The invention is a new Velcro-backed abrasive cloth. It is used in the coated abrasives industry. Its uniqueness is in the construction. It is formed by a cloth with Velcro on one side (1), after the cloth is dipped in resin, the side with no Velcro is coated with a layer of primer (2), and an abrasive layer (3) is then planted on top of the primer. On top of the abrasive layer, a multi-layer adhesive (4) is then planted. There is an anti-clogging coating, an anti-static coating or a combination of both on the multi-layer adhesive. This new Velcro backed abrasive cloth utilizes a napped fabric as the base material. The abrasives are directly planted onto the resin treated base material thus reducing the manufacturing steps and lowering costs. The unique construction of the base material extends the product lifetime and increases the sanding efficiency.
VELCRO ABRASIVE CLOTH

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority of Chinese Patent Application No. 201320353646.9, filed Jun. 20, 2013, which is incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The invention relates to a new Velcro-backed abrasive cloth with a base material of a napped fabric used in the coated abrasives industry.

BACKGROUND OF THE INVENTION

[0003] Traditional sandpaper made from abrasives glued onto paper is used to smooth and polish metal, wood and other materials. All the sandpapers used right now are comprised of a separate flannel backing that is attached to the abrasive paper or cloth, and then attached to the sanding tool to perform its sanding functions. The complicated process increases costs. Also the paper is weak and problems such as grits falling and the sandpaper ripping shortens the product lifetime.

BRIEF DESCRIPTION OF THE INVENTION

[0004] The technical problem to be solved by the invention is to overcome the inadequacies of the current technology to provide users with a new Velcro backed abrasive cloth that is easy to manufacture, low in cost, highly efficient and long lasting.

[0005] The new technological solutions developed to combat the abovementioned problem comprises: a new Velcro backed abrasive cloth with the following properties: A base material of a napped cloth with Velcro on one side, and after the cloth is immersed in resin, the side with no Velcro is treated with a coat of primer. An abrasive layer is formed on top of the primer by planting the abrasive grits, and finally a multi layer adhesive is applied to the abrasive layer. The base material can be immersed in one or a combination of the following solutions: phenolic resin, latex, polyvinyl alcohol, amylum, epoxy resin, ethylene-vinyl acetate copolymer.

[0006] The mentioned multi-layer adhesive has an anti-clogging and/or an anti static coating.

[0007] The mentioned base material is a napped cloth or a flocking cloth.

[0008] The adhesive binders of the layer of primer and the multi-layer adhesive can be made from a phenolic resins, epoxy resins, urea-formaldehyde, polyvinyl alcohols, latexes or a combination thereof.

[0009] The abrasives used to produce the abrasive layer can be selected from aluminum oxide, silicon carbide, calcined alumina, semi brittle alumina, diamond, ceramic-abrasive or a combination thereof.

[0010] A single or multi layer of abrasives can form the abrasive layer. The method used can be electrostatic abrasives planting or gravity abrasives planting.

[0011] Compared to current technology, the benefits of the new invention of the Velcro backed abrasive cloth are the following:

[0012] 1. The product adopts the napped fabric or a flocking cloth as the base material and also directly plants the abrasives after immersion in resin thus reducing the manufacturing process and lowering costs.

[0013] 2. The strength of the base material increases product lifetime and sanding efficiency.

BRIEF DESCRIPTION OF THE DRAWING

[0014] FIG. 1 shows the composition and construction of the Velcro backed abrasive cloth according to an embodiment.

[0015] FIG. 2 shows the surface of the Velcro backed abrasive cloth according to an embodiment.

[0016] Wherein in the figures:

[0017] 1: Base material
[0018] 2: Primer
[0019] 3: Abrasive layer
[0020] 4: Multi-layer Adhesive

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0021] In the following the invention will be described in greater detail with reference to the attached drawings.

[0022] Refer to FIGS. 1 and 2, the Velcro-backed abrasive cloth comprises a base material (1); the base material is a napped cloth with Velcro on one side. The Velcro is created by a roller raising machine and immersed in one of or a combination of the following solutions: phenolic resin, latex, polyvinyl alcohol, amylum, epoxy resin, ethylene-vinyl acetate copolymer.

[0023] The side with no Velcro is then coated with a layer of primer (2) and an abrasive layer (3) is formed on top of the primer. A multi-layer adhesive (4) is then coated on top of the abrasive layer. The multi-layer adhesive has either an anti-clogging or anti-static coating or a combination of both. The adhesive binders of the primer and multi-layer adhesive can be made from one or a combination of the following: phenolic resins, epoxy resins, urea-formaldehyde, polyvinyl alcohols, and latexes. The abrasive layer is formed by one or a combination of the following materials: aluminum oxide, silicon carbide, calcined alumina, semi brittle alumina, diamond, ceramic-abrasives. The method of planting the abrasive layer can be either electrostatic abrasives planting or gravity abrasives planting.

Specific Manufacturing Process

[0024] Exemplary Process 1: A napped fabric is used as the base material, and is immersed in a solution that consists of polyvinyl alcohol 100 (mass fraction), filler 40, and disperant 1. The primer is made from an adhesive solution of phenolic resin 100 (mass fraction), calcium carbonate 60. The abrasive layer is formed by brown infused alumina. After the cloth is dried and cured, the final results are achieved.

[0025] Exemplary Process 2: A napped fabric is used as the base material, and is immersed in a solution that consists of latex 100 (mass fraction), filler 40, and disperant 1. The primer is made from an adhesive solution of phenolic resin 100 (mass fraction), calcium carbonate 60. The abrasive layer is formed by brown infused alumina. After the cloth is dried and cured, the final results are achieved.

[0026] Exemplary Process 3: A napped fabric is used as the base material, and is immersed in a solution that consists of amyln 100 (mass fraction), filler 40, and disperant 1. The primer is made from an adhesive solution of phenolic resin 100 (mass fraction), calcium carbonate 60. The abrasive layer is formed by brown infused alumina. After the cloth is dried and cured, the final results are achieved.
[0027] The above describes exemplary embodiments of the invention, and not a limitation of the use of this invention or similar products. Any person having ordinary skill in the art can take on various modifications and alterations without departing from the spirit and scope of the disclosure. Accordingly, it is to be understood that the embodiments of the present disclosure to be controlled by the limitations set forth in the claims and any equivalents thereof.

1. A Velcro-backed abrasive fabric, comprising:
   a base material comprising a napped fabric with Velcro dipped in resin on one side;
   a layer of primer on the other side of the base material with no Velcro;
   an abrasive layer formed on top of the primer; and
   a multi-layer adhesive.

2. The Velcro-backed abrasive fabric of claim 1, wherein the multi-layer adhesive comprises anti-clogging coating, anti static coating or both coatings.

3. The Velcro-backed abrasive fabric of claim 1, wherein the base material is a napped fabric or a flocking cloth.

4. The Velcro-backed abrasive fabric of claim 1, wherein the layer of primer and the multi-layer adhesives are made from the following: phenolic resins, epoxy resins, urea-formaldehyde, polyvinyl alcohols, latexes or a combination thereof.

5. The Velcro-backed abrasive fabric of claim 1, wherein the abrasive layer is formed by one of or a combination of the following: aluminum oxide, silicon carbide, calcined alumina, semi brittle alumina, diamond, ceramic-abrasives.

6. The Velcro-backed abrasive fabric of claim 5, wherein the abrasive layer is formed by electrostatic abrasive planting or gravity abrasive planting.