

POLYHYDROCARBON CLOTH FOIL AND THE PREPARATION THEREOF

FIELD OF THE INVENTION

The present invention relates to a polyhydrocarbon cloth foil, and more specifically, to a PP (polypropylene), PE (polyethylene), PS (polystyrene) or PVC (polyvinyl-chloride) cloth foil, which is formed by laminating a polyhydrocarbon woven cloth with a foil having the same material as the polyhydrocarbon woven cloth; and the preparation thereof.

BACKGROUND OF THE PRESENT INVENTION

Conventional cloth foil used in making such as bags, such as PE/PP bags, for chemical material storage is made by laminating PE/PP woven cloth with paper such as kraft paper. Such chemical storage bags made by conventional cloth foil have the following disadvantages:

- (1) Conventional chemical storage bags are easily humidified because of containing paper material. Moisture usually deteriorates the chemical material stored in bags.
- (2) Conventional chemical storage bags have short life because the stored acidic or basic chemical material may corrode the paper material of the bags.
- (3) Conventional chemical storage bags possess weaker strength because of containing paper material.

(4) The source of paper material is paper pulp. Felling trees destroys the ecological environment. For recovery, it is necessary to digest PE/PP bags in water to remove paper material; and then dissolve the plastic material. The procedures are very complex and high in cost. Conventional PE/PP bags are detrimental to environment and difficult to be recycled.

There is a need to develop a cloth foil having long life and stronger strength, being able to keep chemical material fresh and not destroying the ecological environment. It has been found that the present invention provides a new polyhydrocarbon cloth foil to meet these requirements.

In the field of art, a polyhydrocarbon cloth foil of the present invention formed by the lamination of polyhydrocarbon woven cloth and foil, performing special features to solve the problems set forth in the above has never been disclosed.

SUMMARY OF THE PRESENT INVENTION

The aspect of the present invention is to provide a polyhydrocarbon cloth foil, and more specifically, to a PP (polypropylene), PE (polyethylene), PS (polystyrene) or PVC (polyvinyl-chloride) cloth foil which is made by laminating a polyhydrocarbon woven cloth with a foil having the same material as the polyhydrocarbon woven cloth. Said polyhydrocarbon cloth foil can be made into, for example, chemical storage bags. The bags made from said cloth foil can conform to the environmental needs, which is water and acid-base resistant, able to be recycled and can overcome the disadvantages of the prior art.

The another aspect of the present invention is to provide the method for the preparation of said polyhydrocarbon cloth foil.

BRIEF DESCRIPTION OF THE DRAWINGS:

Fig. 1 shows the components of the polyhydrocarbon cloth foil of the present invention.

Fig. 2 is a flow chart of the preparation of the poly-hydrocarbon cloth foil of the present invention.

Fig. 3 shows the method of laminating the polyhydrocarbon woven cloth and foil of the present invention

DESCRIPTION OF THE MAJOR SYMBOLS

<u>symbol</u>	<u>meaning</u>
10	polyhydrocarbon cloth foil
11	polyhydrocarbon woven cloth
12	polyhydrocarbon foil
13	roller
14	laminating extruder
21	polyhydrocarbon particles
22	polyhydrocarbon yarn

DETAILED DESCRIPTION

The present invention relates to a polyhydrocarbon cloth foil, comprising:

a polyhydrocarbon woven cloth; and

a polyhydrocarbon foil which has the same material as the polyhydrocarbon woven cloth.

The polyhydrocarbon woven cloth and the polyhydrocarbon foil of said polyhydrocarbon cloth foil are laminated together.

The present invention also relates to a process for the preparation of a polyhydrocarbon cloth foil, comprising laminating a polyhydrocarbon woven cloth with a polyhydrocarbon foil having the same material as the polyhydrocarbon woven cloth to form a cloth foil.

The polyhydrocarbon woven cloth used in the invention may be obtained by first extruding polyhydrocarbon particles by an extruder to form a polyhydrocarbon yarn, and then weaving said yarn by a weave machine.

The polyhydrocarbon foil used in the invention may be obtained by extruding and then taking-up the polyhydrocarbon particles through an extruder and a take-up machine.

The polyhydrocarbon of the present invention is preferably selected from a group consisting of PP (polypropylene), PE (polyethylene), PS (polystyrene) or PVC (polyvinylchloride), more preferably, PP.

The process for preparation of the polyhydrocarbon cloth foil of the present invention is illustrated by an embodiment of a PP cloth foil. The following embodiment is intended to illustrate, but in no way limit the scope of, the present invention.

As shown in Figure 1, the polyhydrocarbon cloth foil (10) of the present invention comprises a polyhydrocarbon woven cloth (11) and a polyhydrocarbon foil (12) having the same material as the polyhydrocarbon woven cloth.

As shown in Figure 2, PP particles (21) are first formed as a PP yarn (22) through an extruder (not shown in the drawings) and then formed as a PP woven cloth (11) in roll form by weaving through a weave machine (not shown in the drawings). In another route, at the same time, PP particles (21) are formed as a PP foil (12) in roll form through an extruder and a take-up machine (both not shown in the drawings). Then, as shown in Figures 2 and 3, the produced PP woven cloth (11) in roll form and the PP foil (12) in roll form are laminated together through a laminating extruder (14) and rollers (13) to form the PP cloth foil (10) of the present invention in roll form.

PP woven cloth (11) and PP foil (12) are commercially available. Their production is also well known to persons skilled in the art and not repeatedly illustrated herein.

The PP cloth foil (10) in roll form produced from the procedures above can be further full side printed, cut to tube pieces, sewn pieces and packed to finished bags respectively through printing machine, tubing machine, sewing machine and packing machine.

In comparison with conventional products, the polyhydrocarbon cloth foil of the present invention has following advantages:

1. The polyhydrocarbon cloth foil of the present invention can be reused after washed with water.
2. It is easier and cheaper to recycle the polyhydrocarbon cloth foil of the present invention because it is made by the same material.
3. Without containing paper material, the polyhydrocarbon cloth foil of the present invention has higher strength and can avoid moisture. It is water, acid and base resistant. In addition, it will not destroy the environment from felling trees.
4. The polyhydrocarbon cloth foil of the present invention has better appearance, i.e. it looks whiter. The conventional products are more yellow because of containing paper material.
5. It is easier to print patterns/letters on the products made from the polyhydrocarbon cloth foil of the present invention. Water or oil segments can be used for printing.
6. Because the used woven cloth and foil are the same material, the molecular affinity between them is very strong. Therefore, they can be easily laminated (binded) together strong and well. However, the molecular affinity between different materials such as paper component and plastic component of conventional cloth foil is weak so that their lamination may need further binding treatment.

To further prove the superiority of the polyhydrocarbon cloth foil of the present invention over conventional products, Table I shows the comparative test results between the hydrocarbon cloth foil of the present invention and conventional cloth foil:

TABLE I

Sample	A	B
drawing speed (mm/min)	100	100
test length (mm)	200 x 50	200x50
pull strength of lamination (g/D)	59	50
	64	54
longitude strength (g/D)	86	63
	88	67
latitude strength (g/D)	66	58
	64	56
impact strength (kg)	18.0	14.5

A represents the PP cloth foil of the present invention made by laminating PP woven cloth with PP foil.

B represents conventional PP cloth foil made by laminating PP woven cloth with paper.

Samples A and B were tested twice for laminating pulling force, longitude strength and latitude strength. The results apparently show that the PP cloth foil of the present invention has significantly stronger strength than conventional cloth foil.

While the present invention is described above with reference to a specific embodiment thereof, it is apparent that many changes, modifications and variations can be made without departing from the inventive concept disclosed herein. Accordingly, it is intended to embrace all such changes, modifications and variations that fall within the spirit and broad scope of the appended claims.



CLAIMS

1. A polyhydrocarbon cloth foil, comprising:
a polyhydrocarbon woven cloth; and
a polyhydrocarbon foil having the same material as the polyhydrocarbon woven cloth.
2. The polyhydrocarbon cloth foil of Claim 1, wherein the polyhydrocarbon is selected from a group consisting of PP, PE, PS and PVC.
3. The polyhydrocarbon cloth foil of Claim 1 or 2, wherein the polyhydrocarbon is PP.
4. The polyhydrocarbon cloth foil of Claim 1 or 2, wherein the polyhydrocarbon woven cloth is laminated with the polyhydrocarbon foil.
5. A process for the preparation of a polyhydrocarbon cloth foil, comprising:
laminating a polyhydrocarbon woven cloth with a polyhydrocarbon foil having the same material as the polyhydrocarbon woven cloth to form a cloth foil.
6. The process of Claim 5, wherein the polyhydrocarbon woven cloth is obtained by first extruding polyhydrocarbon particles by an extruder to form a polyhydrocarbon yarn, and then weaving said yarn by a weave machine.



7. The process of Claim 5, wherein the polyhydrocarbon foil is obtained by extruding and then taking-up the polyhydrocarbon particles through an extruder and a take-up machine.
8. The process of any one of Claims 5-7, wherein the polyhydrocarbon is selected from a group consisting of PP, PE, PS and PVC.
9. The process of Claim 8, wherein the polyhydrocarbon is PP.
10. A polyhydrocarbon cloth foil, which is prepared by the process of Claim 5.
11. The polyhydrocarbon cloth foil of Claim 1 or 10 for use in the manufacture of bags for chemical storage.