generally referred to by the name of “primers”, to make sure that the adhesion of the inks to the chosen substrate improves.

The digitally printable cloths currently available on the market, although having a good degree of resolution and quality of the printed image, do not succeed however in providing prints of comparable quality to digital prints on paper, in terms of reproduction and in particular as regards the vividness of the colours.

Moreover very often these printable cloths can show unwanted cracks in the print of the image (the phenomenon of cracking) which are an indication of imperfections in the layer of preparation, i.e. the fabric or the compound coated on top are not of excellent quality.

The need is therefore strongly felt to have available a fabric in natural, artificial or synthetic fibre for direct digital printing, in particular a cloth in cotton or viscose, capable of reaching a degree of reproduction and resolution of the printed image much more similar to that of digital prints on paper, in particular as regards the vividness of the colours and the brightness of the print, as well as the lack of white dots due to the lack of cover of the primer.

The object of the present invention is therefore that of overcoming, at least in part, the disadvantages of the prior art by providing a fabric or cloth for direct digital printing, in particular for HP INDIGO digital printing, able to exhibit a high, if not improved, degree of reproduction and resolution of the image much more similar to that of digital prints on paper, in particular as regards the vividness of the colours and the brightness of the print.

Another object is that of providing a fabric or a cloth as defined above which has high printability (evaluated in terms of machinability, brightness of print, adherence of the inks) on digital machines of different technology.

A further object is that of providing such a fabric or a cloth which can be made with a simple, easy and economical process.

Summary

These objects are achieved by the fabric or by the cloth treated and prepared in accordance

with the present disclosure.

According to a first aspect, the present disclosure refers to a process for preparing a fabric in natural, artificial or synthetic fibre, preferably natural and/or artificial fibre, more preferably a cotton or viscose cloth for bookbinding, with gloss/bright or matt finish, suitable for being printed directly by digital printing, preferably HP INDIGO digital printing, said process comprising the steps of

A) preparing an unfinished fabric or a cloth for bookbinding by desizing, washing, treating with optical white, sizing and drying;

B) pre-treating the fabric or the cloth obtained from step A) by applying, on at least one of the two sides, at least one composition in the form of a first paste for the closure of the pores of said cloth/fabric so as to make the surface planar;

C) on the side of said fabric or cloth intended to be printed, applying by coating a layer of a second paste having a viscosity of at least 7500 cps, preferably comprised between 8000 and 12000 cps, and drying this layer to obtain a layer highly receptive to the liquid ink of digital printers;

said viscosity being measured at the ambient working temperature when the paste is applied, generally between 10°C and 30°C,

said second paste being a mixture consisting of

- at least one nonionic thickener, preferably of the polyurethane type, and
- at least one aqueous composition containing about 35% by weight as dry weight of an acrylic resin and components that at temperatures around 200°C for less than one minute initiate the state of polymerization/vulcanization, and
- optional additives;

said second paste not containing colorant for fibres and inorganic/organic pigment such as for example calcium carbonate, clay, zeolite, silica; and

D) calendering at ambient temperature the cloth obtained from step C).

According to a second aspect, the present disclosure refers to a fabric or cloth for bookbinding, in cotton or viscose, with a gloss or matt finish, suitable for being printed directly by digital printing, preferably by HP INDIGO printing, obtained by the process defined in the first aspect.

According to a third aspect, the present disclosure refers to a fabric or cloth for bookbinding, in cotton or viscose, with a gloss or matt finish, suitable for being printed directly by digital printers, preferably by HP INDIGO printing characterised in that it has

a final layer of finishing deriving from a mixture having a viscosity of at least 7500 cps, preferably comprised between 8000 and 12000 cps, and comprising at least one nonionic thickener, preferably of the polyurethane type, and at least one aqueous composition containing about 35% by weight as dry weight of acrylic resin and components that at temperatures of around 200°C for less than one minute initiate the state of polymerization/vulcanization as defined in the first aspect.

Advantageous examples of the invention are disclosed herein.

In an example, the present disclosure relates to the use as final coating or finishing of a fabric for digital printing with HP INDIGO printers, preferably a cloth for bookbinding, of a particular paste for coating having a viscosity of at least 7500 cps, preferably comprised between 8000 and 12000 cps, even more preferably around 10000 cps,
wherein said paste is formed by a mixture comprising

- an aqueous composition containing about 35% by weight (dry) of an acrylic resin and components that at temperatures around 200°C for less than one minute initiate the state of polymerization, and
- a nonionic thickener, preferably of the polyurethane type,

and optional additives such as for example the anti-foaming agents of the non-silicone and non-mineral type suitable for coating pastes.

It has been found that with the abovementioned values of viscosity the paste has such a consistency as to be spreadable on the fabric so as to form a homogeneous layer of material. This viscosity is therefore to be understood as measured at the ambient working temperature when the paste is applied, which may vary generally between 10°C and 30°C.

The abovementioned paste for coating is not a colorant paste for fibres nor a paste containing any type of inorganic/organic pigment such as for example calcium carbonate, clay, zeolite, silica.

The aqueous composition with acrylic base of the abovementioned paste is resistant to high temperature and very sensitive to external conditions in that capable of drying easily, in the pre-emulsion state: said solution contains in fact components which at temperatures around 200°C for less than one minute trigger the state of polymerization and/or vulcanization so as to allow the solidification of the paste applied as final finishing so as to form a layer receptive to the inks of digital printers, in particular those of HP INDIGO digital printers.

Said paste, which has a viscosity of at least 7500 cps, is deposited with the air knife coating technology, applying it on the side of said fabric which is intended to be printed, said fabric or cloth having been previously pre-treated appropriately by means of the use of one or more specific compositions for the covering of spaces existing between warp and weft (pores).