simple way to condition dianhydrohexitols in an extremely stable manner over time. This method relies on the conditioning of said dianhydrohexitol in the form of an aqueous solution in a packaging material comprising at least one layer based on polyolefin, such as, especially, polyethylene. Surprisingly, the applicant has observed that the stability of a dianhydrohexitol conditioned in liquid form in this way is much better than that of a solid dianhydrohexitol packaged according to the prior art cited above.

This is all the more surprising since this type of material did not give good results in the case of solid isosorbide, as indicated in the comparative examples of the document WO 2009 / 019371 already cited. Moreover, this also goes against the teaching according to which it is necessary to rely on conditioning materials impermeable to gases, under reduced oxygen pressure, or even also under limited nitrogen pressure.

Moreover and entirely advantageously, by limiting the amount of antioxidants in the packaging material, food and pharmaceutical applications become feasible, which was not certain in the case of the document WO 2009 / 019371 which recommends working with at least 0.1% by weight of these additives in the packaging barrier layer.

This is therefore a conditioning method which is particularly simple to implement, very inexpensive and perfectly suited to aqueous solutions of dianhydrohexitol. This method makes it possible especially to package and condition aqueous solutions of dianhydrohexitol in an extremely stable manner over time. In the present application, this stability is understood very simply through monitoring the change in the pH of said composition over time. A significant change or shift in this pH is proof of the phenomenon of oxidation of the dianhydrohexitol, which will lead to the formation of formic acid. Finally, dianhydrohexitols are advantageously made available, which may be packaged, handled and transported within the context of final applications in the food and pharmaceutical sectors.

SUMMARY

The method which is the subject of said application therefore relates to a method for conditioning a dianhydrohexitol, comprising:

- providing an aqueous solution of dianhydrohexitol,
- introducing said aqueous solution of dianhydrohexitol into a container,
- then closing said container,

in which said container comprises a layer based on polyolefin.

Another aspect relates to a container containing an aqueous solution of dianhydrohexitol, said container comprising a layer based on polyolefin and said layer not containing more than 0.1% by weight of antioxidant relative to the total weight thereof.

Detailed Description

The expression "aqueous solution of dianhydrohexitol" denotes a composition containing essentially water and at least one dianhydrohexitol. It is especially characterized by the dry matter thereof, expressed as % dry weight relative to the total weight thereof. The latter is especially between 40% and 95%, preferentially between 50% and 90%, very preferentially between 60% and 85%. It is moreover suitable not to associate said aqueous solution of dianhydrohexitol with another liquid form of dianhydrohexitol: namely a melt of dianhydrohexitol, that is to say a dianhydrohexitol in a molten state at a temperature of greater than or equal to 63 +- 2°C (at atmospheric pressure).

Generally, dianhydrohexitols are synthesized in the presence of water (or water is generated during their synthesis): by recovering said dianhydrohexitol in this reaction medium, this immediately gives an aqueous solution of dianhydrohexitol which can be used according to the invention. The solutions of dianhydrohexitols may especially be obtained according to the methods described in the abovementioned patent applications EP 1 287 000 and WO 03 / 043959. It is possible to choose to retain all or some of the water used during the preparation of the dianhydrohexitol or to eliminate all the water to obtain a product in solid form which will be returned to aqueous solution by simply adding water, which constitutes another possibility for preparing an aqueous solution of dianhydrohexitol which can be used according to the invention.

The aqueous solution in question may contain a single dianhydrohexitol, just as it may contain several thereof. These dianhydrohexitols (1,4:3,6-dianhydrohexitols) encompass isosorbide (1,4:3,6-dianhydrosorbitol), isomannide (1,4:3,6 dianhydromannitol), isoidide (1,4:3,6-dianhydroiditol) and mixtures of at least two of these products. The aqueous solution preferably only contains a single dianhydrohexitol, which is isosorbide.

"Method for conditioning" is intended to mean an operation which consists in placing a product in a container, with which it is in direct contact, in order to facilitate the protection and preservation thereof.