CLAIMS

1. A method for producing a profile (15) made of glass fibers (5A, 5B) to be used for strengthening an excavation wall, said method comprising the steps of:
impregnating said glass fibers (5A,5B) with a polymer resin;
- orienting said glass fibers (5A,5B) according to a longitudinal direction and arranging these fibers so as to configure an axially extending profile (15);
- compressing the outermost glass fibers (5B) of said profile (15) at axial intervals through a substantially thread-like compression element (8) so as to impart a corrugated shape, substantially corresponding to the corrugated shape of the finished profile, to the combination of the outer surface (15B) of said profile (15) and the thread-like compression element; <——>
- subjecting said profile (15) to a polymerization process.

2. The method according to claim 1, wherein said glass fibers (5A, 5B) are arranged around a cylindrical core so as to configure said axially extending profile (15), said profile (15) being removed from said cylindrical core following said polymerization process.

3. The method according to claim 1 or 2, wherein the thread-like compression element (8) is wound in a spiral around said profile (15).

4. The method according to claim 3, wherein said thread-like compression element (8) is wound with a substantially constant spiral pitch.

5. The method according to claim 3, wherein said thread-like compression element (8) is wound with a substantially constant spiral pitch for a first predetermined axial length of said profile and with a spiral pitch substantially comparable to the thickness of the thread-like element for a second predetermined axial length.

6. The method according to one or more of the preceding claims, wherein said thread-like compression element (8) is a non-metallic thread.

7. The method according to one or more of the preceding claims, wherein the substantially thread-like compression element (8) remains incorporated into the profile (15) after the polymerization process.

8. A plant (100) for producing a profile (15) made of glass fibers (5A, 5B) to be used as reinforcing elements for strengthening an excavation wall, said plant (100)

<said outer surface (15B) of said profile (15) having a substantially sinusoidal shape with respect to an axial cross-sectional plane>

Duration: 29.09.2011 10:29:52 - 29.09.2011 10:32:54. This page 9 of 11 011 10:32:25
Received at the EPO on Sep 29, 2011 10:32:54. Page 9 of 11

being characterized in that it comprises:

- at least one impregnation tank (5) for impregnating said glass fibers (5A, 5B) with a polymer resin;
- orientation and arrangement means (51, 52) of said glass fibers (5A, 5B) to orient them according to said axial direction X and to arrange them so as to configure a substantially axially extending profile (15);
- compression means (80) comprising a substantially thread-like compression element (8) to compress the outermost glass fibers (5B) of said profile (15) at axial intervals so as to impart a corrugated shape, substantially corresponding to the corrugated shape of the finished profile, to the combination of the outer surface (15B) of said profile (15) and the thread-like compression element; <——>
- polymerization means to polymerize said profile.

9. The plant (100) according to claim 8, wherein said plant comprises pulling means (60) to pull said profile (15) in axial direction.

10. The plant according to claim 8 or 9, wherein said compression means (80) comprise a winding unit (70) to wind a thread-like compression element (8) in a spiral around said profile (15).

11. The plant (100) according to claim 10, wherein said winding unit (70) is regulated so that said winding is performed with a constant spiral pitch.

12. The plant (100) according to claim 11, wherein the winding speed of said thread-like compression element (8) around said profile (15) is regulated as a function of the axial pulling speed established by said pulling means.

13. A profile (15) made of glass fibers (5A, 5B) for strengthening an excavation wall, said profile (15) comprising an axially extending body formed by said glass fibers (5A, 5B) anchored in a polymer resin through a polymerization process, said profile (15) being characterized in that its outer surface (15B) has a corrugated shape with respect to an axial cross-sectional plane of said profile (15), said corrugated shape being defined by a different degree of compression of the outermost glass fibers (5B) of said profile (15), obtained by means of a substantially thread-like compression element (8),

< said outer surface (15B) of said profile (15) having a substantially sinusoidal shape with respect to an axial cross-sectional plane >

Duration: 29.09.2011 10:29:52 - 29.09.2011 10:32:54. This page 10 of 2011 10:32:45
Received at the EPO on Sep 29, 2011 10:32:54. Page 10 of 11

~~14. The profile (15) according to claim 13~~, wherein said outer surface (15B) of said profile (15) has a substantially sinusoidal shape with respect to an axial cross-sectional plane.

14 ~~15~~. The profile (15) according to claim 13 ~~or 14~~, wherein said outer surface (15B) has a corrugated shape defined by a concave portion (16) and by a convex portion (17) which extend in a spiral alternating in axial direction. 14

15 ~~16~~. The profile (15) according to any one of claims 13 to ~~15~~, wherein the substantially thread-like compression element (8) is incorporated to the profile (15).

Duration: 29.09.2011 10:29:52 - 29.09.2011 10:32:54. This page 11 of 11 2011 10:32:54
Received at the EPO on Sep 29, 2011 10:32:54. Page 11 of 11

CLAIMS

1. A method for producing a profile (15) made of glass fibers (5A, 5B) to be used for strengthening an excavation wall, said method comprising the steps of:
impregnating said glass fibers (5A,5B) with a polymer resin;

- orienting said glass fibers (5A,5B) according to a longitudinal direction and arranging these fibers so as to configure an axially extending profile (15);

- compressing the outermost glass fibers (5B) of said profile (15) at axial intervals through a substantially thread-like compression element (8) so as to impart a corrugated shape, substantially corresponding to the corrugated shape of the finished profile, to the combination of the outer surface (15B) of said profile (15) and the thread-like compression element, said outer surface (15B) of said profile (15) having a substantially sinusoidal shape with respect to an axial cross-sectional plane;

- subjecting said profile (15) to a polymerization process.

2. The method according to claim 1, wherein said glass fibers (5A, 5B) are arranged around a cylindrical core so as to configure said axially extending profile (15), said profile (15) being removed from said cylindrical core following said polymerization process.

3. The method according to claim 1 or 2, wherein the thread-like compression element (8) is wound in a spiral around said profile (15).

4. The method according to claim 3, wherein said thread-like compression element (8) is wound with a substantially constant spiral pitch.

5. The method according to claim 3, wherein said thread-like compression element (8) is wound with a substantially constant spiral pitch for a first predetermined axial length of said profile and with a spiral pitch substantially comparable to the thickness of the thread-like element for a second predetermined axial length.

6. The method according to one or more of the preceding claims, wherein said thread-like compression element (8) is a non-metallic thread.

7. The method according to one or more of the preceding claims, wherein the substantially thread-like compression element (8) remains incorporated into the profile (15) after the polymerization process.

8. A plant (100) for producing a profile (15) made of glass fibers (5A, 5B) to be used as reinforcing elements for strengthening an excavation wall, said plant (100) being characterized in that it comprises:

- at least one impregnation tank (5) for impregnating said glass fibers (5A, 5B) with a polymer resin;
- orientation and arrangement means (51, 52) of said glass fibers (5A, 5B) to orient them according to said axial direction X and to arrange them so as to configure a substantially axially extending profile (15);
- compression means (80) comprising a substantially thread-like compression element (8) to compress the outermost glass fibers (5B) of said profile (15) at axial intervals so as to impart a corrugated shape, substantially corresponding to the corrugated shape of the finished profile, to the combination of the outer surface (15B) of said profile (15) and the thread-like compression element, said outer surface (15B) of said profile (15) having a substantially sinusoidal shape with respect to an axial cross-sectional plane;
- polymerization means to polymerize said profile.

9. The plant (100) according to claim 8, wherein said plant comprises pulling means (60) to pull said profile (15) in axial direction.

10. The plant according to claim 8 or 9, wherein said compression means (80) comprise a winding unit (70) to wind a thread-like compression element (8) in a spiral around said profile (15).

11. The plant (100) according to claim 10, wherein said winding unit (70) is regulated so that said winding is performed with a constant spiral pitch.

12. The plant (100) according to claim 11, wherein the winding speed of said thread-like compression element (8) around said profile (15) is regulated as a function of the axial pulling speed established by said pulling means.

13. A profile (15) made of glass fibers (5A, 5B) for strengthening an excavation wall, said profile (15) comprising an axially extending body formed by said glass fibers (5A, 5B) anchored in a polymer resin through a polymerization process, said profile (15) being characterized in that its outer surface (15B) has a corrugated shape with respect to an axial cross-sectional plane of said profile (15), said corrugated shape being defined by a

different degree of compression of the outermost glass fibers (5B) of said profile (15), obtained by means of a substantially thread-like compression element (8), wherein said outer surface (15B) of said profile (15) has a substantially sinusoidal shape with respect to an axial cross-sectional plane.

14. The profile (15) according to claim 13, wherein said outer surface (15B) has a corrugated shape defined by a concave portion (16) and by a convex portion (17) which extend in a spiral alternating in axial direction.

15. The profile (15) according to any one of claims 13 to 14, wherein the substantially thread-like compression element (8) is incorporated to the profile (15).