A method of making insoles has the steps of: a) Attaching a fabric layer and a bottom layer on opposite sides of foamed main member to have a substrate having a. b) Cutting the substrate to have a plurality of plates with shapes substantially like the insoles, wherein each of the plates has a top and a bottom at opposite sides and a periphery between the top and the bottom thereof. c) Cutting the peripheries of the plates to have a taper periphery respectively.
FIG. 1
METHOD OF MAKING INSOLE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates generally to shoes, and more particularly to a method of making insoles, in which no hot-press molding is applied in the method.

[0003] 2. Description of the Related Art

[0004] Conventional insoles are classified into flat insoles and molded insoles. The flat insole is made from a foamed substrate, which is made of Polyurethane (PU) or Ethylene Vinyl Acetate (EVA) etc., put on a mold and cut by a cutter to have a shape of the insole. The substrate after cut still keeps its original character to provide a well damping capacity. As shown in FIG. 10, an aspect of a shoe 10 is decided by the aspect of last, such that an interior sidewall of the lining 11 and a top of a sole 12 have specific curvatures, such that a flat insole 20 with a flat periphery cannot be fitted to the curved lining 11 and sole 12. As shown in FIG. 11, when a foot (shown as the dot line) is on the insole 20, the insole cannot provide the foot a complete support. In addition, as shown in FIG. 12 and FIG. 13, if the insole 20 is wider than the sole 12 of the shoe 10’ (referring to FIG. 13), the insole is warped at a margin thereof to compress the foot that makes people feel not so well. In addition, the flat insole cannot fit the profile of foot as well.

[0005] The molded insole is made of a thicker substrate being hot pressed into a predetermined shape. The molded insole has a predetermined profile at a top thereof to fit foot and a curved periphery to fit shoe, such that the molded insole is considered to support foot well. The molded insole, which is processed by hot press, is harder than the flat insole, such that people feel not so well with the molded insole. In addition, if the curvature of the molded not fitting the shoe, it provides foot more compression than the flat insole.

[0006] The aspect of insole is decided by the cutter and the mold. In other words, the insoles with various sizes are cut by various cutters and molds respectively. Furthermore, it has to prepare a plurality of hot-press molds of various sizes for the insoles also. Therefore, it cost much for the manufacturers to have the cutters and the molds. To reduce cost on the cutters and the molds, manufacturers usually select the insoles closing to the aspect of shoes rather than design the insoles to fit the shoes. As a result, the molded insoles are not fitted to shoes as expectation.

[0007] The advantages and the disadvantages of the conventional flat insole and the molded insole are described hereunder:

[0008] The advantages of the flat insole: lower cost in fabrication, softer and well elasticity (it is because the substrate keeps the original character still) and lighter in weight.

[0009] The disadvantages of the flat insole: poor support to the arch of foot and cannot put in a shoe with a protrusion on the sole associated with the foot arch.

[0010] The advantage of the molded insole: well support to foot and can put in a shoe with a protrusion on the sole associated with the foot arch.

[0011] The disadvantages of the molded insole: higher cost in fabrication (because the cutters and molds and the raw material needed more than the flat insole) and harder, heavier in weight and poor elasticity.

SUMMARY OF THE INVENTION

[0012] The primary objective of the present invention is to provide a method of making insoles, which the insoles can be applied to any shoe and keeps the original character of the foamed substrate, as well as the insole provides foot a well support than the conventional flat insole. The insole of the present invention is not processed by the hot press to lower the cost thereof and reduce the waste of raw material.

[0013] According to the objective of the present invention, a method of making insoles comprises the steps of: a) Preparing a substrate having a foamed main member. b) Cutting the substrate to have a plurality of plates, wherein each of the plates has a top and a bottom at opposite sides and a periphery between the top and the bottom thereof; c) Removing parts of the peripheries of the plates to have a taper periphery respectively.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is an exploded view of the substrate of a first preferred embodiment of the present invention;

[0015] FIG. 2 is a perspective view of the substrate of the first preferred embodiment of the present invention;

[0016] FIG. 3 is a perspective view of the substrate of the first preferred embodiment of the present invention, showing the substrate being cut to have the plates;

[0017] FIG. 4 is a perspective view of the plates of the first preferred embodiment of the present invention;

[0018] FIG. 5 is a sectional view along the 5-5 line of FIG. 4;

[0019] FIG. 6 follows FIG. 5, showing the plate being cut;

[0020] FIG. 7 is a perspective view of the insole of the first preferred embodiment of the present invention;

[0021] FIG. 8 is a perspective view of the first preferred embodiment of the present invention, showing foot stepping on the insole;

[0022] FIG. 9 is a perspective view of a second preferred embodiment of the present invention;

[0023] FIG. 10 is a sectional view of the shoe, showing the conventional flat insole;

[0024] FIG. 11 follows FIG. 10, showing foot stepping on the flat insole;

[0025] FIG. 12 is a sectional view of the shoe, showing the flat insole of greater size installed in the shoe, and

[0026] FIG. 13 follows FIG. 12, showing foot stepping on the larger flat insole;
DETAILED DESCRIPTION OF THE INVENTION

[0027] As shown in FIG. 1 to FIG. 8, a method of making insoles comprises the steps of:

[0028] As shown in FIG. 1, to have a main member 31, which is made of foamed Polyurethane (PU), a nonwoven fabric layer 32 and a bottom layer 33. The bottom layer is a meshed film with a friction coefficient greater than that of the main member 31.

[0029] As shown in FIG. 2, to attach the fabric layer 32 on a top of the main member 31 and the bottom layer 33 on a bottom of the main member 31 to have a substrate 30.

[0030] As shown in FIG. 3 and FIG. 4, to cut the substrate 30 to have a plurality of plates 40. A conventional cutter and mold are providing for the cutting procedure. Each of the plates 40 has a top 41, a bottom 42 and a periphery 43 between the top 41 and the bottom 42. The plates 40 have an arc portion 44 at a middle section thereof respectively.

[0031] As shown in FIG. 5 and FIG. 6, to cut the peripheries 43 of the plates 40 respectively, and the peripheries 43 are cut more at the arc portions 44 respectively (referring to FIG. 6). As a result, each of the plates 40 has a taper periphery 43, and a width of the bottom 43 is narrower than that of the top 41, and the plates 40 now are insoles 50. Furthermore, a width of the taper periphery 43 at the arc portion 44 is greater than that of at the rest.

[0032] As shown in FIG. 7, while the insole 50 of the present invention is put in a shoe 60 having a protrusion 61 associated with the foot arch, the taper periphery 43 of the insole 50 fit an interior sidewall of a lining 62. The taper periphery 43 at the arc portion 44 is wider than at the rest to fit the protrusion 61 of the shoe 60.

[0033] As shown in FIG. 8, when a person wears the shoe 60 and steps his/her foot on the insole 50 of the present invention, the taper periphery 43 thereof has a complete structure and a well strength, such that the insole 50 of the present invention has a complete attachment on the interior sidewall 62 of the shoe 60, and there is less space between the insole 50 and the shoe 60 to provide the foot a well support and to locate the foot at a correct position. In addition, the insole 50 of the present invention is not processed by hot press, such that it has a well damping capacity and softness. In conclusion, the insole 50 of the present invention has the advantages of both of the flat insole and the molded insole but the disadvantages.

[0034] It has to be mentioned that the taper periphery of the insole should have various profiles to meet the actual requirement. The manufacturers should have the unique design to cut the periphery to meet the very shoes. The fabric layer is provided to prevent the main member from damage when the person steps on the insole and walks, and the bottom layer is provided to give a greater friction between the shoe and the insole, therefore, there is less movement of the insole in the shoe when walking. The process of cutting the periphery should apply scrubbing or grinding also. In conclusion, the main scope of the present invention is to manufacture an insole with a taper periphery, and the taper periphery is not formed by hot press, such that the profile of the taper periphery, the arch portion, which kind of the material made of the insole and with or without the fabric layer and the bottom layer are not the restrictions of the present invention.

[0035] As shown in FIG. 9, a method of making insoles 70 of the second preferred embodiment of the present invention comprises the steps of: preparing a substrate 71, cutting the substrate 71 by laser to have a plurality of the insoles 70. In the laser cutting process, a taper periphery 72 is formed directly on the insole 70, in which a width of a top 73 of the insole 70 is greater than that of a bottom 74.

What is claimed is:

1. A method of making insoles, comprising the steps of:
   a) preparing a substrate having a foamed main member;
   b) cutting the substrate to have a plurality of plates, wherein each of the plates has a top and a bottom at opposite sides and a periphery between the top and the bottom thereof, and
   c) removing parts of the peripheries of the plates to have a taper periphery respectively.

2. The method as defined in claim 1, wherein the taper periphery of insole has a portion with a width thereof greater than the rest.

3. The method as defined in claim 1, further comprising the step of attaching a fabric layer on the main member in the step a.

4. The method as defined in claim 1, further comprising the step of attaching a bottom layer on the main member in the step a wherein the bottom layer has a friction coefficient greater than that of the main member.

5. The method as defined in claim 1, wherein the method of removing the periphery is cutting.

6. The method as defined in claim 1, wherein the method of removing the periphery is scrubbing.

7. The method as defined in claim 1, wherein the method of removing the periphery is grinding.

8. A method of making insoles, comprising the steps of:
   a) preparing a substrate having a foamed main member, and
   b) cutting the substrate to have a plurality of plates, wherein each of the plates has a taper periphery respectively.

9. The method as defined in claim 1, wherein the substrate is cut by laser.

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