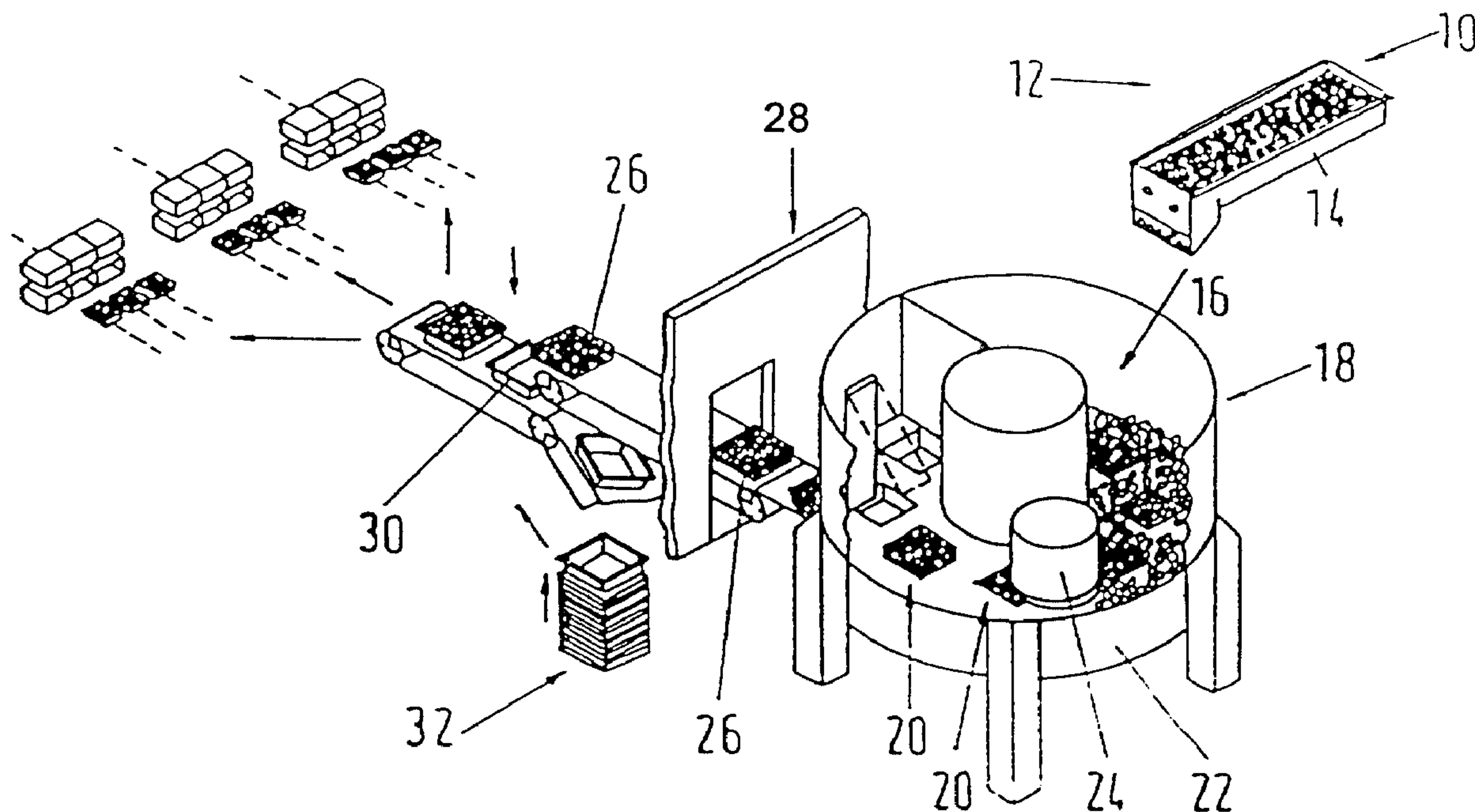




(86) Date de dépôt PCT/PCT Filing Date: 1995/01/13  
 (87) Date publication PCT/PCT Publication Date: 1995/08/17  
 (45) Date de délivrance/Issue Date: 2001/08/14  
 (85) Entrée phase nationale/National Entry: 1996/07/31  
 (86) N° demande PCT/PCT Application No.: DE 95/00054  
 (87) N° publication PCT/PCT Publication No.: WO 95/21541  
 (30) Priorité/Priority: 1994/02/09 (P 44 04 083.0) DE

(51) Cl.Int.<sup>6</sup>/Int.Cl.<sup>6</sup> A23K 1/18  
 (72) Inventeurs/Inventors:  
 Langen, Theo, DE;  
 Protz, Meinhard, DE;  
 Kalisch, Peter, DE;  
 Kregel, Gebhard, DE;  
 Stein, Roland, DE;  
 Luttmann, Jürgen, DE;  
 Siegmund, Yvonne, DE;  
 Emberger, Harald, GB  
 (73) Propriétaire/Owner:  
 Effem GmbH, DE  
 (74) Agent: G. RONALD BELL & ASSOCIATES

(54) Titre : PROCÉDE POUR LA PRÉPARATION D'UN PRODUIT A BASE DE VIANDE EN MORCEAUX  
 (54) Title: PROCESS FOR PRODUCING A LUMPY MEAT PRODUCT



(57) Abrégé/Abstract:

Process for producing a meat product, such as an animal food, particularly for domestic pets, comprising lumpy meat material and a liquid sauce or gravy which is filled into a container, such as a shell pack, tin can, etc., and a meat product produced by this process. The meat raw material is cut up in frozen form into meat lumps, and together with the sauce or gravy is filled into a base of the container. Finally, a container top is connected to the base in a liquid- and gas-tight manner and a sterilization process takes place. The process is characterized in that both the meat material, comprising the meat lumps, optionally accompanied by the addition of prefabricated molded pieces with a meat or vegetable base, and the sauce or gravy, the latter in granule form, are compression molded into a shaped article in frozen, solid, quasi-dry state which is then introduced into the base.

**2182510**

ABSTRACT

Process for producing a meat product, such as an animal food, particularly for domestic pets, comprising lumpy meat material and a liquid sauce or gravy which is filled into a container, such as a shell pack, tin can, etc., and a meat product produced by this process. The meat raw material is cut up in frozen form into meat lumps, and together with the sauce or gravy is filled into a base of the container. Finally, a container top is connected to the base in a liquid- and gas-tight manner and a sterilization process takes place. The process is characterized in that both the meat material, comprising the meat lumps, optionally accompanied by the addition of prefabricated molded pieces with a meat or vegetable base, and the sauce or gravy, the latter in granule form, are compression molded into a shaped article in frozen, solid, quasi-dry state which is then introduced into the base.

PROCESS FOR PRODUCING A LUMPY MEAT PRODUCT

The invention relates to a process for producing a meat product, such as animal food, more particularly intended for pets or the like, comprising lumpy  
5 meat material and a sauce or gravy which is filled into a container, such as a shell pack, tin can, film pack, tray pack, etc. Meat raw material is cut up into meat lumps and together with the sauce or gravy is introduced into a container, preferably, the base of a container comprising a base and a top and finally the  
10 container is processed to a substantially liquid- and gas-tight state and a sterilization process is performed.

Meat products of the aforementioned type, such as those fed to pet dogs or cats, have hitherto been produced by cooling the meat raw material to approximately -5°C and then cutting it up at this temperature. The meat material comprising the thus produced meat lumps and optionally accompanied by the  
15 addition of prefabricated meat and/or vegetable-based shaped pieces are filled into the base of the container, which can, for example, be produced by the deep drawing of coated sheet aluminum. As soon as the solid ingredients have been filled into the base, the sauce or gravy is added, before fitting the top and the connection thereof with the base to form a substantially gas- and liquid-tight  
20 container, e.g. by using a covering foil or film. It is known that the sauce or gravy can be mixed with the meat material prior to introduction into the base. In any case the sauce or gravy which, in the prior art process and in the present invention, can contain various condiments, passes into the base in a liquid or at least flowable state, with a varyingly high viscosity.

25 When a precise volume or weight dosing of the material comprising a lumpy and a liquid phase is to be introduced into the base it is unavoidable that the splashing of sauce or gravy will occur, particularly as a result of the high throughput of modern filling plants. When sauce or gravy splashes onto the sealing edge or rim of the base of a shell pack, the seal of the top and base may  
30 leak at the joint in question, which is unfavourable for the keeping quality or shelf-life of the meat product.

During the prior art procedure as a result of the heat treatment for sterilization occurring on sealing the container, there is a detrimental effect on the appearance of the meat product because at the interface of the liquid sauce or gravy phase and the solid, lumpy phase there is a pasty transition zone, which may make the meat product appear as an unattractive, uniform mass. It is in fact desirable for the lumpy nature of the meat product to be clearly visible on opening the container and to exhibit a pronounced separation between the liquid and solid phases. The same disadvantageous phenomenon occurs if the pack is not constituted by a solid container, but instead by a film or foil pack, for example.

The object of the invention is to develop a process of the aforementioned type such that the lumpy state of the meat product and the container seal are improved over the prior art whilst ensuring low manufacturing and material costs.

According to the invention this object is met in that the meat material, comprising meat lumps, and the sauce or gravy are compression molded into a shaped article which is then fed in an at least surface-frozen state into the container.

The meat raw material in frozen form can be cut up into meat lumps and both the meat material formed therefrom and the sauce or gravy, whereby the latter is in granule form, are compression molded into a shaped article in the frozen, solid and quasi-dry state and as such are introduced in the frozen, solid, quasi-dry state into the container.

In an embodiment of the invention, prefabricated meat or vegetable-based shaped portions are added to the meat lumps for forming the meat material.

The invention also proposes that the meat material and the sauce or gravy granules are kept at a temperature of approximately  $-3^{\circ}$  during compression molding. The meat material and the sauce or gravy granules can be kept at a temperature of approximately  $-5^{\circ}$  during compression molding.

Optionally, the molded article temperature on introduction into the packing material may be below  $-3^{\circ}$  and is preferably approximately  $-5^{\circ}$ .

According to the invention, the meat material and the sauce or gravy granules can be mixed with one another in the frozen, solid and quasi-dry state.

According to the invention, when using a container comprising a base and a top, the shaped article is produced with external dimensions corresponding to the internal dimensions of the prefabricated base.

The invention also proposes that the compression molding of the shaped article should take place within the prefabricated base.

According to the invention, when using a container comprising a top and a base, the base can be produced simultaneously during the compression molding process used for producing the shaped article such as by compression molding, deep drawing, etc.

According to another embodiment of the invention, during the compression molding process the shaped article is enveloped in a gas- and/or liquid-tight manner with a plastic sleeve or the like.

Optionally, a material is used for enveloping the shaped article which at a temperature suitable for sterilization is transformed into an ingredient of the meat product.

According to the invention, the container base filled with the shaped article is subject to a vacuum production process prior to closure.

Alternatively, the container base filled with the shaped article can be gassed with an inert gas such as CO<sub>2</sub>, N<sub>2</sub>, etc. prior to closure.

According to the invention, it is also possible to proceed in such a way that the meat product and the sauce or gravy are sterilized prior to freezing and subsequently, whilst avoiding a subsequent sterilization of the filled pack, are further processed until a gas- and liquid-tight closure of the pack is obtained under sterile conditions.

According to another embodiment of the invention, after the production of a gas- and liquid-tight closure, the pack undergoes a subsequent sterilization using pressure and heat.

According to the invention, the sauce or gravy granules can be produced in an oxygen-free manner from water and other condiments, such as

spices, solids, etc. It is also possible to proceed in such a way that an inert gas, such as CO<sub>2</sub>, N<sub>2</sub> or the like is used for producing the sauce or gravy granules.

5 According to another embodiment of the invention, use is made of two-component sauce or gravy granules constituted by a dry component and ice crystals.

Finally, the invention also relates to a meat product produced according to the process of the invention.

10 The invention is based on the surprising finding that it is possible to decisively improve upon the prior art process in that the lumpy ingredients, i.e. the solid phase of the meat product to be produced, and the liquid phase, i.e. the sauce or gravy which, besides solid constituents can also contain water, are molded together preferably in the frozen, solid and quasi-dry state and optionally following corresponding mixing and when using a container comprising a top and a base wherein said meat product either precisely corresponds to the internal  
15 dimensions of a prefabricated base or is produced simultaneously therewith in the compression molding process. The shaped article is preferably introduced in frozen form into the base, so that with correspondingly precise volume or weight dosing of the individual components, it is possible to ensure a precise spacing of the upper edge of the shaped article from the sealing edge or rim of the base or  
20 the like. This obviates any dirtying of the sealing rim or the like, because no liquid materials are filled into the base. Subsequently the top can be reliably connected to the base, whilst avoiding any foreign body influence.

25 According to the invention, the product to be packed comprising the meat material and the gravy component in molded form and either entirely or only surface-frozen is then introduced into the packing material and e.g. in the case of a film or foil pack it can also be provided that, unlike in the case of a solid packing component such as the base of a container, the shaped article is not inserted in the particular packing component but is instead merely wrapped in the packing material, e.g. a packing film or foil and is then further processed to a  
30 liquid- and gas-tight pack.

It has been found that by mixing the lumpy phase and the liquid, namely sauce or gravy phase in the frozen state, and also after subsequent

sterilization, on opening the container the meat product has a much better lumpy appearance, which is attractive from the esthetic and taste standpoint, quite unlike the product formed by the prior art procedure.

5 It is also advantageous that, according to the invention, optionally a substantially oxygen-free sauce or gravy granular product can be used, so that the oxygen content within the pack is reduced and therefore the keeping quality of the meat product can be improved. As a result of a suitable process it is possible to produce "snowflake-like" ice crystals, which ensure an ideal compression molding process.

10 Further features and advantages of the invention can be gathered from the following description of an embodiment relative to the attached drawings in which:

Figure 1 depicts an apparatus for performing an embodiment of the process according to the invention.

15 Figure 2 a) to d) depict in detail the apparatus of Figure 1 at different stages of the described embodiment of the process according to the invention.

As symbolically shown in Figure 1, lumpy meat material 10 in the frozen state (i.e. at  $-4^{\circ}\text{C}$  in the selected embodiment) which comprises meat lumps, vegetable ingredients, etc., as well as sauce or gravy in the form of granules 12, is fed into a buffer mixer 14, which is also at  $-4^{\circ}\text{C}$ . From said buffer mixer 14 the meat material and sauce or gravy granules pass in the direction of the arrow 16 into a compression molding means 18, which rotates at a speed of 450 r.p.m. and has a plurality of mold depressions 20, which are located in a rotary plate 22 rotating at the aforementioned speed and which cooperate with a rotating knife 24 circumferentially fixed relative to the plate 22.

25 The compression molding means 18 is in a room or area with an ambient temperature of  $-4^{\circ}\text{C}$ . The molded articles 26 produced by the compression molding means 18 pass through a temperature lock 28, are subsequently placed in the bases 30 of shell packs supplied by a magazine 32 and then there is a distribution into three processing lines according to the embodiment of Figure 1, in which the bases 30 are sealed by means of a  
30 corresponding covering foil or film constituting the container top.

As can be seen in Figure 2, in stage a) of the inventive process the mixture of the meat material 10 and the sauce or gravy granules 12 at a temperature of  $-4^{\circ}$  is filled into the mold depression 20 of the rotary plate 22 and naturally part of the filling is "heat" in the quasi-dry, solid state above the mold depression 20.

In stage b) the rotary knife 24 simultaneously serving as the female mold moves over the mold depression 20 and seals the latter at the top, cooperating with the rotary plate 22, so that the compression molding operation is carried out by a male mold 34 which moves up and down and in this way the molded article 26 can be produced.

In stage c) the molded article 26, still in the frozen state and having external dimensions corresponding to the internal dimensions of the base 30, is raised by an inner die 36 located in vertically displaceable manner within the male mold 34 and is transported away in the direction of the arrow. In stage d) the molded articles 26 are successively brought together with the bases 30 and placed flush therein.

Although not shown in the drawings, this is followed by the sealing of the bases 30 with the shaped or molded articles 26 located therein, e.g. by hot sealing with a cover film or the like.

Prior to the sealing of the bases 30 with the shaped articles 26 located therein, they can be alternatively subject to a vacuum production process or a gassing with an inert gas such as  $\text{CO}_2$ ,  $\text{N}_2$ , etc.

The inventive features disclosed in the description, drawings and claims both in individual and combined form are important for realizing the different embodiments of the invention.

2182510

~~11~~  
6a

LIST OF REFERENCE NUMERALS

10	Meat material
12	Gravy granules
14	Buffer mixer
16	Arrow
18	Compression moulding means
20	Mould depression
22	Rotary plate
24	Rotary knife
26	Shape moulded article
28	Temperature lock
30	Base
32	Magazine
34	Male mould
36	Inner die

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A process for producing a meat product comprised of a lumpy meat material and a sauce or gravy, comprising the steps of:
  - cutting up meat raw material into lumpy meat material;
  - compression molding the lumpy meat material together with the sauce or gravy into a shaped article;
  - filling a base of a pack with said shaped article in an at least surface-frozen state;
  - connecting a top to said filled base;
  - processing said pack to be liquid- and gas-tight; and
  - conducting a sterilization process.
2. A process according to claim 1, wherein the meat raw material in frozen form is cut up into lumpy meat material and both this meat material and the sauce or gravy, which is in granular form, are compression molded in frozen, solid, quasi-dry state into a shaped article and introduced as such into the pack.
3. A process according to claim 1 or 2, wherein prefabricated shaped articles having a meat or vegetable base are added to said lumpy meat material prior to forming the compression molded meat material.
4. A process according to claim 2 or 3, wherein the meat material and the sauce or gravy granules are kept at a temperature of approximately  $-3^{\circ}\text{C}$  during compression molding.
5. A process according to claim 2 or 3, wherein the meat material and the sauce or gravy granules are kept at a temperature of approximately  $-5^{\circ}\text{C}$  during compression molding.

6. A process according to any one of claims 1 to 5, wherein the temperature of the shaped article on introduction into said pack is below  $-3^{\circ}\text{C}$  .

7. A process according to any one of claims 1 to 5, wherein the temperature of the shaped article on introduction into said pack is approximately  $-5^{\circ}\text{C}$ .

8. A process according to any one of claims 1 to 7, wherein the meat material and the sauce or gravy granules are mixed together in the frozen, solid, quasi-dry state.

9. A process according to any one of claims 1 to 8, wherein said shaped article is produced with external dimensions corresponding to the internal dimensions of the base of said pack.

10. A process according to claim 8, wherein the compression molding of the shaped article takes place in the base of a pack.

11. A process according to any one of claims 1 to 7, wherein said base is produced during the compression molding process used for producing said shaped article.

12. A process according to any one of claims 1 to 11, wherein during the compression molding process, the shaped article is enveloped by a plastic sleeve in a gas- and/or liquid-tight manner.

13. A process according to claim 11, wherein a material which at a temperature suitable for sterilization is transformed into an ingredient of the meat product is used to envelop the shaped article.

14. A process according to any one of claims 1 to 13, wherein said base filled with said shaped article is subject to a vacuum production process prior to sealing.
15. A process according to any one of claims 1 to 13, wherein said base filled with said shaped article is gassed with an inert gas prior to sealing.
16. A process for producing a meat product comprised of a lumpy meat material and a sauce or gravy, comprising the steps of:
  - cutting up meat raw material into lumpy meat material; and sterilizing the lumpy meat material;
  - compression molding the lumpy meat material together with sterilized sauce or gravy into a shaped article;
  - filling a base of a pack with said shaped article in an at least surface-frozen state;
  - connecting a top to said filled base; and
  - processing said pack to be liquid- and gas-tight.
17. A process according to any one of claims 1 to 12, wherein after producing a gas- and liquid-tight closure, the pack undergoes sterilization using pressure and heat.
18. A process according to any one of claims 1 to 17, wherein the sauce or gravy granules are produced in an oxygen-free manner from water and other condiments.
19. A process according to claim 18, wherein the condiments include spices or solids.
20. A process according to claim 17, wherein an inert gas is used for producing the sauce or gravy granules.

21. A process according to claim 15 or 20, wherein the inert gas is carbon dioxide or nitrogen.
22. A process according to claim 17, 18, 19 or 20, wherein a two-component granular sauce or gravy product is used comprising a dry component and ice crystals.
23. A process according to any one of claims 1 to 22, wherein said pack is a shell pack, tin can, film pack or tray pack.
24. A packaged meat product produced by a process according to any one of claims 1 to 23.
25. A packaged meat product according to claim 24, wherein said product is an animal food for pets.



