A portion capsule for preparing a beverage is proposed, having a substantially frustoconical or cylindrical base element, which has a cavity for accommodating a beverage raw material, and a membrane which closes the cavity, with a wall region of the base element having a plurality of channels.
PORTION CAPSULE AND USE OF A PORTION CAPSULE

BACKGROUND

[0001] The present invention relates to a portion capsule for preparing a beverage, having a substantially frustoconical or cylindrical base element, which has a cavity for accommodating a beverage raw material, and a membrane which closes the cavity.

[0002] Portion capsules of this kind are generally known. For example, FR 2 556 323 A1 discloses a portion capsule which has a frustoconical or cylindrical base element and is used for preparing a beverage, with a cavity within the portion capsule being filled with a beverage raw material, in particular with a coffee powder, and being closed by means of a membrane. In order to prepare a coffee beverage, the portion capsule is arranged in a brewing chamber in which the membrane is perforated and an extraction liquid, in particular hot water, is introduced into the cavity. The extraction liquid flows through the beverage raw material, and therefore a beverage extract, in particular a coffee beverage, is formed. In the brewing chamber, a bottom region of the portion capsule is also perforated, and therefore the beverage extract can leave the portion capsule and pass, if appropriate, into a beverage receptacle, for example, a coffee cup.

[0003] One disadvantage of this portion capsule is that the portion capsule has a comparatively low degree of mechanical stability. The extraction liquid is injected into the brewing chamber under excess pressure during the extraction process, so that the portion capsule is subjected to a comparatively high pressure during the extraction process. Therefore, there is a risk of the portion capsule buckling laterally, in particular in a wall region between the membrane and the bottom region, and, as a result, the beverage raw material not flowing uniformly through the brewing chamber and/or the extraction liquid flowing laterally around the portion capsule in the brewing chamber. The taste of the beverage to be extracted will be adversely affected as a result.

SUMMARY

[0004] The object of the present invention is therefore to provide a portion capsule which does not exhibit the disadvantages of the prior art and, furthermore, can be produced in a comparatively simple and cost-effective manner.

[0005] The object is achieved by way of a portion capsule for preparing a beverage, having a substantially frustoconical or cylindrical base element which has a cavity for accommodating a beverage raw material, and a membrane which closes the cavity, with a wall region of the base element having a plurality of channels.

[0006] The advantage of the portion capsule according to the invention over the portion capsule according to the prior art is that the wall region of the base element is reinforced by the plurality of channels. This firstly has the advantage that the portion capsule has a greater degree of mechanical stability, and therefore deformation, and in particular lateral buckling, of the portion capsule is prevented. This preferably ensures that the beverage raw material flows uniformly through the brewing chamber, as a result of which the quality and the reliability of the extraction process can be considerably increased. In particular, the increase in mechanical stability due to the use of the plurality of channels means that the material thickness of the base element can be reduced overall.

This makes production of the portion capsule considerably more cost-effective and environmentally friendly. Secondly, the plurality of channels means that adhesion of the wall region to the brewing chamber wall in the brewing chamber is reduced or avoided, this being advantageous for ejection or removal of the portion capsule from the brewing chamber. A further advantage of the plurality of channels is that the flow of extraction liquid along the base region is subject to eddying due to the channel structure in the wall region within the cavity. More intense eddying of the extraction liquid in the cavity in comparison to the prior art has the advantage over the prior art that no undesired and accidental main liquid flows are formed through the bed of the beverage raw material, but instead that the liquid flows through the entire volume of the beverage raw material. The extraction process can therefore be controlled and reproduced significantly more efficiently and precisely. As an alternative, it is feasible for the capsule wall to have a greater material thickness than the base region, and therefore puncturing of the portion capsule in the bottom region is simplified. The beverage raw material comprises, in particular, coffee powder (preferably ground roast coffee), chocolate powder, milk powder, tea or the like. As an alternative, it is feasible for the beverage raw material to comprise a beverage extract, for example instant coffee.

[0007] Within the meaning of the present invention, the channels are, in particular, convexities or concavities which preferably have a linear main extent. The channels are particularly preferably designed in the form of crossovers and/or grooves. In this case, the channels are optionally formed on an inner face of the base element, the said inner face facing the cavity, and/or on an outer face of the base element, the said outer face being averted from the cavity. Provision is particularly preferably made for the channels to each extend substantially in a plane which is parallel to the membrane, with the channels preferably each being intended to encircle the base element, for example in the form of rings which encircle the base element parallel to the membrane and are substantially closed.

[0008] According to a further subject matter or a preferred development of the present invention, provision is made for the membrane to be roughened at least on an outer face which is averted from the cavity. Therefore, adhesion of the membrane to a brewing chamber wall which faces the membrane is reduced or suppressed in an advantageous manner, and therefore the ejection or removal of the portion capsule from the brewing chamber after the extraction process is made easier. Particularly in the case of a brewing chamber with an automatic ejection mechanism, there is a risk of the portion capsule not being ejected reliably since, after the extraction process, a portion capsule wall or the membrane of the portion capsule sticks to a brewing chamber wall. Possible reasons for this could be, for example, electrostatic attraction forces between the portion capsule wall and the brewing chamber wall and/or corresponding surface tension of a liquid between the portion capsule wall and the brewing chamber wall. These effects are considerably reduced by structuring the portion capsule wall, for example by roughening the membrane and/or by arranging channels on the wall region, this therefore ensuring reliable automatic ejection of the portion capsule from the brewing chamber in comparison to the prior art. The membrane is preferably structured by the membrane being provided with a roughened protective film or foil on the outer face. As an alternative, it is feasible for the membrane to be roughened, for example, by means of laser irradiation.
According to a further subject matter or a preferred development of the present invention, provision is made for a wall region of the base element to have a shoulder. The shoulder advantageously enables a large number of portion capsules to be stacked, for example before the said portion capsules are filled. Before the portion capsules are filled with the beverage raw material, the portion capsule does not contain either beverage raw material or a membrane. The empty portion capsules, and in particular the base elements, can therefore be stacked one in the other, as a result of which a large number of empty portion capsules can be arranged in a comparatively compact manner. This reduces, in particular, transportation and storage costs. The portion capsule according to the invention now has a shoulder which is designed in the form of a stack edge, as a result of which two portion capsules which are stacked one in the other are held at a distance from one another. In this case, one portion capsule rests on the other portion capsule by way of the shoulder. The portion capsule preferably comprises a flange to which the membrane is attached, with the shoulder in each case being designed, in particular, to adjoin the flange. The shoulder of one portion capsule now advantageously rests on the flange of the other portion capsule. The two flanges of the two portion capsules which are stacked one in the other are advantageously spaced apart from one another in accordance with the height of the shoulder. Each flange is advantageously comparatively simple to pick up, in particular by machine, in order to separate the two portion capsules which are stacked one in the other. Furthermore, the spacing between the two portion capsules which are stacked one in the other prevents the formation of a vacuum between the portion capsules, and therefore the empty portion capsules can be separated from one another again in a reliable and simple manner. The portion capsule preferably has a flange to which the membrane is attached, with the shoulder being designed to adjoin the flange. The base element preferably comprises an enlarged diameter in the region of the shoulder in a plane parallel to the membrane. Provision is particularly preferably made for the base element to taper in the direction of the membrane in the region of the shoulder. This advantageously effectively prevents the shoulders of two empty portion capsules which are stacked one in the other slipping one into the other. The spacing between the two portion capsules is therefore reliably ensured in the case of large axial forces. This is of great importance, for example, when stacking a comparatively high number of empty portion capsules. The tapering design of the shoulder in the direction of the membrane also has the advantage that the portion capsule can be held by a holding or gripping arm which engages in the intermediate region between the flange and the shoulder, for example in the brewing chamber, when the brewing chamber is being filled or during production of the portion capsule, with the holding or gripping arm being automatically centred between the flange and the shoulder in this case. The shoulder therefore has a self-centring effect.

According to a further subject matter or a preferred development of the present invention, provision is made for the portion capsule to have a flange to which the membrane is attached, with a ratio of the outside diameter of that wall region of the base element which adjoins the flange to the outside diameter of the flange being between 0.79 and 0.95. The flange is therefore advantageously comparatively large in comparison to the wall region which adjoins the flange, and therefore a sufficiently large adhesion area is created on the flange for attaching the membrane to the flange in a stable manner and the cavity is centred in the flange region in a comparatively simple manner when the portion capsule is produced, for example using a deep-drawing process. In particular, the requirements for the requisite production tolerances are reduced as a result, and therefore the production costs can be lowered overall. Secondly, the flange is small enough in comparison to the wall region that the lever arm between the flange and the wall region is small. This advantageously leads to a situation where a force effect on the flange does not lead to undesired deformation of the wall region. The ratio of the outside diameter of that wall region of the base element which adjoins the flange to the outside diameter of the flange is preferably between 0.85 and 0.89, and in particular is substantially 0.87. Therefore, an optimum compromise is advantageously achieved between large production tolerances on the one hand and low use of material on the other. Furthermore, an optimum compromise is achieved between good adhesion between the flange and the membrane on the one hand, and a short mechanical lever arm between the flange and the wall region. Provision is particularly preferably made for the outside diameter of that wall region of the base element which adjoins the flange to be substantially 39 millimetres and/or the outside diameter of the flange to be substantially 45 millimetres.

According to a further subject matter of a preferred development of the present invention, provision is made for the base element to have a bottom region which extends substantially parallel to the membrane and a wall region which extends substantially between the membrane and the base region, with the base element having a greater material thickness in the bottom region than in the wall region. The base element is therefore advantageously stiffer in the bottom region than in the wall region. This has the advantage that puncturing the bottom region in the brewing chamber is considerably simplified since the bottom region does not yield or yields only slightly in the direction of the cavity during the puncturing operation. In a preferred development of the present invention, provision is made for a filter element to be arranged within the cavity, the said filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the filter element being welded to the bottom region on a side which faces a bottom region of the base element. This weld contact is produced, in particular, by means of ultrasonic welding. The weld contact is advantageously produced in a simplified manner by virtue of the relatively high material thickness in the bottom region since, in this case, there is enough material in the bottom region to produce the weld contact.

According to a further subject matter or a preferred development of the present invention, provision is made for a filter element to be arranged within the cavity, the said filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the filter element having a fusible element on a side which faces a bottom region of the base element. In the region of that side which faces the bottom region, the filter element is advantageously welded to the bottom region by means of an ultrasonic weld seam. During production of the ultrasonic weld seam, the fusible element is melted by means of ultrasound and therefore a weld connection to the bottom region is established. The weld connection is accordingly comparatively simple to
establish. As an alternative, the use of all other known welding processes is also feasible, for example a friction welding process.

[0013] According to a further subject matter or a preferred development of the present invention, provision is made for a filter element to be arranged within the cavity, the said filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the filter element having at least one holding area for picking up the filter element. The filter element can advantageously be picked up in an automated manner in the region of the holding area, and therefore automated installation of the filter element into the base element is made possible in particular. Therefore, the production costs for the portion capsule can be lowered.

[0014] According to a preferred development, provision is made for the filter element to have a plurality of filter openings, with the filter openings being arranged outside the holding area, and with the holding area particularly preferably being formed in a central region of the filter element. Therefore, it is advantageously possible to pick up the filter element using a suction head which holds the filter element in the region of the holding area by vacuum, without the vacuum being compensated by a subsequent flow of air through the filter openings. The suction head is preferably attached to an installation robot arm which can move in all directions in space.

[0015] According to a further subject matter or a preferred development of the present invention, provision is made for a filter element to be arranged within the cavity, the said filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the portion capsule having a ratio of a first distance between the membrane and the filter element to a second distance between a bottom region of the base element and the filter element of between 3.5 and 4.5. The ratio of the first distance to the second distance is preferably between 3.8 and 4.2, and preferably substantially 4. The first distance is particularly preferably substantially 20 millimetres and the second distance is substantially 5 millimetres. Therefore, an optimum ratio is advantageously achieved between the volume of the first region and the volume of the second region in order to extract a specific quantity of beverage raw material arranged in the first region and to bring a specific quantity of beverage raw material into contact with a specific quantity of air, which is located in the second region, during the extraction process. In particular, a coffee beverage with an optimum aroma and an optimum crema is particularly advantageously generated in this way. At the same time, the portion capsule can be produced in as compact and therefore cost-effective manner as possible.

[0016] According to a further subject matter or a preferred development of the present invention, provision is made for a filter element to be arranged within the cavity, the said filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the filter element having a circumferential sealing lip for sealing off the first region from the second region, the said sealing lip moulding itself against the wall region of the base element in a form-fitting manner and extending perpendicular to the membrane at least over the entire height of the filter element. The second region is advantageously sealed off from the first region by the sealing lip, and therefore no extraction liquid passes from the first region to the second region via the filter openings. This is necessary so that no beverage raw material enters the second region and from there enters the beverage. The sealing lip is self-sealing in such a way that an increase in pressure in the first region causes increased contact pressure by the sealing lip against the wall region, that is to say the sealing effect increases with the pressure to be sealed off. This effect is advantageously particularly great when the sealing lip projects beyond filter areas of the filter element in the direction of the membrane, the said filter area being provided with the filter openings. The sealing lip is, in particular, circular in a plane parallel to the membrane, with the diameter of the sealing lip preferably tapering in the direction of the bottom region of the base element.

[0017] A further subject matter of the present invention is the use of a portion capsule according to the invention for preparing a hot beverage.

[0018] Exemplary embodiments of the invention are illustrated in the figures and explained in greater detail in the following description. The figures are described merely as examples and do not restrict the general concept of the invention.

BRIEF DESCRIPTION OF THE FIGURES

[0019] FIGS. 1, 2 and 3 show schematic, lateral sectional views of a portion capsule according to a first, second and third embodiment of the present invention.

[0020] FIG. 4 shows a schematic perspective view of a portion capsule according to a fourth embodiment of the present invention.

[0021] FIG. 5 shows a schematic plan view of a filter element of a portion capsule according to a fifth embodiment of the present invention.

[0022] FIG. 6 shows a schematic perspective view of a plurality of stacked portion capsules according to a sixth embodiment of the present invention.

[0023] In the various figures, identical parts are always provided with the same reference numerals and are therefore generally also each cited or mentioned only once.

DETAILED DESCRIPTION

[0024] FIG. 1 illustrates a schematic, lateral sectional view of a portion capsule 1 according to a first embodiment of the present invention, with the portion capsule 1 having a substantially frustoconical base element 2 which is in the form of a pot and surrounds a cavity 3. The cavity 3 is closed off by a membrane 4. The base element 2 comprises, in particular, a soft, semi-rigid or rigid plastics material which has preferably been deep-drawn. The membrane 4 preferably comprises a thin plastics film or aluminium foil. The base element 2 has an encircling fastening flange 7 in the region of the membrane 4, with the membrane 4 being cohesively connected, in particular, welded or adhesively bonded, to the fastening flange 7. A filter element 5 which is produced from a thermoplastic, for example polypropylene, is arranged within the base element 2. The filter element 5 divides the cavity 3 into a first region 8 and into a second region 9. The first region 8 is intended to accommodate a beverage raw material, which is not illustrated in the figures for reasons of clarity. For example, the first region 8 is filled with a coffee powder before the cavity 3 is closed off by the membrane 4. The coffee powder is preferably intensely compressed when poured into the first region
8. The second region 9 serves to accommodate and, in particular, to collect a beverage extract (not depicted) during the extraction process of the portion capsule 1. The portion capsule 1 is intended to be inserted into a brewing chamber 10 of a coffee machine (not shown) in which an extraction liquid (for example, hot water) is supplied, preferably under high pressure, to the first region 8. This extraction liquid interacts with the beverage raw material, and therefore forms a beverage extract. The filter element 5 has a plurality of filter openings 13 (not depicted in FIGS. 1, 2 and 3) in a filter area 5' and therefore functions as a sieve for the beverage extract. In this case, the beverage extract passes through the filter openings 13 into the second region 9. The second region 9 is delimited by a bottom region of the base element 2, which bottom region is pierced in the brewing chamber 10, for example by a bottom puncturing stem 21 of the coffee machine, in order to produce an outlet opening for the beverage extract. As an alternative, it is feasible for an outlet opening to be formed automatically in the bottom region 11 under the pressure of the extraction liquid, and/or for an outlet opening or an outlet valve to already be integrated in the bottom region 11. The cross section of the filter openings 13 is selected in such a way that substantially no particles of the beverage raw material pass from the first region 8 to the second region 9. In order to prevent the filter element 5 from being displaced relative to the base element 2, the portion capsule 1 optionally has an ultrasonic weld connection 6 to the base element 2. The membrane 4 is roughened on a side which is averted from the cavity 3, and therefore adhesion between the membrane 4 and a wall of the brewing chamber 10 after the extraction process is prevented or reduced and therefore the portion capsule 1 is automatically ejected from the brewing chamber 10 in a fail-free manner. Furthermore, the base element 2 has a wall region 12 which extends substantially between the flange 7 and the bottom region 11. A plurality of channels 15 are made in the wall region 12, the said channels being designed in the form of substantially circumferential grooves which face the cavity 3. The channels 15 could also be partly interrupted in the circumferential direction. The channels 15 are further designed in such a way that the wall region 12 is reinforced by the plurality of channels 15. Furthermore, adhesion between the wall region 12 and the wall of the brewing chamber 10 after the extraction process is prevented by the plurality of channels 15 which are distributed, in particular, over the wall region 12, as a result of which automatic ejection of the portion capsule 1 from the brewing chamber 10 is made easier. The portion capsule 1 illustrated in FIG. 1 also comprises a circumferential shoulder 16 which is formed in an intermediate region between the wall region 12 and the flange 7 and which has a diameter (parallel to the membrane 4) which is larger than that of the wall region 12. The contour of the shoulder 16 is preferably designed such that the diameter of the shoulder 16 remains constant in the direction of the flange 7, as illustrated in FIG. 1, or reduces again in the direction of the flange 7, as illustrated in FIG. 3. The bottom region 11 has a greater material thickness in comparison to the wall region 12 in order, for example, to make it easier to puncture the bottom region 11 and establish the ultrasonic weld connection 6. The filter element 5 has a fusible element 17 on that side which faces the bottom region 11, the said fusible element being at least partly melted onto the bottom region 11 during an ultrasonic welding process in order to establish the ultrasonic weld connection 6. The filter element 5 has, by way of example, a reinforcement structure 5' which supports the filter area 5' on that side which faces the second region 9. The filter element 5 also has a circumferential sealing lip 18 which is connected to the other filter element 5 in the vicinity of the bottom region 11 and projects from there in the direction of the flange 7. The sealing lip 18 is at least partly flexible and projects beyond the filter area 5' in the direction of the flange 7. The free end of the sealing lip 18 snaps into a groove 15, which is made in the wall region 12, and moulds itself against the wall region 12 in a form-fitting manner, and therefore an additional seal is created between the first region 8 and the second region 9, the said seal preventing liquid flowing around the filter element 5. In this case the sealing lip 18 is designed in such a way that it has a pressure area 18' which faces the first region 8. An increase in the pressure in the first region, for example due to extraction liquid flowing into the cavity 3, now leads to a force of action on the pressure area 18' in the direction of the wall region 12, and therefore the sealing action between the wall region 12 and the sealing lip 18 is increased as a function of the pressure in the first region 8. A first distance along a line which is perpendicular to the membrane 4, between the membrane 4 and the filter area 5', which faces the membrane 4, is preferably substantially 20 millimetres, while a second distance along a line, which is perpendicular to the membrane 4, between the filter area 5', which faces the membrane 4, and the bottom region 11 is preferably substantially 5 millimetres.

[0025] FIG. 2 illustrates a schematic lateral sectional view of a portion capsule 1 according to a second embodiment of the present invention with the second embodiment being substantially identical to the first embodiment which is illustrated in FIG. 1, with the portion capsule 1 according to the second embodiment not having a shoulder 7, a sealing lip 18 or a greater material thickness in the bottom region 11 in comparison with the wall region 12. Furthermore, the channels 15 are designed in the form of grooves which are formed on that side of the wall region 12 which is averted from the cavity 3.

[0026] FIG. 3 illustrates a schematic lateral sectional view of a portion capsule 1 according to a third embodiment of the present invention, with the third embodiment being substantially identical to the first embodiment which is illustrated in FIG. 1, with the portion capsule 1 according to the third embodiment having only two channels 16 in the wall region 12, with one of the channels 15 at the same time serving for the filter element 5 to be snapped in.

[0027] FIG. 4 illustrates a schematic perspective view of a portion capsule 1 according to a fourth embodiment of the present invention, with the fourth embodiment being substantially identical to the second embodiment which is illustrated in FIG. 2, with three grooves 16 being formed in the wall region 12.

[0028] FIG. 5 illustrates a schematic plan view of a filter element 5 of a portion capsule 1 according to a fifth embodiment of the present invention, with the fifth embodiment being substantially identical to the second embodiment which is illustrated in FIG. 2, with the filter area 5' being depicted from the perspective of the membrane 4 in FIG. 5. In this case, the filter openings 13 are arranged in such a way that there are no filter openings 13 arranged in the central region of the filter area 5'. Furthermore, the filter area 5' is flat in the central region. Therefore, the filter element 5 has a holding area 14 in the central region, the said holding area being provided for the purpose of picking up the filter element 5 by means of a vacuum suction head.
FIG. 6 illustrates a schematic perspective view of a plurality of stacked portion capsules 1 according to a sixth embodiment of the present invention, with the sixth embodiment being substantially identical to the fourth embodiment which is illustrated in FIG. 4, with the portion capsule 1 according to the sixth embodiment also having a shoulder 16, not yet being filled with a beverage raw material, nor having a filter element 5 and not yet being closed by a membrane 4. FIG. 6 depicts a total of six such empty portion capsules 1, with five of the portion capsules 1 already being stacked one in the other. In this case, a portion capsule 1 always rests with its shoulder 16 on the flange 7 of a portion capsule 1 situated beneath it. In FIG. 6, these five portion capsules 1 which are already stacked one in the other are stacked into a sixth portion capsule 1 along a stacking direction 101.

1. Portion capsule for preparing a beverage, having a substantially frustoconical or cylindrical base element, which has a cavity for accommodating a beverage raw material, and a membrane which closes the cavity, characterized in that a wall region of the base element has a plurality of channels.

2. Portion capsule according to claim 1, characterized in that the channels each extend substantially in a plane which is parallel to the membrane, with the channels preferably each being designed to substantially encircle the base element.

3. Portion capsule according to claim 1, characterized in that the channels each comprise a groove and/or convexity which are/is preferably formed on an inner face of the base element, the inner face facing the cavity, and/or on an outer face of the base element, the outer face being averted from the cavity.

4. Portion capsule according to claim 1, characterized in that the channels are designed in such a way that the wall region is reinforced by means of the channels and/or that eddying of an extraction liquid which flows through the cavity is generated by means of the channels.

5. Portion capsule according to claim 1, characterized in that the membrane is roughened at least on an outer face which is averted from the cavity.

6. Portion capsule according to claim 5, characterized in that the membrane is provided with a roughened protective film or foil on the outer face.

7. Portion capsule according to claim 1, characterized in that a wall region of the base element has a shoulder.

8. Portion capsule according to claim 7, characterized in that the portion capsule has a flange to which the membrane is attached, with the shoulder being designed to adjoin the flange.

9. Portion capsule according to claim 7, characterized in that the base element has an enlarged diameter in the region of the shoulder in a plane parallel to the membrane.

10. Portion capsule according to claim 7, characterized in that the base element tapers in the direction of the membrane in the region of the shoulder.

11. Portion capsule according to claim 1, characterized in that the portion capsule has a flange to which the membrane is attached, with a ratio of the diameter of that wall region of the base element which adjoins the flange to the diameter of the flange being between 0.79 and 0.95.

12. Portion capsule according to claim 11, characterized in that the ratio of the diameter of that wall region of the base element which adjoins the flange to the diameter of the flange being between 0.85 and 0.89, and in particular being substantially 0.87.

13. Portion capsule according to claim 11, characterized in that the diameter of that wall region of the base element which adjoins the flange is substantially 39 millimeters and/or the diameter of the flange is substantially 45 millimeters.

14. Portion capsule according to claim 1, characterized in that the base element has a bottom region which extends substantially parallel to the membrane and a wall region which extends substantially between the membrane and the bottom region, with the base element having a greater or lesser material thickness in the bottom region than in the wall region.

15. Portion capsule according to claim 1, characterized in that a filter element divides the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the filter element having a fusible element on a side which faces a bottom region of the base element.

16. Portion capsule according to claim 1, characterized in that a filter element is arranged within the cavity, the filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the filter element having at least one holding area for picking up the filter element.

17. Portion capsule according to claim 16, characterized in that the filter element has a plurality of filter openings, with the filter openings being arranged outside the holding area.

18. Portion capsule according to claim 17, characterized in that the holding area is formed in a central region of the filter element.

19. Portion capsule according to claim 1, characterized in that a filter element is arranged within the cavity, the filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the portion capsule having a ratio of a first distance between the membrane and the filter element to a second distance between a bottom region of the base element and the filter element of between 3.5 and 4.5.

20. Portion capsule according to claim 19, characterized in that the ratio of the first distance to the second distance is between 3.8 and 4.2, and preferably substantially 4.

21. Portion capsule according to claim 20, characterized in that the first distance is substantially 20 millimeters and the second distance is substantially 5 millimeters.

22. Portion capsule according to claim 1, characterized in that a filter element is arranged within the cavity, the filter element dividing the cavity into a first region for accommodating the beverage raw material and into a second region for accommodating a beverage extract, with the filter element having a circumferential sealing lip for sealing off the first region from the second region, the sealing lip moulding itself against the wall region of the base element in a form-fitting manner and extending perpendicular to the membrane at least over the entire height of the filter element.

23. Portion capsule according to claim 22, characterized in that the sealing lip is circular in a plane parallel to the membrane, with the diameter of the sealing lip tapering in the direction of the bottom region of the base element.

24. Portion capsule according to claim 23, characterized in that the sealing lip has a pressure area which faces the first region and is designed in such a way that an excess pressure in the first region leads to an increase in a sealing pressure between the sealing lip and the wall region.

25. Use of a portion capsule according to claim 1 for preparing a hot beverage.