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㉙ **Card, formed by laminating a plurality of plastic films, carrying a print within the laminate, and method for forming said card.**

㉚ Card formed as a laminate of at least three copolymer or homopolymer polyvinylchloride films and carrying an image in a printing technique by applying a heat setting vinyl ink, said image being enclosed in the laminate. The films forming the card, have a good adherence which can be enhanced in that the printed image in an interface between two films covers at most 50% of the surface area, and the image being printed "bled-off".

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TITLE MODIFIED
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CARD FORMED AS A LAMINATE OF PLASTIC FILMS AND CARRYING AN IMAGE
WITHIN THE LAMINATE, AND METHOD FOR LAMINATING SUCH A CARD

The invention relates to a card-formed as a laminate of at least
three plastic films and carrying an image in a printing technique
being distributed over two film faces within the laminate.

- 5 Furthermore the invention relates to a method for laminating
plastic films into a card while enclosing an image printed with ink
in the laminate.

- A similar card and a similar method for laminating a card are known
10 from British patent specification No. 2 076 337. The image being
enclosed among the films forming the laminate is inaccessible for
falsifiers of said print other than by taking the laminate apart.
Provided that the adherence between the films is good, separation
of the laminate will cause serious and unrepairable damage of the
15 films and of the printed image in particular. Repair of the card
after separating the laminate without any visible damage is
virtually impossible. Thus the card is protected against
falsification in the above sense. Good adherence of the films as
required having this object in mind is prejudiced by the printed
20 image that locally bars direct contact between the films.

According to the invention the above disadvantage is avoided in

that the plastic material of the films forming the card is a copolymer or homopolymer polyvinylchloride and in that printing of the image is carried out with a thermosetting vinyl ink, a so-called HSV-ink.

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The method for laminating a card according to the invention is characterized by stacking the films to be laminated while enclosing the image and compressing same by application of pressure onto their full surface areas, subsequently heating the films while maintaining said pressure, and finally cooling the films while maintaining said pressure, the transparent plastic films consisting of copolymer or homopolymer polyvinylchloride and the printing ink being a thermosetting vinyl ink, a so-called HSV-ink.

15 A special measure contributing to the good adherence includes that the printed image is substantially a line pattern as usual for securities, the ratio of printed to unprinted surface area amounting to at most 50% in an interface between two films, the image being printed "bled-off".

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To illustrate the invention the following description of an embodiment is given.

Example

25 A card was manufactured by laminating four polyvinylchloride films with a format of 350 x 480 mm as follows.

Two of the films with a thickness of 0.2 mm were unilaterally offset printed image-wise with an HSV-ink.

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As cover films a transparent film having a thickness of 0.1 mm and a transparent film having a thickness of 0.3 mm were used. The films were compiled to form a package and four of such packages

were placed between two chromium nickel polishing plates in a laminating press and heated therein up to 150°C , while applying a force of 10 kN. During cooling the force was raised to 0.6 MN. After heating the process took less than 9 minutes.

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CLAIMS

1. A card formed as a laminate of at least three plastic films and carrying an image in a printing technique and being distributed over two film faces within the laminate, characterized in that the plastic material of the films is a copolymer or homopolymer polyvinylchloride, and in that the image is printed with
5 a thermosetting vinyl ink, a so-called HSV ink.
2. A card according to claim 1, characterized in that the printed image is substantially a line pattern as usual for securities, the
10 ratio of printed to unprinted surface area amounting to at most 50% in an interface between two films, the image being printed "bled-off".
3. A method for laminating a card of plastic films while enclosing
15 an ink-printed image within the laminate, characterized by stacking the films to be laminated while enclosing the image and compressing same by application of pressure onto their full surface areas, subsequently heating the films while maintaining said pressure and finally cooling the films while maintaining said
20 pressure, the transparent plastic films consisting of copolymer or homopolymer polyvinylchloride, and the printing ink being a thermosetting vinyl ink, a so-called HSV-ink.



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	GB-A-2 076 337 (G.A.O.) *Claims 1-3,5-9; page 1, line 83 - page 2, line 64; page 4, lines 49-84; figures 1,4-6*	1	B 42 D 15/02 B 44 F 1/12 B 41 M 3/14 G 06 K 18/08 B 32 B 27/18 B 32 B
A	FR-A-2 279 548 (TRANSAC) *Claims 1,4; page 1, lines 8-32; examples 2,3*	1,2	
A	FR-A-1 564 311 (COMP. FRANC. DES INDUSTRIES DU BUREAU) *Claims 1,2; page 2, line 4 - page 3, line 14; figures 1,2*	1,3	
A	GB-A-1 590 439 (DATA CARD) *Claims 1,4,5,10; page 1, line 26 - page 2, line 38; figure 1*	1,3	
A	FR-A-1 032 615 (J. AND C.GRUSSEN) *The whole document*	3	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
Place of search THE HAGUE		Date of completion of the search 05-04-1983	Examiner BLASBAND I.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons
& : member of the same patent family, corresponding document