A film packaging solution in the form of a tetrahedron with an opening device in the form of a dotted score line, the use of such a packaging film for packaging objects and film tetrahedrons according to the present invention, which are filled with cheese spread, especially film tetrahedrons filled with cheese spread according to the invention, which are packaged according to the present invention.
FILM PACKAGE WITH OPENING DEVICE


BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention
[0003] The present invention relates to a film package with an opening device.
[0004] 2. Description of the Prior Art
[0005] Film packaging solutions of the most varied forms using different plastic materials have already been well-known. These packaging products, however, have various advantages and disadvantages.

SUMMARY OF THE INVENTION

[0006] There has now been found a film package in the form of a tetrahedron with an opening device, enabling the package to be opened rather easily and conveniently.
[0007] In one aspect the present invention provides a film package, characterized in that it essentially has the form of a tetrahedron and is equipped with an opening device in the form of a dotted score lines.
[0008] A film package provided by the present invention is below also designated as “film package(s) according to the present invention.”
[0009] A film packaging according to the present invention has essentially the form of a tetrahedron, this is essentially the form of a body with four triangular faces. “Tetrahedron” hence includes the regular (or equilateral) tetrahedron and the general tetrahedron also designated as three-sided pyramid or three-dimensional simplex.
[0010] According to the present invention there is preferred essentially as a film package an equilateral tetrahedron, this is all sides of the triangle have essentially the same length.
[0011] “Essentially”, as used herein, is to mean that deviations in regard to the form of the tetrahedron or the regular tetrahedron, respectively, for example due to the type of production employed for film packaging products, such as rounded edges, all sides of the triangle not having the same length, may be possible.
[0012] “Films” in a film package according to the present invention include thin (for example <1 mm) plastic sheets, which will, for example, be produced in continuous web material, rolled up and subsequently cut in suitable pieces and, optionally, sealed in the form of a plastic tube, with any kind of plastic material that may be provided in the form of films being applicable. “Films” includes colourless, coloured, printed and blank, coated and not coated films. It is especially possible to apply a logo and/or indication for the sales product and/or advertisement for a product on a packaging film according to the invention.
[0013] A film packaging product according to the present invention includes for example also a composite film, for example comprising at least two layers: one inner film forming the internal packaging surface and another external film, mono- or poly-layered, applied onto the internal film.
[0014] A film packaging product according to the present invention includes dotted score lines presenting an aid for opening the package.
[0015] A dotted score line, as used herein, designates a line in a packaging film according to the present invention, in which there are provided dot-like prefabricated and predetermined breaking points, with the packaged goods, however, being sealed, especially air-tight sealed, towards the outside.
[0016] In a further aspect the present invention provides a film packaging solution according to the present invention, characterized in that the dotted score lines include lines of prefabricated and predetermined breaking points, which are essentially arranged dot-like in series in a way so that the packaged goods are sealed, preferably air-tight, towards the outside.
[0017] The dot-like prefabricated and predetermined breaking points effect a weakening of film strength alongside the line so that the film package may be torn open along these lines by applying force in the direction of the dotted score line.
[0018] The dot-like predetermined breaking points may be produced by suitable methods, for example by use of wheels for chamfering flat objects or by use of laser scoring, wherein there are produced dot-like indentations, for example grooves, in the film by the laser, so that there is created a scored (dot-like) laser trace on the film following the laser treatment.
[0019] A dotted score line formed of predetermined breaking points and created by means of laser scoring is preferred in a packaging film according to the present invention.
[0020] With composite films, there may be weakened in a dot-like way for example at least one of the two composite films, either by means of perforation or groove, while at least one or several further films constituting the composite film do not have a dot-like score line, hence sealing the packaged good towards the outside, for example in an air-tight way.
[0021] In a special embodiment of a film package according to the present invention the dotted score lines extend along the circumference of a, preferably single, tetrahedron face. The dotted score lines may be formed alongside the entire circumference of the tetrahedron face or, preferably, at only two sides of the triangle forming the tetrahedron face, for example at two triangle sides, with the base line of the triangle having no dotted score line. It is preferred that a dotted score line has essentially the same length in each embodiment at each triangle side, if existent, for example at two triangle sides, of the tetrahedron face.
[0022] The dotted score line is situated either essentially on the edges of the tetrahedron triangle, or it is slightly set off from the edges in the triangle towards the inside. The dotted score line, however, essentially follows the edges of the triangle and hence is essentially on the tetrahedron triangular face in a triangular form or arranged like a triangle with a not-dotted and not-scored base line and two dotted score lines alongside the triangle sides, respectively.
[0023] In a further aspect the present invention provides a film package according to the present invention, wherein the dotted score lines are formed essentially alongside the circumference of a tetrahedron face, for example alongside the entire circumference of a tetrahedron face or, preferably, only at two sides of the triangle forming the tetrahedron face, wherein the base line of the triangle does not have a dotted score line or wherein the dotted score lines are slightly set off from the edges in the triangle of the tetrahedron face, especially wherein the package may be torn open along the dotted score lines by applying a force in the direction of the dotted score lines.
“Essentially on the edges” means that the dotted score line may also be slightly set off from the edges, for example due to the type and the production process of the tetrahedron.

With triangular and dotted score lines, the application of force in the direction of the dotted score lines leads to the removal of a piece of film from a triangular film area of the tetrahedron, the form of which is essentially triangular. With dotted score lines, which are arranged only at two sides of a triangle of the tetrahedron face, with the base line of the triangle being neither dotted nor scored, the process of opening forms an essentially triangular opening, wherein, however, the film removed from the tetrahedron triangle face will remain at the other dotted nor scored base line of the triangle.

“Essentially triangular” means that there is formed an opening in the packaging film, corresponding to a triangle, wherein deviations of the exact form of a triangle, however, may be possible, for example due to the not exact punctuation of the film or due to a slipping of the film in the course of the tetrahedron formation.

A film packaging solution according to the present invention may be produced from a film tube having dotted score lines.

In the production of the tetrahedron of a film package according to the present invention from a film tube, there are formed two transverse sealed seams at the two edges of the tetrahedron, each set off about 90°, in a way so that the two transverse sealed seams do not touch each other in the tetrahedron.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 schematically shows a triangular face of a tetrahedron according to the present invention, on which there is situated a dotted score line (1), slightly set-off from the edges of the tetrahedron, and on which there are shown sealed film portions (3) projecting slightly beyond the edges of the tetrahedron and being formed by transversely sealing a film tube in the production of the tetrahedron.

FIG. 2 schematically shows another triangle face of a tetrahedron according to the present invention, on which there have been formed sealed film portions (3) projecting beyond the edges of the tetrahedron due to the transverse sealing of the film tube in the production of the tetrahedron and on which there is shown a sealed film portion 4, which has been formed by longitudinally sealing the film tube in the production of the tetrahedron.

FIG. 3 schematically shows a film tetrahedron according to the present invention, on which there are shown a dotted score line (1), the, slightly set-off from the edges of the tetrahedron, sealed film portions (3), which project beyond the edges of the tetrahedron and have been formed due to the transverse sealing of a film tube in the production of the tetrahedron and a groove (2) in one of the two sealed film portions (3) projecting beyond the edges of the tetrahedron.

**DESCRIPTION OF THE PREFERRED EMBODIMENTS**

The sealed film projects especially through the transverse sealing beyond the two transverse sealed seams, with the protruding sealed film extending in parallel to the edge of the tetrahedron. This projection of the sealed film beyond the transverse sealed seam is, for example, schematically shown in the drawings with the reference number (3).

The sealed and protruding film, for example, projects slightly beyond the edge of the tetrahedron, for example to such an extent that a person may grasp the protruding sealed film with his/her fingers. The sealed film projects beyond the transverse sealed seams in a dimension of 0.05 to 3 cm, for example 0.2 to 1 cm, such as 0.2 to 0.6 cm.

A further sealed seam is formed in the production of a tetrahedron of a film packaging solution according to the present invention from a film tube by means of longitudinal sealing. This longitudinal sealed seam extends thus from an edge of that triangle of the tetrahedron, at which there is situated a transverse sealed seam in parallel to the base line of the triangle, to the opposite tip of the same triangle, at which there is arranged the second transverse sealed seam, as this is for example shown in FIG. 2, reference number (4).

A portion of the film sealed in the longitudinal direction protrudes through the sealing, as in the transverse sealing, beyond the longitudinal sealed seam, and it is preferably sealed, for example, bent over and sealingly attached at the tetrahedron face.

In order to provide for an easier opening of the film package according to the present invention, there may be formed a groove or cut at one point in the film portion protruding through the transverse sealed seam in a preferred embodiment, for example in a V-form or so that the cut or the groove has a smaller depth than the width of the protruding sealed film so that the sealed tightness of the package remains unaffected. Such a groove or such a cut, respectively, is for example shown in FIG. 3 with the reference number (2).

A consumer may grasp the protruding, transversely sealed film portion, for example next to the groove or the cut, with the fingers and may tear open the film package by applying a force in the direction of the dotted score lines.

The groove or cut is, as may also be seen in FIG. 2, arranged either in that film portion (3) protruding from the transverse sealing, which is not situated at the triangle face with the dotted score lines, or it is equally effectively arranged also in that film portion (3) protruding from the transverse sealing, which is situated at the triangle face with the dotted score lines, wherein the first embodiment is shown in FIG. 2 and the second embodiment is not shown at all.

In the first embodiment, wherein the groove or cut according to FIG. 2 is arranged in that film portion (3) protruding from the transverse sealing, which is not situated at the triangle face with the dotted score lines, the dotted score lines extend, as may also be seen in FIG. 2, preferably from the tip of the triangle formed by the dotted score lines in the tetrahedron face in the direction towards the groove or the cut. The groove or cut is hence situated in the protruding film portion at that point that is as near as possible to the tip of the triangle formed by the dotted score lines. The dotted, triangular score lines in the tetrahedron face are hence also, as may be seen in FIG. 3, extended across the neighbouring tetrahedron face in the direction of the groove or cut.

In the second embodiment the groove or cut is created near one of the dotted, triangular score lines. In this embodiment it is not necessary to further extend the dotted, triangular score lines.

As soon as the film is grasped by the fingers at the groove or cut, the packaging film may be opened by applying a force, which is mainly directed towards the dotted score lines, at a triangle side of the tetrahedron alongside the dotted
score lines. Firstly, the film is torn at the groove or cut and subsequently alongside the dotted score lines if further force is applied.

[0042] In a further aspect the present invention provides a film packaging solution according to the present invention, wherein the film comprises transverse sealed seams, with the sealed film portion projecting beyond the transverse sealed seams; especially wherein in the film there is formed a groove or cut at one of the sealed film portions protruding the transverse sealed seam, so that sealed film portions projecting beyond the transverse sealed seams may be grasped, for example at the groove or cut, by a consumer with his/her fingers, and the film wrapping may be torn open along the dotted score lines, especially by applying a force, which is mainly directed in the direction of the dotted score line(s).

[0043] A packaging film according to the present invention may be used for packing any kind of objects.

[0044] In a preferred embodiment, the packaging film is used for packing foodstuff, for example, cheese such as cheese spread.

[0045] In a further aspect the present invention provided the use of a film package according to the present invention for packing foodstuff, especially for packing cheese such as cheese spread; especially for producing cheese spread snacks.

[0046] The production of a packed cheese spread tetrahedron may be realized using a vertical device by means of which a film tube comprising a dotted score line may be formed and sealed; this is realized, for example, by using a device by means of which several film tubes may be formed and sealed in parallel, wherein the hot cheese mass, for example, is dosed as a liquid by a piston filler and then discharged, for example under a CO₂ cushion, in time into the transversely sealed tube; wherein subsequently the tube is offset about 90° and then longitudinally sealed; especially wherein the film portion projecting beyond the longitudinal sealed seam is sealed at the tetrahedron surface.

[0047] In a preferred embodiment, a sealed film portion projects through the transverse sealed beyond the sealed seam, for example slightly, about 0.05 cm to 3 cm, such as 0.2 to 0.6 cm.

[0048] The film tube is pre-machined and comprises dotted score lines in an essentially triangular form, for example in a triangular form, with the basis line of the triangle not being scored in a dot-like way; for example the film has been pre-machined using a laser beam (“laser scoring”).

[0049] Analogously, there may also be packaged bulk material in a packaging film according to the present invention.

[0050] The size of the package is not dependent on the present invention.

[0051] In a preferred embodiment of the present invention there is used a packaging film according to the present invention, for example, for the production of packaged cheese spread, wherein the size of the tetrahedron is not dependent on the present invention. The cheese is preferably provided in the form of snacks, which may be put into the mouth in one piece and then be eaten. Such snacks may have a size of several centimetres of side length of the triangles in the tetrahedron, for example 2.5 cm to about 8 cm side length, such as 4 cm to 6 cm.

[0052] In a further aspect the present invention provides a film tetrahedron, which is filled with cheese spread, wherein the film comprises at one of the tetrahedron faces a dotted score line, especially wherein the film is transversely sealed twice and once in the longitudinal direction, especially wherein that film portion that projects beyond the transverse sealed seam comprises a cut or groove, for example wherein the side length of the tetrahedron triangles has 2.5 to 8 cm.

[0053] The packaging of an object using a film in the form of a tetrahedron comprising a dotted score line is novel and original and hence beneficial and advantageous for technics and technology.

[0054] Especially novel is, for example, the packaging of cheese spread tetrahedrons, which are packaged according to the present invention, in a packaging film in the form of a tetrahedron according to the present invention, for example in a printed packaged film.

[0055] In a further aspect the present invention provides a film tetrahedron filled with cheese spread, characterized in that it comprises two sealed film portions (3) projecting beyond the transverse sealed seams, wherein one of the two projecting film portions is provided with a groove or a cut (2), and wherein a tetrahedron face is provided with a dotted, essentially triangular score line (1), for example wherein the two transverse sealed seams are arranged in a way so that they do not touch within the tetrahedron; for example and further comprising a longitudinal sealed seam, wherein the sealed film portions (4) projecting the longitudinal sealed seam are sealed to the tetrahedron surface.

[0056] Such film tetrahedrons and portions of such film tetrahedrons are schematically shown in the figures.

[0057] In a further aspect the present invention provides a film packaging according to the present invention, in which packaged cheese spread snacks, which may be produced according to the invention, are packaged.

1-10. (canceled)

11. A film packaging for packaged goods, said film packaging comprising an opening device having dotted scored lines, said film packaging substantially having the shape of a tetrahedron.

12. A film packaging according to claim 11, wherein said dotted score lines comprise lines of prefabricated and predetermined breaking points, said breaking points being arranged in a dot-like in series in such a way so that the packaged goods are sealed towards the outside.

13. A film packaging according to claim 12, said film packaging further comprising at least one tetrahedron face having a circumference, wherein said dotted score lines are located along the circumference of said at least one tetrahedron face and only at two sides of the triangle forming the tetrahedron face, wherein the basis line of the triangle does not have a dotted score line.

14. A film packaging according to claim 11 further comprising transverse sealed seams and sealed film portions, said sealed film portions projecting beyond said transverse sealed seams and being graspable by a consumer’s fingers.

15. A film packaging according to claim 14 further comprising formed grooves or cuts at said sealed film portions projecting beyond said transverse sealed seams, wherein the film packaging is capable of being torn open along said dotted score lines by grasping said sealed film portions at said grooves or cuts and by applying a force, said force being primarily directed in the direction of the dotted score lines.

16. The use of a film packaging according to claim 11 for packaging one of the following selected from the group consisting of foodstuff, cheese and cheese spread.
17. A film package according to claim 11 wherein the packaged goods are cheese spread snacks.

18. A film tetrahedron filled with cheese spread, said film tetrahedron comprising dotted score lines at a tetrahedron face, wherein the film is transversely sealed, and wherein sealed film portions projecting beyond a transverse sealed seam are provided with a cut or a groove.

19. A film tetrahedron according to claim 18 further comprising two sealed film portions projecting beyond the transverse sealed seams, wherein one of the two projecting film portions is provided with a groove or cut, and wherein a tetrahedron face is provided with a dotted, essentially triangular score line, wherein the two transverse sealed seams are arranged in a way so that they do not touch each other in the tetrahedron, and further comprising a longitudinal sealed seam, wherein sealed film portions projecting beyond the longitudinal sealed seam are sealed to the tetrahedron surface.

20. A film packaging according to claim 11 wherein said shape of the film packaging is an equilateral tetrahedron.

21. A film packaging according to claim 12 wherein the predetermined breaking points are formed by laser scoring.

22. A film packaging according to claim 14, wherein the film package is capable of being torn open along said dotted score lines by grasping said sealed film portions and by applying a force, said force being primarily directed in the direction of the dotted score lines.

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