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Replacement Sheet:
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CLAIMS

1. A method of printing on opposite surfaces of a layer from a multi-layered foil laminate, wherein said layer comprises a plastic film material, comprising either translucent or transparent material, having a first surface adhesively fastenable to a facing surface of a foil web; said method comprising the steps of:

(a) imprinting a first indicia on said first surface of said plastic film material through lithographic printing;

(b) adhesively fastening said imprinted first surface of said plastic film material layer to the facing surface of said foil web; and

(c) imprinting second indicia on a second surface of said plastic film material remote from said foil web through thermal transfer printing;

wherein said first indicia assists printing registration for determining the location of the second indicia.

2. A method of printing as claimed in claim 1, wherein said plastic film material is at least translucent, said lithographic printing step comprising printing said first indicia in at least one color on said first surface so as to render said first indicia visible in a desired orientation thereof upon viewing said second surface from the exterior of said laminate.

3. A method of printing as claimed in claim 2, wherein an opaque contrastingly colored background is printed on said first surface beneath said first indicia.

4. A method of printing as claimed in claim 1, wherein said thermal transfer printing step on said second surface of the plastic film material has the second indicia remaining stable upon being exposed to temperatures within the range of about 120 °C to 130 °C over periods of about 30 minutes.

5. A method of printing as claimed in claim 1, wherein said plastic film material layer is constituted of polyester.



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6. A method of printing as claimed in claim 5, wherein said foil web is constituted of aluminum.
7. A method of printing as claimed in claim 1, wherein said plastic film material is adhesively secured to said foil web through the interposition of a layer consisting of a dry bond adhesive.
8. A method of printing as claimed in claim 7, wherein said dry bond adhesive comprises a polyurethane adhesive.
9. A method of printing as claimed in claim 1, wherein a surface of said foil web opposite the surface to which said plastic film material is adhered has applied thereto in superposition:
 - (a) a layer of a dry bond adhesive coated on said foil web; and
 - (b) a further layer comprising a plastic film material positioned on said dry bond adhesive.
10. A method of printing as claimed in claim 9, wherein said dry bond adhesive comprises a polyurethane adhesive.
11. A method of printing as claimed in claim 9, wherein said further plastic film material is constituted of oriented polypropylene.
12. A method of printing as claimed in claim 1, wherein said thermal transfer printing step is implemented by a ceramic print head contacting the second surface of said plastic film material.
13. A method of printing as claimed in claim 12, wherein the second surface of said plastic film material is an outer exposed surface of said foil laminate enabling external viewing of the indicia printed on both surfaces thereof.

14. A method of printing as claimed in claim 1, wherein said printing registration is controlled by at least one optical sensor scanning at least one print field of said first indicia.

15. A method of printing as claimed in claim 13, wherein said second indicia imparted by thermal transfer printing to the second surface of said plastic film material are located in specified orientations over print fields present on the first surface of said plastic film material.

16. A method of printing as claimed in claim 9, wherein said foil laminate has an overall thickness of about 0.07 to 0.08 mm.

17. A multi-layered foil laminate having printing on opposite surfaces of a layer of said laminate, said layer comprising plastic film comprising either transparent or translucent material having a first surface adhesively fastenable to a facing surface of a foil web; said laminate comprising:

(a) first indicia imprinted on said first surface of said plastic film, said first indicia being printed in at least one color on said first surface;

(b) said first surface of said plastic film, after being imprinted with said indicia, being adhesively fastened to the facing surface of said foil web; and

(c) thermally imprinted second indicia located on a second surface of said plastic film whereby said first indicia are visible upon viewing said second surface.

18. A laminate as claimed in claim 17, wherein said thermally imprinted indicia on said second surface are stable at temperatures within the range of about 120 °C to 130 °C over periods of about 30 minutes.

19. A laminate as claimed in claim 17, wherein said imprinted plastic film material is constituted of polyester.

20. A laminate as claimed in claim 19, wherein said foil web is constituted of aluminum.
21. A laminate as claimed in claim 17, wherein said plastic film material is adhesively secured to said foil web through the interposition of a dry bond adhesive.
22. A laminate as claimed in claim 21, wherein said dry bond adhesive comprises a polyurethane adhesive.
23. A laminate as claimed in claim 17, wherein a surface of said foil web opposite the surface having said plastic film material adhered thereto, includes in superposition:
 - (a) a first layer constituted of a lacquer composition;
 - (b) a layer of a dry bond adhesive coated on said lacquer layer;
 - (c) and a further layer comprising a plastic film material positioned on said adhesive to form said multi-layered foil laminate.
24. A laminate as claimed in claim 23, wherein said dry bond adhesive on said lacquer layer comprises a polyurethane adhesive.
25. A laminate as claimed in claim 23, wherein said further plastic film material is constituted of oriented polypropylene.
26. A laminate as claimed in claim 17, wherein said second surface of said plastic film material is an outer exposed surface of said foil laminate enabling external viewing of the indicia printed on both surfaces thereof; and print fields being imprinted on the first surface of said plastic film material to facilitate printing registration between said print fields and the printed indicia on said second surface.
27. A laminate as claimed in claim 26, wherein said printing registration is controlled by at least one optical sensor scanning at least one of said print fields.

28. A laminate as claimed in claim 26, wherein said indicia imparted by thermal transfer printing to the second surface of said plastic film material are located in specified orientations over the print fields present on the first surface of said plastic film material.
29. A laminate as claimed in claim 26, wherein said foil laminate has an overall thickness of about 0.07 to 0.08 mm.
30. A composite laminated foil covering and printed label structure for a package, said laminated foil covering and label structure comprising:
- (a) a metallic foil;
 - (b) a first layer comprising a plastic film material adhesively secured to one side of said metallic foil; said first layer having indicia imprinted on a surface thereof facing said metallic foil, and thermally transferred indicia being printed directly on an opposite surface of said first layer remote from said metallic foil, whereby said indicia on both said surface and opposite surface forms a printed label and whereby said thermally transferred indicia on the opposite surface is stable at temperatures of about 120 °C to 130 °C for up to about 30 minutes.
31. A composite laminated foil package covering as claimed in claim 30, wherein said first layer is translucent, said indicia on the surface thereof facing said metallic foil being imprinted by lithographic halftone and being visible in a desired orientation upon viewing thereof from the opposite surface.
32. A composite laminated foil package covering as claimed in claim 31, wherein an opaque color background is printed on the surface of said first layer facing said metallic foil beneath said imprinted indicia.
33. A composite laminated foil package covering as claimed in claim 30, wherein said first layer comprises polyester.

34. A composite laminated foil package covering as claimed in claim 30, wherein said metallic foil consists of aluminum.
35. A composite laminated foil package covering as claimed in claim 30, wherein said first layer is adhesively bonded to said metallic foil through the interposition of a dry bond adhesive layer.
36. A composite laminated foil package covering as claimed in claim 35, wherein said dry bond adhesive layer comprises a polyurethane adhesive.
37. A composite laminated foil package covering as claimed in claim 30, wherein a second plastic film material layer is adhesively secured to the side of the metallic foil opposite the side having said first layer secured thereto.
38. A composite laminated foil package covering as claimed in claim 37, wherein said second plastic film material layer is bonded to said metallic foil through the interposition of a lacquer layer having a dry bond adhesive layer coated thereon.
39. A composite laminated foil package covering as claimed in claim 38, wherein said adhesive layer comprises a polyurethane adhesive.
40. A composite laminated foil package covering as claimed in claim 37, wherein said second plastic film material layer comprises oriented polypropylene.
41. A composite laminated foil package covering as claimed in claim 37, wherein said second plastic film material layer is heat sealable to a shaped package comprising injection-molded plastic material.
42. A composite laminated foil package covering as claimed in claim 31, wherein print fields are imprinted on the surface of said first layer facing said metallic foil to

facilitate printing registration of the indicia imprinted by thermal transfer printing on the opposite surface of said first layer of plastic film material.

43. A composite laminated foil package covering as claimed in claim 42, wherein at least one of said print fields is scannable by an optical sensor for controlling a printing head for said thermal transfer printing.

44. A composite laminated foil package covering as claimed in claim 30, wherein said package covering is formed from a severed segment of a continuous web of said laminated foil.

45. A method of producing multi-layered foil laminate coverings for packages, said coverings each embodying a label and having printing on opposite surfaces of an outer layer or web thereof, wherein said layer or web comprises a first plastic film material having a first surface adhesively securable to a facing surface of a foil web; said method comprising the steps of:

(a) imprinting indicia on said first surface of said first plastic film material through lithographic halftone printing;

(b) adhesively securing said imprinted first surface of said first plastic film material to the facing surface of said foil web;

(c) imprinting indicia on a second surface of said first plastic film material remote from said foil web through thermal transfer printing;

(d) applying a layer constituted of a lacquer composition to the opposite surface of said foil web;

(e) coating a layer of a dry bond adhesive on said lacquer layer;

(f) bonding a further layer comprising a second plastic film material on said adhesive to form a multi-layered foil laminate; and

(g) severing said foil laminate into predetermined segments each having said printing located on specified surface regions thereof so as to form said multi-layered foil laminate covering.

46. A method as claimed in claim 45, wherein said first plastic film material is translucent, and said halftone printing step comprises printing said indicia in at least one color on said first surface so as to render said indicia visible in a desired orientation thereof upon viewing said second surface from the exterior of said laminate.

47. A method as claimed in claim 46, wherein an opaque contrastingly colored background is printed on said first surface beneath said printed indicia.

48. A method as claimed in claim 45, wherein said thermal printing step on said second surface of the first plastic film material allows the indicia to remain stable upon being exposed to temperatures within the range of about 120 °C to 130 °C over the periods of about 30 minutes.

49. A method as claimed in claim 45, wherein said first plastic film material is constituted of polyester.

50. A method as claimed in claim 49, wherein said foil web is constituted of aluminum.

51. A method as claimed in claim 45, wherein said first plastic film material is adhesively secured to said foil through the interposition of a layer consisting of a dry bond adhesive.

52. A method as claimed in claim 51, wherein said dry bond adhesive comprises a polyurethane adhesive.

53. A method as claimed in claim 52, wherein said dry bond adhesive coated on said lacquer layer comprises a polyurethane adhesive.

54. A method as claimed in claim 45, wherein said second plastic film material is constituted of oriented polypropylene.
55. A method as claimed in claim 45, wherein said thermal transfer printing step is implemented by a ceramic print head contacting the second surface of said first plastic film material.
56. A method as claimed in claim 55, wherein the second surface of said first plastic film material is an outer exposed surface of said foil laminate enabling external viewing of the indicia printed on both surfaces thereof; and print fields are printed on the first surface of said first plastic film material to facilitate printing registration between said print fields and said print head printing on said second surface.
57. A method as claimed in claim 56, wherein said printing registration is controlled by at least one optical sensor scanning at least one of said print fields.
58. A method as claimed in claim 56, wherein said indicia imparted by thermal transfer printing to the second surface of said first plastic film material are located in specified orientations over the print fields present on the first surface of said first plastic film material.
59. A method as claimed in claim 45, wherein said foil laminate has an overall thickness of about 0.07 to 0.08 mm.

METHOD OF DOUBLE-SIDED PRINTING A LAMINATE AND PRODUCT
OBTAINED THEREBY

Abstract

A method of double-sided printing, in effect, on opposite or both surfaces of a layer on a multi-layered foil laminate (30). Moreover, also disclosed is the provision of a novel multi-layered foil laminate (30) having at least one layer, preferably an exterior layer (50) which is constituted of a plastic film material, and which is provided with printing on both surfaces of the layer. In essence, the inventive method of double-sided printing includes initially printing on a first side of an outer layer of a plastic film material, preferably such as polyester, wherein the printing is imparted to the side or surface (52) of the plastic film material facing towards an underlying metallic foil (54) to which it is to be adhered, and wherein the printing is applied to the plastic film material through the intermediary of reverse halftone color printing, whereby subsequent to this particular printing on the one side of the outer plastic film layer having been completed, the plastic film material is adhesively fastened at the printed surface thereof to the underlying metallic foil, such as through the interposition of a suitable adhesive (56). Thereafter, in order to effectuate the printing on the opposite or external surface of the outer plastic film material, the laminated foil has thermal transfer printing imparted to the outer surface of the plastic film layer, preferably through the intermediary of a ceramic printing head, imparting further indicia indicative of specific information relative to the contents of a package which is to be equipped with the foil laminate.

Figure 1