



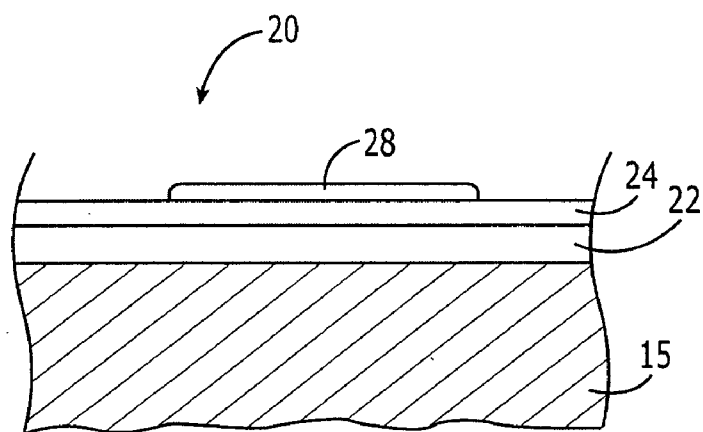
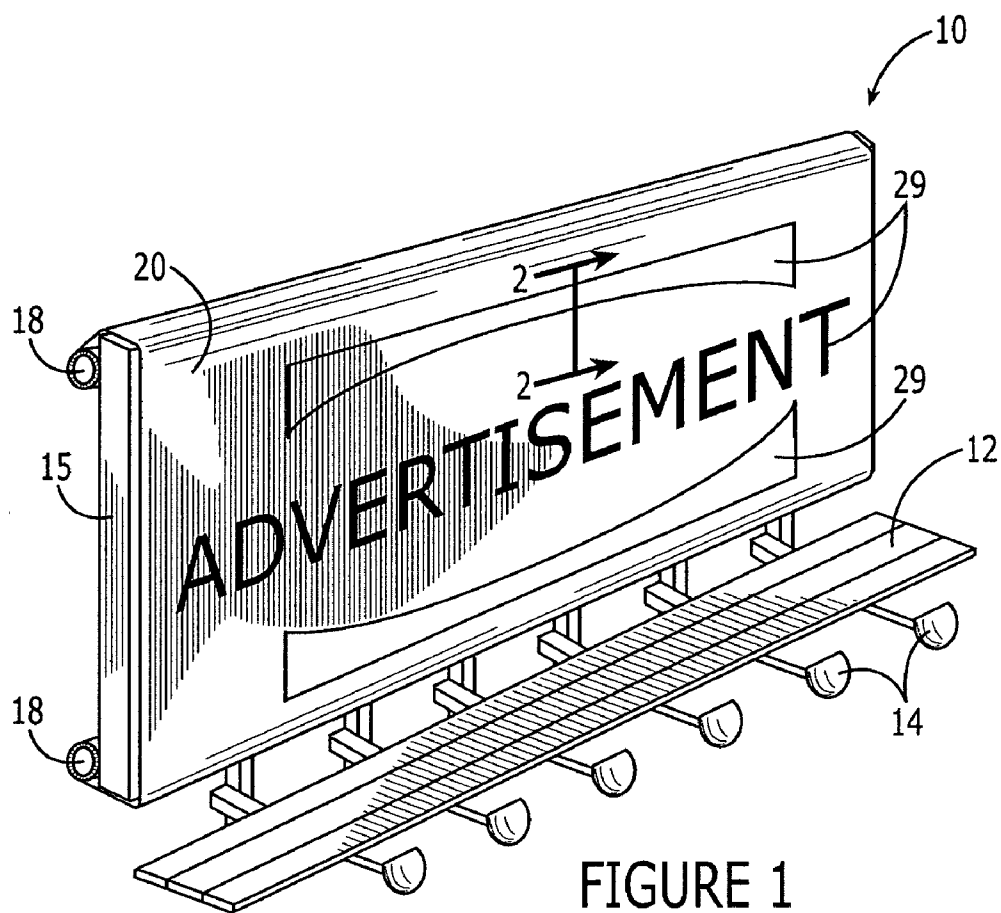
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(19) **United States**(12) **Patent Application Publication**  
**Sinto et al.**(10) **Pub. No.: US 2006/0222828 A1**(43) **Pub. Date: Oct. 5, 2006**(54) **RECYCLABLE DISPLAY MEDIA****Publication Classification**(75) Inventors: **Daniel Ernest Sinto**, Statesville, NC  
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**B41M 5/00** (2006.01)(52) **U.S. Cl.** ..... **428/195.1**(57) **ABSTRACT**

The present invention foregoes use of PVC in printable media and instead provides a lightweight recyclable display media comprised generally of a printable coated scrim. The display media includes a base layer or scrim comprised of a polymer material and formed by woven, non-woven, or knit sheet-forming techniques. A non-vinyl body coating is applied to the base layer to add stiffness, body, and printability to the media. The body layer is comprised, at least partially, of urethane, acrylic, or blended urethane/acrylic materials. These materials add body and durability to the base layer without presenting the environmental difficulties attributable to PVC. The non-vinyl body coating may further comprise ink receptive materials or fillers that enhance ink retention in the media. The display media may be printed through a variety of printing techniques known in the art.



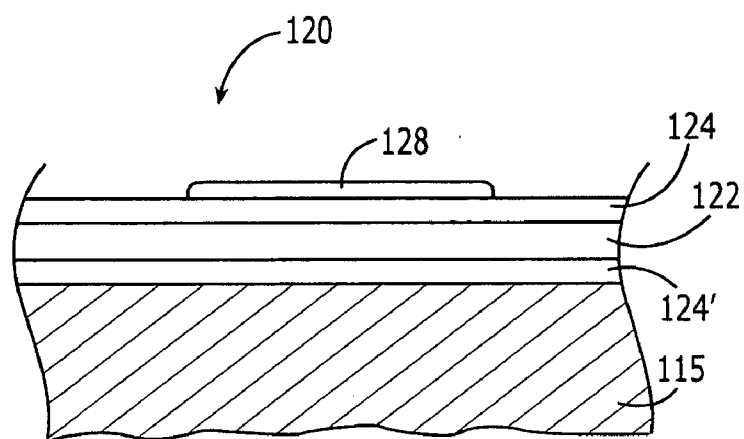


FIGURE 3

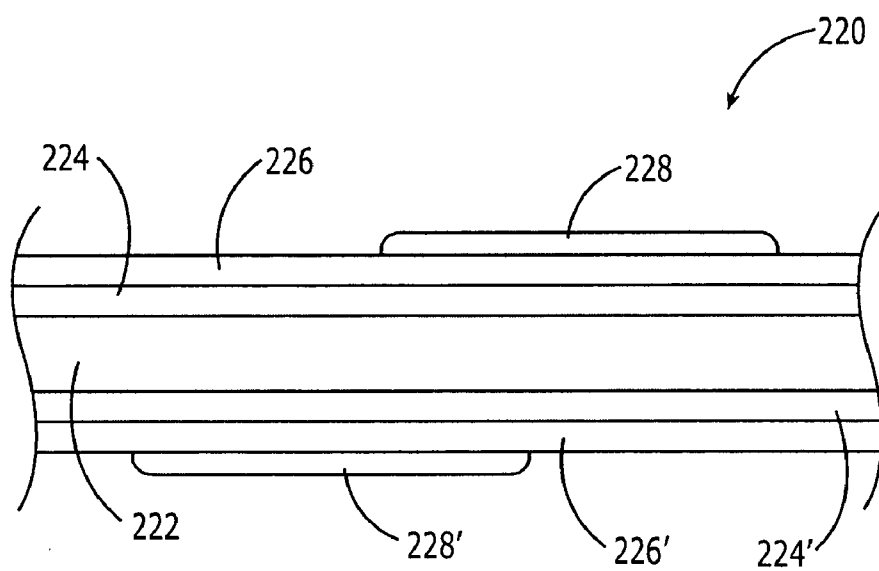


FIGURE 4

## RECYCLABLE DISPLAY MEDIA

### BACKGROUND OF THE INVENTION

#### [0001] 1. Field of the Invention

[0002] This invention relates generally to display media, and more particularly to a lightweight display media such as a billboard substrate that resists environmental deterioration, offers less-burdensome installation, and provides improved recyclability.

#### [0003] 2. Description of the Related Art

[0004] Advertisers are presented a variety of methods for communicating advertising messages to consumers. Perhaps the most traditional of these, is for the advertiser to simply print his/her message onto a large display (e.g., sign, billboard, building wrap, etc.) that is strategically positioned in a high consumer transit area. Historically, such displays were simply comprised of hand-painted advertising messages affixed to wooden structures such as stand-alone billboards, barns, and rooftops. As advertising demands grew, it became necessary for display owners to frequently change the depicted message. Thus, the owners began printing new advertising messages to paper sheets that could be quickly and relatively easily glued to the display support structures (e.g., billboards, barn, rooftops, etc.). Paper was a desirable substrate for these messages because it is cheap, easily printable, and readily replaceable. Unfortunately, however, paper also has a number of significant drawbacks. For example, paper is easily torn, deteriorates significantly when exposed to water, and fades badly under prolonged exposure to sunlight.

[0005] In view of the above, a more robust display media was developed that overcame many of the drawbacks of paper. In particular, a reinforced vinyl media was developed comprising a woven polyester scrim coated by one or more layers of poly-vinyl chloride ("PVC"). The composition of PVC to polyester for such vinyl media applications is approximately 70 percent PVC to 30 percent polyester. PVC is relatively cheap, provides environmental wear resistance, and supports a sharply printed image. Accordingly, use of PVC-based display media has become widespread in a variety of large outdoor display applications such as banner advertisements, billboards, building wraps, and the like.

[0006] Unfortunately, however, use of PVC also presents a number of drawbacks. For example, PVC produces a variety of noxious chemicals such as hydrochloric acid, carcinogenic dioxins, and other toxins, when manufactured or decomposed. As a result, care must be taken to protect workers during PVC manufacture and PVC disposal may harm the environment. As a constituent of vinyl media, PVC is non-bio-degradable and not readily recyclable. Attempts to recycle PVC media (e.g., PVC billboards, signs, etc.) usually require first mechanically separating (e.g., grinding, crushing, breaking, etc.) the PVC from other more recyclable materials (e.g., polyester scrim) also found within the PVC media. The recyclable materials are then recycled and the PVC is generally sent to a landfill. Unfortunately, the above recycling process is seldom used because mechanical separation of PVC is expensive and the recycling process as a whole generally returns a low recyclable product yield.

[0007] The above drawbacks are particularly problematic given the expanse of the modern advertising display media

industry. For example, the billboard industry alone produces an estimated 2,000,000,000 square feet of display media per year. A significant portion of this media is comprised of PVC and once printed, as referenced above, PVC media is generally not reusable. Thus, a large quantity of PVC-coated polyester is routinely sent to landfills resulting in undesirable disposal costs for advertisers and potentially placing environmental strain on landfills both in terms of refuse volume and in terms of the potential for the PVC to release harmful chemicals during decomposition.

[0008] PVC-containing display media is also undesirable due to its weight. Reinforced vinyl display media commonly weighs approximately 11-14 ounces per square yard. In large format applications such as billboards and building wraps, this media is wound onto large 100 yard rolls that weigh as much as 460 lbs. Such rolls are costly to ship and are difficult, if not impossible, for a single operator to handle and install on a printer.

[0009] Accordingly, it is desirable to produce an improved display media having a relatively lightweight and recyclable design that is capable of supporting large printed indicia for use in billboards and other large signs. Further, it is desirable that such printed media be configured to fit seamlessly on existing billboard and other display infrastructure.

### SUMMARY OF THE INVENTION

[0010] The present invention foregoes use of PVC in printable media and instead provides a lightweight recyclable display media comprised generally of a printable coated scrim. The display media includes a base layer or scrim comprised of polyester and formed by woven, non-woven, or knit sheet-forming techniques. A non-vinyl body coating is applied to the base layer to add stiffness, body, and printability to the media. For purposes of the foregoing specification and appended claims the term "non-vinyl" refers to a material that does not consist of a vinyl polymer. In one embodiment, the non-vinyl body coating is comprised, at least partially, of urethane, acrylic, or blended urethane/acrylic materials. These materials add body and durability to the base layer without presenting the environmental difficulties attributable to PVC. The non-vinyl body coating may further comprise ink receptive materials or fillers that enhance ink absorption or ink retention in the media. The display media may be printed through a variety of printing techniques known in the art.

[0011] In contrast to the PVC-based display media referenced above, the display media of the present invention is readily recyclable. This recyclability results, in part, from the media having a non-vinyl body coating comprising less than 25% of the total display media weight. The non-vinyl body coatings contemplated by the present invention do not contain chlorine and, thus, are not as hazardous to recyclers as PVC coatings and laminates. This combination of relatively low contamination levels and relatively non-noxious contaminants allows recyclers to reclaim the base layer material of the present display media without mechanically separating the non-vinyl body coating materials from the base layer materials as described above. Further, by applying non-vinyl body coating materials such as urethane or acrylic in relatively low concentrations the display media of various embodiments of the present invention may weigh as little as 6-7 ounces per square yard. Accordingly, the display media

of various embodiments of the present invention offers reduced shipping, installation, and disposal costs as compared to the prior art.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0012] Having thus described the invention in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

[0013] **FIG. 1** is a perspective view of a display media according to one embodiment of the invention, wherein the depicted display media has been installed onto a billboard display structure;

[0014] **FIG. 2** is a section view of the display media depicted in **FIG. 1**, taken along section lines 2-2;

[0015] **FIG. 3** is a section view of a display media according to another embodiment of the invention; and

[0016] **FIG. 4** is a section view of a display media according to another embodiment of the invention.

#### DETAILED DESCRIPTION OF THE INVENTION

[0017] The present invention now will be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all embodiments of the invention are shown. Indeed, this invention may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like numbers refer to like elements throughout.

[0018] **FIG. 1** illustrates a recyclable, lightweight, printed display media in accordance with one embodiment of the present invention. In the depicted embodiment, the display media **20** is supported for illustration purposes by a billboard structure **10**. As will be apparent to one of ordinary skill in the art, the present invention is not limited to use with billboards and may be used in a variety of display applications including building wraps, posters, banners, theatrical backdrops, and the like. The depicted billboard structure **10** includes a billboard face **15** and a service platform **12** as shown. Display media **20** according to various embodiments of the invention may be stretched over the billboard face **15** and secured with one or more ratchets **18**. As will be discussed in greater detail below, the display media **20** may be adapted to receive printed indicia **29** such as advertising messages. One or more lights **14** or back-lights (not shown) may be provided to illuminate the media **20**.

[0019] As shown in greater detail by the section view of **FIG. 2**, the depicted media **20** comprises a base layer **22**, a non-vinyl body coating **24**, and at least one ink region **28** disposed on the non-vinyl body coating **24**. The base layers, non-vinyl body coatings, ink regions, etc., of **FIGS. 2-4** are depicted having exaggerated thicknesses for illustration purposes and should not be construed as drawn to scale. In various embodiments, the at least one ink region **28** is arranged to form printed indicia **29** such as advertising

messages and the like (as shown collectively in **FIGS. 1 and 2**). The base layer **22** may be comprised of fibrous polyester, polyolefins such as polypropylene and polyethylene, nylon, some combination of these, or other similar continuous weather-resistant fibers known in the art. The base layer **22** may be comprised of a substantially continuous sheet formed by extrusion or alternatively may be a polymer scrim produced by woven, non-woven or knit sheet-forming techniques. Such polymer scrims are comprised of inter-engaged polymer fibers.

[0020] The base layer **22** provides strength and flexibility to the display media **20**. In one embodiment, the base layer **22** may be comprised of an 18×18 knitted polyester scrim. Such scrims have been shown to have sufficient strength and printability for convenient use in billboard applications. One of ordinary skill in the art may select scrims of differing sizes depending upon the intended application without deviating from the inventive concepts herein described. Scrims used as base layers may be calendered to decrease media openness or to increase printability as known in the art. In various embodiments, the base layer **22** may comprise between 75 and 95 percent of the display media by weight, preferably between 80 and 90 percent, and more preferably between 85 and 90 percent.

[0021] In another embodiment, the base layer **22** is coated with a non-vinyl body coating **24** as referenced above. The non-vinyl body coating **24** may be structured to add thickness, body, stiffness, printability, and/or a desired opacity to the base layer **22**. In the depicted embodiment, the non-vinyl body coating **24** is comprised of at least partially of a latex acrylic. In another embodiment the non-vinyl body coating may be comprised at least partially of urethane materials. The non-vinyl body coating **24** may include additional elements such as defoaming agents, dispersing agents, plasticizers, lubricants, coloring agents, fillers, and other similar additives as will be apparent to one of ordinary skill in the art. In one embodiment, the non-vinyl body coating **24** is formed as an aqueous dispersion and applied to the base layer **22** as a coating. The non-vinyl body coating **24** may be applied to one or both sides of the base layer **22** through a variety of techniques such as spray application, electrostatic application, standard rolling, kiss rolling, pad application and other similar coating processes known in the art. In another embodiment, the base layer may be simply dipped into a non-vinyl body coating dispersion to achieve a two-sided non-vinyl body coating. When dried, the non-vinyl body coating **24** comprises between 5 and 25 percent of the display media **20** by weight, preferably between 10 and 20 percent, and more preferably between 10 and 15 percent.

[0022] The precise composition of non-vinyl body coatings according to various embodiments of the present invention may vary from application to application as will be apparent to one of ordinary skill in the art. However, for illustration purposes, the composition of one exemplary non-vinyl body coating is described in Table 1 below.

## Non-vinyl Body Coating Example

[0023]

TABLE 1

Element	Basic Purpose	Weight (Wet) lbs	% Solids	Weight (Dry) lbs	% Dry Solids
Mineral Seal Oil	Defoaming agent	16	.25	4	0.017
Latex Acrylic	Body element	256	.495	126.72	0.527
Tributyl Phosphate	Defoamer/Plasticizer	4	1	4	0.017
Dodecanamida	Dispersing agent	2	.195	.39	0.002
Calcium Carbonate	Filler	32	1	32	0.133
Titanium Dioxide	Coloring agent	102	.72	73.44	0.305
Total		412		240.55	1.0

[0024] In the exemplary embodiment set forth above, approximately 52 percent of the non-vinyl body coating is comprised of latex acrylic on a dry weight basis. The remaining 48 percent is comprised of defoaming agents, plasticizers, dispersing agents, coloring agents, and fillers. In various embodiments of the present invention, several of these agents and fillers may be substituted for other elements that produce similar effects. For example, the latex acrylic may be replaced by other body elements such as polyurethane or an acrylic/polyurethane blend. The calcium carbonate filler may be replaced by silica, kaolins, and other similar elements. Additional elements for substitution will be apparent to one of ordinary skill in the art in view of the above disclosure.

[0025] As referenced above, various embodiments of the invention include one or more ink regions 28 printed onto the non-vinyl body coating 24 to form printed indicia 29 such as images, alpha-numeric characters, and the like. The printed indicia 29 may be configured to depict advertisements or other consumer messages for billboards (as shown in FIG. 1), banners, and building wraps. Alternatively, the indicia 29 may depict landscapes, colors, and other images for creating backdrops used in theatrical, musical or other productions. The ink regions 29 may be formed by a variety of printing techniques including digital ink jet printing, thermal transfer printing, screen printing, and other similar techniques known in the art. In billboard, building wrap, and other similar embodiments, ultra-wide format printers such as those produced by Vutek®, Nur Macroprinters Ltd., Scitex Vision, and others may be used. As will be apparent to one of ordinary skill in the art, the clarity of printed indicia may vary depending upon the application. For example, in billboard applications, it is desirable for a printed image to be viewable at 200 feet by consumers traveling at 50 miles per hour. To achieve this standard, billboard display media must generally have a print clarity ranging between 60 dpi and 720 dpi. Alternatively, in smaller poster or banner-type media applications, the acceptable print clarity may range between 360 dpi and 1400 dpi.

[0026] FIG. 3 depicts a section view of a display media 120 in accordance with another embodiment of the present invention. In the depicted embodiment, the display media 120 includes a base layer 122 coated at least partially on its opposed surfaces by first and second non-vinyl body coatings 124, 124' as shown. In various embodiments, the second non-vinyl body coating 124' may be intentionally created to

bolster media embodiments requiring added stiffness, body and/or opacity, or alternatively, may unintentionally result from non-vinyl body coating material blow-through when coating scrim-type base layers. One or more ink regions 128 are provided over at least one of the non-vinyl body coatings 124, 124' to form printed display indicia as described above.

[0027] FIG. 4 depicts a section view of a display media 220 in accordance with another embodiment of the present invention. In the depicted embodiment, the display media 220 once again includes a base layer 222 coated at least partially on its opposed surfaces by first and second non-vinyl body coatings 224, 224' as shown. However, in this embodiment, ink receptive coatings 226, 226' are provided to at least partially cover each of the first and second non-vinyl body coatings 224, 224' as shown. In another embodiment, an ink receptive coating may be applied to only one surface of the base layer (not shown). Display media according to embodiments of the invention may include a variety of ink receptive materials either as constituent components of the non-vinyl body coating (such as the calcium carbonate set forth in Table 1 above) or as distinct, separately-applied, ink receptive coatings as shown. Such ink receptive materials encourage ink absorption or retention, provide desired surface finishes (e.g., matte, gloss, etc.), and generally protect the printed media from scratching, scuffing or fading. One exemplary ink receptive material is the WD-21-152 topcoat produced by Stahl U.S.A. In various embodiments, the ink receptive materials can be aqueous systems and may also include a variety of media-enhancing elements such as fungicides and ultra-violet light absorbents. In the depicted embodiment, ink regions 228 are printed to either side of the display media 220 over the ink receptive coatings 226, 226' making the media particularly suited for use as a banner or other double-sided displays.

[0028] In various embodiments, display media of the present invention is formed by a method comprising the steps of forming a base layer, applying a non-vinyl body coating to the base layer, and printing at least one ink region over the non-vinyl body coating. The step of forming a base layer may include extruding a plurality of polyester fibers and knitting the fibers onto a polyester scrim. In one embodiment, the scrim may be knitted by a process known as weft inserted warp knitting. In this process, polyester or other polymer fibers are prepared as warps on beams with one or more yarns for each needle. A pick is formed during the knitting by inserting a length of fiber across the width (i.e., weft direction) of the knitting elements and fastening

the weft fiber between the needle loop and the underlap. Such processes are commonly known in the art and may be particularly suited to producing base layers according to various embodiments of the present invention. The media may be sized specifically for a given application, for example, in billboard applications the scrim may be commonly sized to 16 by 50 feet, 14 by 26 feet, or 7 by 13 feet. Other applications may require smaller or larger base layer scrims as will be apparent to one of ordinary skill in the art.

[0029] In one embodiment, the base layer is produced from polyester fibers that are pure high tenacity fibers (e.g., Type 787 polyester filaments produced by Invista and the like) selected to maximize the recycled value of the media. Such fibers also produce display media having acceptable resistance to shrinkage and ultra-violet light. Although not wishing to be bound by theory, pure high-tenacity polyester comprises relatively long hydrocarbon chains that have not been prematurely shortened through prior thermal or mechanical manipulation. As a result, any thermal and mechanical manipulation that is required during recycling does not preclude formation of a viscous reclaimed polyester product that retains hydrocarbon chains of sufficient length for subsequent use. Reclaimed polyester according to various embodiments of the invention is serviceable by itself or as a blending component with other products. For example, such reclaimed polyester may be combined with virgin polyester to achieve a polyester product of a desired purity. Alternatively, use of polyester fibers that have high thermal and mechanical manipulation histories could result in less desirable recycled polyester products having low viscosity and insufficient tensile strength, stretch, and shrink characteristics.

[0030] In various embodiments, the product of the above described steps is a recyclable display media comprised of 75 to 95 percent polyester. Accordingly, the display media is

embodiment, the finished weight of the recyclable display media is 7 ounces per square yard.

[0031] The relatively lightweight display media of the present invention provides a number of benefits. For example, in billboard applications, a 16×50 foot sheet may be wound into a 100 yard roll weighing approximately 230 pounds while similar PVC-containing rolls weigh as much as 460 pounds. Thus, the display media of the present invention is more cost-effective to ship (i.e., shipping costs are generally based on weight) and may reduce the number of operators needed to carry and install large display media rolls. Further, the lightweight display media of the present invention may be particularly useful for weight-restrictive display applications such as building wraps, towed aircraft advertisements, and the like. The recyclability of the lightweight display media could also allow advertisers to forego paying landfill disposal fees and may, potentially, allow advertisers to recoup a fee from recycling companies who may wish to process the high-grade media of the present invention.

[0032] Apart from the weight and recyclability improvements noted above, various embodiments of the present invention have been shown to produce display media having an improved tear and breaking strength when compared to conventional PVC-based display media. Table 2, which is provided below, compares the relative strength of a non-vinyl based display media sample produced according to one embodiment of the invention to three conventional PVC-based display media samples. Table 2 and the trial results provided therein have been provided for illustration purposes only and should not be construed as limiting.

#### Exemplary Trial Results

[0033]

TABLE 2

		Non-vinyl Media of the present invention	PVC-based Media #1	PVC-based Media #2	PVC-based Media #3
Finished Weight, (oz/yd <sup>2</sup> )		6.9	6.6	12.0	11.0
Thickness (mils)		16	12.0	15.0	14.0
Scrim Construction		18 × 18	18 × 9	9 × 9	9 × 9
Scrim		Polyester	Polyester	Polyester	Polyester
Breaking Strength (lbs/in)		336	215	192	236
	w	340	196		
	f	64	45	40	22
Tear Strength (lbs) Tongue	w	63			
	f	100	N/A	55/52	N/A
Tear Strength (lbs) Trap	w	91			
	f	Acrylic	PVC	PVC	PVC
Primary Coating		20/80	55/45	80/20	75/25
RATIO: Coating/Scrim					

extremely lightweight as compared to the prior art. Greige media according to one embodiment of the present invention weighs between 5.00 to 6.25 ounces per square yard. Printing, coating or other processing of the greige display media adds only marginal weight to the media (i.e., between 0.75 and 2 ounces per square yard) and, thus, media according to various embodiments of the present invention weighs approximately one-half (i.e., between 6.5 and 8.25 ounces per square yard) of the 13-14 ounces per square yard of the vinyl display media described above. In one preferred

[0034] Many modifications and other embodiments of the invention set forth herein will come to mind to one skilled in the art to which this invention pertains having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the invention is not limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

That which is claimed:

1. A recyclable display media for use in displaying advertising, signage and other graphical indicia and being visible to an observer, wherein the display media can be removed and recycled after its use is completed, the display media comprising:

a base layer for providing strength to the display media and a base upon which the graphical indicia can be applied, the base layer being formed at least partly from inter-engaged polymer fibers;

a non-vinyl body coating applied to the base layer, the non-vinyl body coating comprising a body material that accommodates display media recyclability without requiring mechanical separation of the non-vinyl body coating from the polymer fibers of the base layer; and

at least one ink region applied to the non-vinyl body coating to form graphical indicia visible to an observer, the ink comprising an ink material that also accommodates display media recyclability without requiring mechanical separation of the ink from the polymer fibers of the base layer such that the recyclable display media can be removed after its use is completed and recycled.

2. The recyclable display media of claim 1, wherein the non-vinyl body coating is at least partially comprised of a latex acrylic.

3. The recyclable display media of claim 1, wherein the non-vinyl body coating is at least partially comprised of urethane.

4. The recyclable display media of claim 1, wherein the non-vinyl body coating is at least partially comprised of a urethane/acrylic blend.

5. The recyclable display media of claim 1, wherein the recyclable display media defines a finished weight between 6.5 and 8.25 ounces per square yard.

6. The recyclable display media of claim 1, wherein the recyclable display media defines a finished weight of approximately 7 ounces per square yard.

7. The recyclable display media of claim 1, wherein the base layer comprises between 75 and 95 percent of the recyclable display media by weight.

8. The recyclable display media of claim 1, wherein the base layer comprises between 80 and 90 percent of the recyclable display media by weight.

9. The recyclable display media of claim 1, wherein the base layer comprises between 85 and 90 percent of the recyclable display media by weight.

10. The recyclable display media of claim 1, wherein the non-vinyl body coating comprises between 5 and 25 percent of the recyclable display media by weight.

11. The recyclable display media of claim 1, wherein the non-vinyl body coating comprises between 10 and 20 percent of the recyclable display media by weight.

12. The recyclable display media of claim 1, wherein the non-vinyl body coating comprises between 10 and 15 percent of the recyclable display media by weight.

13. The recyclable display media of claim 1, wherein the base layer is comprised of a polyester scrim.

14. A method of manufacturing a recyclable display media for use in displaying advertising, signage and other graphical indicia and being visible to an observer, wherein

the display media can be removed and recycled after its use is completed, the method comprising the steps of:

forming a base layer scrim for providing strength for the display media and a base upon which the graphical indicia can be applied, the base layer scrim being formed at least partly from inter-engaged polymer fibers;

applying a non-vinyl body coating to the base layer scrim, the non-vinyl body coating comprising a body material that accommodates display media recyclability without requiring mechanical separation of the non-vinyl body coating from the polymer fibers of the base layer; and

printing at least one ink region to the non-vinyl body coating to form graphical indicia visible to an observer, the ink comprising an ink material that also accommodates display media recyclability without requiring mechanical separation of the ink from the polymer fibers of the base layer such that the recyclable display media can be removed after its use is completed and recycled.

15. The method of claim 14, wherein the step of forming the base layer scrim includes knitting polyester fibers into a scrim fabric.

16. The method of claim 14, wherein the step of applying the non-vinyl body coating to the base layer scrim includes applying an aqueous dispersion at least partially comprised of latex acrylic.

17. The method of claim 14, wherein the step of applying the non-vinyl body coating to the base layer scrim includes applying an aqueous dispersion at least partially comprised of urethane.

18. The method of claim 14, wherein the step of applying the non-vinyl body coating to the base layer scrim produces recyclable display media comprising between 5 and 25 percent non-vinyl body coating by weight.

19. The method of claim 14, wherein the step of applying the non-vinyl body coating to the base layer scrim produces recyclable display media comprising between 10 and 20 percent non-vinyl body coating by weight.

20. The method of claim 14, wherein the step of applying the non-vinyl body coating to the base layer scrim produces recyclable display media comprising between 10 and 15 percent non-vinyl body coating by weight.

21. The method of claim 14, wherein the step of forming the base layer scrim includes inter-engaging polymer fibers by a weft inserted warp knitting process.

22. An advertising method, comprising:

providing a display media comprising a base layer polymer scrim and a non-vinyl body coating applied to the base layer polymer scrim, the non-vinyl body coating comprising a body material that accommodates display media recyclability without requiring mechanical separation of the non-vinyl body coating from the base layer polymer scrim;

printing at least one ink region to the non-vinyl body coating of the display media to form graphical indicia, the ink comprising an ink material that also accommodates display media recyclability without requiring mechanical separation of the ink from the base layer polymer scrim;



providing the display media in a display position for a predetermined period of time, wherein the display position is structured such that the graphical indicia printed to the non-vinyl body coating is visible to an observer;

removing the display media from the display position after the predetermined period of time; and

recycling the display media for subsequent use without mechanically separating the non-vinyl body coating and ink from the base layer polymer scrim.

**23.** The method of claim 22, wherein the non-vinyl body coating is at least partially comprised of latex acrylic.

**24.** The method of claim 22, wherein the non-vinyl body coating is at least partially comprised of urethane.

**25.** The method of claim 22, wherein the step of providing the display media in a display position includes installing the display media onto a billboard structure.

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