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ABSTRACT BULLETIN OF THE INSTITUTE OF PAPER CHEMISTRY,vol 47,no08,Feb 1977, p. 899, Abstract no 8759u,Appleton, Wisconsin, US & JP-A-49132305 (KANZAKI PAPER) 19-12-1974

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Description

The present invention relates to a process for producing a coated high-gloss printing material, especially a coated paper, having a superior printability.

Coated papers having a coated-layer composed of pigment and binder are used as a high grade printing paper, wherein the gloss of the surface of a coated layer is an important factor besides a printability including ink-absorbency, coated-layer strength, etc. For enhancing the gloss, however, the smoothing by a press on the surface of a coated layer causes the destruction of voids in the coated-layer, thereby lowering the ink-absorbency. And for enchancing the gloss, the use of a large amount of water-soluble or -dispersible polymer, such as polymeric latex, which is used as the binder for pigment, increases a coated-layer strength and gloss, but lowers an ink-absorbency owing to the decreased voids in a coated-layer. Accordingly, the gloss and the printability have adverse tendency in this case. As described above, the kinds and amounts of pigment and binder, the amount of coating material, the degree of smoothing treatment and the like are determined under the consideration of an appropriate balance of gloss and printability. Therefore, other techniques are required for the production of a high gloss paper having a superior printability.

The gloss value of the coated printing paper is generally increased in the following order: slightly coated paper, coated paper, art paper, superart paper and cast-coated paper. "High gloss" of the present invention means a higher gloss value than that of superart papers. Accordingly, "a high gloss paper" means a coated printing paper having a higher gloss value than that of superart paper. Conventionally, a method using cast-coater is known as a method for the production of high gloss papers, wherein a wet coated-layer composed of pigment and binder is press-contacted with a cast-drum of mirror finishing and dried under heating. This method has a problem including a remarkably slower production speed compared with conventional art papers, coated papers or slightly coated papers.

Further, a method using a heated calender without using cast-drums is well-known. For example, Japanese Patent Laid-Open Application No.56-68188, Japanese Patent Publication Nos 64-10638 and 64-11758 disclose a method for coating a mixture of pigment and polymeric latex or water-soluble polymer, drying a resultant coated-layer and further treating the coated layer with a heated calender. In this case, the polymeric latex having a glass transition temperature of at least 5 °C or at least 38 °C is selected as the used latex, and the temperature of a heated calender is set at a higher temperature than the glass transition temperature of the used latex. Since this method selects a latex and calender treatment, it is simplified, superior in productivity, but it has as a defect an insufficient gloss, that is, this method does not provide a higher gloss than that of superart papers, and therefore it does not provide the same gloss as that of cast-coated papers.

As another method, further, there is a method disclosed in Japanese Patent Laid-Open Application No.59-22683. This method comprises coating a combination of at least two polymeric latexes of various minimum film-forming temperatures on an uncoated sheet or on a casted sheet, drying the obtained sheet and optionally smoothing the sheet by a calender. In this case, the drying of the combined lateces of various minimum film-forming temperatures causes fine crackings on the surface of the coated paper, thereby resulting in a superior ink-absorbency without impairing the gloss. The important point of the above technique consists in causing fine cracks on the surface of the coated sheet, wherein the special care about the drying conditions must be exercised. That is, the drying conditions must be set so as to completely melt the latex of a lower minimum film-forming temperatuer and, partly melt the latex of a higher minimum film-forming temperature. However, as is well-known, the drying conditions are easily varied by many factors. Considering industrial application of this technique, it is practically impossible to keep the drying conditions uniform and constant over an entire production system. Therefore, it is very difficult to maintain the constant stable quality.

It is the primary purpose to provide a coated printing material having both superior printability and high gloss. It is the secondary purpose to provide a process for producing easily and inexpensively a coated printing material having both superior printability and high gloss. Accordingly the invention provides a coated printing material which comprises a substrate bearing on one or both sides a pigment layer and a surface layer of a thermoplastic latex polymer having a second-order transition temperature of at least 80 °C, the or each surface layer having been treated by a calender at a temperature less than the second-order transition temperature of the thermoplastic latex polymer.

The invention also provides a process for producing a coated printing material which comprises forming a pigment layer on one or both sides of a substrate, coating thereon a latex of a thermoplastic polymer having a second-order transition temperature of at least 80 °C to prepare a surface-layer on the or each pigment layer, drying the obtained material and then treating the or each surface layer with a calender at a

temperature less than the second-order transition temperature of the thermoplastic polymer.

FIG. 1 shows an electron-microphotograph of the surface of the coated printing paper described in Example 1.

As the substrate, or printing base-material, there are generally used papers, synthetic papers, plastic films and non-woven clothes. Among the above materials, papers are widely employed. The papers can be classified into pigment-coated papers, such as art paper, coated paper, slightly coated paper and coated white board, and into non-coated papers, such as wood-free paper, wood-containing paper, newsprint paper, glazed paper and supergravure paper. In order to provide both high gloss and superior printability, the substrate should be selected from those materials.

The pigment layer on the substrate can be prepared by a conventional process for producing a pigment-coated paper, but the pigment in the coating material, the kind of binder, the ratio of binder to pigment can be varied depending upon the desired quality. One or both sides of the substrate can be coated (at a coating weight of 2 - 40 g/m^2 per side). After the pigment-coating, a thermoplastic latex polymer is coated on the pigment layer to prepare a surface layer. Before the latex-coating, the pigment layer can be optionally smoothed, for example by means of a super calender or gloss calender.

A coating of a thermoplastic latex polymer on an uncoated substrate (as base-material) provides good printability, but not high gloss.

A coating of a thermoplastic latex polymer on a synthetic paper or plastic film (as substrate or base-material) provides worse printability (an unsuitable effect) owing to insufficient dryability.

The thermoplastic latex polymer is applied as an emulsion (hereinafter referred to as "polymer latex") of a thermoplastic polymer or copolymer having a second-order transition temperature of at least 80 °C. In a core-shell type latex polymer, the shell part should have a second-order transition temperature of at least 80 °C. Latex polymers having a second-order transition temperature of at least 80 °C are used in the present invention regardless of the monomer species and the production process. In this case, preferable monomers include, for example, styrene, derivatives thereof, vinylidene chloride and acrylates or methacrylates.

The upper limit of the second-order transition temperature is not otherwise limited, but is substantially determined depending upon the monomer species, and the additives such as plastisizer for producing the polymeric latex. In general, this upper limit is about 130 °C.

The use of a latex polymer having a second-order transition temperature below 80 °C causes adhesion to the calender roll in the calender treatment, and it provides a coated material with insufficient gloss, low surface strength and worse printability.

In this case, the purpose of the present invention is not achieved due to the above defects.

In general, the particle size of the polymer latex used for coating the substrate is smaller than that of a latex used in other fields such as paints when an average particle size is 100 - 500 nm. However, it a polymer latex having an average particle size of less than 100 nm is preferable in the present invention.

The polymer latex is coated on a pigment coating layer. Various additives can be provided that the purpose of the present invention is not harmed. These additives are as follows: natural or synthetic coating-binders, fluidity-adjusting agents for the control of coating suitability, antifoamers, lubricants for avoiding adhesion to calender rolls, coloring agents for the coloration of a coating layer surface and a small amount of pigments.

The above additives may be mixed appropriately to prepare a coating material for a surface-layer.

The resultant coating material for the surface-layer is coated on a pigment-coated layer to produce a surface-layer. The coating amount can be suitably adjusted to obtain a desired quality. With the large amount of the coating, the costs are increased, the ink absorbency is reduced, the ink set is insufficient, and the strength of the surface -layer is lowered. Accordingly, the large amount of the coating is disadvantageous. In ordinary cases, it is suitable to use a coating amount of at least 0.1 g/m^2 , preferably 0.3 - 3 g/m^2 on one side of a coated substrate.

The coating material for the surface-layer is applied by means of a conventional coater used in paper coating, for example, blade coater, roll coater, air-knife coater, bar coater, gravure coater or flexo coater. Drying after the coating requires no specific equipment, and can be carried out by the conventional drying systems used for the production of coated papers.

Then, the obtained surface-layer is treated by a calender to prepare a high gloss-layer. The kind of calender is not limited, and super-calender and/or gloss-calender used for smoothing a coated paper are generally employed. However, the calender-treatment, of which the conditions are important, must be made at below the second-order transition temperature of the latex polymer used for the surface-layer. Any temperature below the second-order transition temperature can be used. However, the temperature is preferably at least 5 °C, more preferably 10 ° - 30 °C lower, than the second-order transition temperature.

It is unknown why the coated printing material of the present invention has both superior printability and high gloss. However, it can be assumed from observation of the glazed surface-layer of the present invention as follows.

Fig. 1 shows an electron-microscopic photograph of the surface-layer of a coated printing paper of the present invention. As seen in Fig. 1, the surface-layer does not consist of a continuously uniform film formed by melting a latex polymer, but constitutes a structure in which the polymer particles of several ten nanometer in size are separated from each other. This means that the latex polymer, owing to its high second-order transition temperature of at least 80 °C, is fixed while maintaining the form and size of the polymer particles without melting and without forming a continuous film, under the conventional drying conditions and the subsequent calender treatment, which is made below the second-order transition temperature. Accordingly, there are many voids between the polymer particles, so that printing inks fill the voids and pass through the capillary tubes among the particles. The ink then reaches the pigment layer, where it is absorbed.

According to the usual theory, it is concluded that a layer in which the form and size of polymer particles is maintained without melting as shown in Fig. 1 would have no film strength. However, the glazed surface layer of the present invention has practically sufficient strength. The reason for the sufficient strength is now unknown, but it is assumed that the latex polymer having a second-order transition temperature of at least 80 °C has a certain hardness in a calender treatment. Accordingly, a calender treatment after the coating of this latex polymer on the pigment layer causes complicated actions of the properties, such as packing and elasticity, of a pigment layer, the properties of the latex polymer determined by hardness, particle size and coating amount, and the mutual chemical affinities of latex polymer and pigment under a high pressure of the calender treatment. That is, it is assumed that the increase of the surface strength, is due to the above complicated actions, i.e. the so-called mechanochemical effects.

Considering the conventional view that a practicably uniform continuous surface is required for obtaining a high gloss, it is not expected that the surface of the layer coated with the latex polymer would provide a high gloss despite maintaining the particle form. This reason seems to be as follows. The particle size of the latex polymer is small, and the cavities in the pigment layer are filled with the latex polymer particles, so that a whole surface-layer is optically smoothed.

Considering that the surface-layer of a coated printing paper in Comparative Example 1 described hereinafter maintains the particle size of the latex polymer as seen in Table 1, it is assumed that the other factors relate to the mechanism of the effects of the present invention. However, it is unknown what these factors are.

Since, in the production of a coated printing material, the drying and calendering conditions are equal to those in case of the commercial coated papers, a coated material having a certain standard quality is produced without damaging productivity.

The following examples serve to illustrate the present invention in more detail.

Unless otherwise indicated, all parts and percentages are by weight.

Examples

The production of polymer latex for over-coating

Preparation Example 1

300 parts of water, 9 parts of sodium dodecylbenzene sulfonate and 4 parts of polyoxyethylene nonyl phenol ether (10 moles of ethylene oxide addition) were placed in a four-neck flask equipped with a stirrer, a thermometer, a cooler, a dropping funnel and a nitrogen gas inlet, and then were mixed. 80 Parts of styrene, 10 parts of α-methylstyrene,100 parts of methyl methacrylate were separately mixed to prepare a monomer mixture. 60 parts of the monomer mixture were added to mixture in the flask the contents of which were then heated to 60 C under nitrogen. Further, 7.2 parts of 20 % aqueous ammonium persulfate solution and 4.8 parts of 20 % anhydrous sodium bisulfite solution were added thereto and polymerization was conducted for 60 minutes. After adding 10 parts of 20 % aqueous ammonium persulfate solution, 140 parts of the above monomer mixture were added dropwise thereto for one hour, and were maintained at 90 °C for 4 hours. After the completion of polymerization, a latex of a copolymer having a second-order transition temperature of 107 °C and a solid content of 39 % was obtained.

Preparation Example 2

310 parts of water, 5.6 parts of ammonium polyoxyethylene nonyl phenyl ether sulfate (HITENOL N-03, manufactured by DAI-ICHI KOGYO SEIYAKU CO., LTD), 48 parts of styrene, 19 parts of methyl methacrylate, 8 parts of ethyl methacrylate, 2.5 parts of divinyl benzene and 2.5 parts of methacrylic acid were placed in a four-neck flask equipped with a stirrer, a thermometer, a cooler, a dropping funnel, and were heated to 70 °C under nitrogen. 5 Parts of 16 % aqueous potassium persulfate solution were added thereto and maintained at 85 °C for 4 hours. After the completion of polymerization, a latex of a copolymer (B) having a second-order transition temperature of 85 °C and a solids content of 21.2 % was obtained.

Preparation Example 3

The same procedure as that of Preparation Example 1 was carried out except that 88 parts of styrene, 38 parts of methylmethacrylate, 70 parts of n-butylmethacrylate and 4 parts of methacrylic acid were used instead of the monomer mixture of Preparation Example 1, to provide a latex of a copolymer having a second-order transition temperature of 68 °C and a solids content of 39 %.

Preparation of a base material (a coated-paper)

70 parts of 1st class kaolin, 30 parts of fine ground calcium carbonate, 13 parts (solid content) of a styrene-butadiene latex copolymer and 5 parts (solid content) of a 35 % aqueous starch solution were mixed to produce a coating color of a 64 % solid content. The coating color was coated on a wood-free base paper of a basis weight of 127 g/m^2 in a coating amount of 14 g/m^2 side (dry basis) by means of a blade coater with a coating speed of 500 m/min. After drying, a base material of a 5.5 % moisture content for upper-coating (a pigment-coated paper) having a pigment layer was obtained.

Examples 1, 2 and 3, and Comparative Example 1

90 parts (solid content) of a copolymer latex having a second-transition temperature of 107 °C, 5 parts (solid content) of polyethylene wax emulsion-type releasing agent and 5 parts (solid content) of calcium stearate-type lubricant were mixed to produce an upper-coating solution of a 30 % solid content. The resultant coating solution was coated in a coating amount of 1.6 g/m^2 side (dry basis) on a base material (pigment-coated paper). After drying, an upper-coated paper of a 6.5 % moisture content was obtained. The resultant coated paper was treated under a nip pressure of 180 kg/cm through two nips of a supercalender consisting of chilled rolls and cotton rolls so as to contact the upper-coated surface with the metal roll. In this manner, a coated paper having a high gloss was obtained. Examples 1 and 2 were made at chilled roll temperatures of 65 °C and 82 °C, respectively. On the other hand, an upper-coated paper was treated under a nip pressre of 1000 kg/cm through two nips of a gloss calender consisting of chilled rolls and heat-resistant rolls so as to contact the upper-coated surface with the metal roll. Example 3 was made at a chilled roll temperature of 95 °C, and Comparative Example 1 was made at a chilled roll temperature of 120 °C, i.e. a higher temperature than the second-order transition temperature of latex copolymer.

Examples 4, 5 and 6

An upper-coated solution and base paper in Example 2 were used, and supercalendering conditions, including a roll temperature of 82 °C, were made in the same manner as in Example 2, wherein one to several time coatings were made by means of a blade coater (manufactured by Kumagaya Riki Co,) to produce a paper having a high gloss. Examples 4, 5 and 6 had upper-coated weights of 0.7 g/m^2, 2,8 g/m^2 and 5.5 g/m^2,respectivity.

Examples 7 and 8, and Comparative Example 2

Examples 7 and 8, and Comparative Example 2 were carried out in the same manner as Examples 1 - 3, and Comparative Example 1, except for using a 20 % coating solution containing 80 parts (solid content) of the copolymer (B) having a second-order transition temperature of 85 °C, 10 parts (solid content) of polyethylen wax-type lubricant and 10 parts (solid content) of calcium stearate-type lubricant and except for using a coating amount of 1.2 g/m^2 side (dry basis). In this manner, upper-coating papers of high gloss were obtained. Examples 7 and 8 were carried out at chilled roll temperatures of 65 °C and 82 °C,

respectively, (lower temperatures than the second-order transition temperature of the copolymer (B), and Comparative Example 2 was carried out at a chilled roll temperature of 120 °C, a higher temperature than the second-order transition temperature of copolymer (B).

Comparative Examples 3 and 4

Comparative Examples 3 and 4 were carried out in the same manner as Examples 1 and 3, except for using a latex copolymer having a second-order transition temperature of 72 °C and a coating amount of 1.4 g/m^2 side (dry basis), wherein high gloss papers were obtained. Comparative Example 3 was made at a chilled roll temperature of 65 °C, a lower temperature than the second-order transition temperature. Comparative Example 4 was made at a chilled roll temperature of 95 °C, a higher temperature than the second-order transition temperature.

Comparative Example 5

An upper-coating solution of Example 7 using the copolymer (B) was coated on an uncoated wood-free paper of 127 g/m^2 basis weight in a coating amount of 2.6 g/m^2 side and was treated in the same manner as in Example 7 by means of a super-calender consisting of chilled rolls and cotton rolls adjusted to a temperature of 82 °C, wherein an upper-coated paper was obtained.

Comparative Example 6

On the base material having a pigment layer used in Examples 1 - 3, there was coated a 30 % upper-coating solution composed of 70 parts (solid content) of the copolymer (B), 25 parts (solid content) of the pigment-coated material used for application of the pigment-coated layer on the base material and 5 parts (solid content) of calcium stearate type lubricant in a coating amount of 8.7 g/m^2 side. The resultant upper-coated paper was treated in the same manner as in Example 8 by means of calender to prepare a high gloss paper.

The coated papers obtained in the Examples and Comparative Examples were tested and evaluated for their qualities. The test results, with the copolymers and the surface temperatures of metal rolls in the calender treatments in the Examples and Comparative Examples are shown in Table 1.

Table 1

	Base paper	Kind of upper-coating resin	Coating amount of upper-coating resin	Kind of calender (Roll Temp.)	Adhesion to calender	Gloss of unprinting paper Reflectance at 60°	Printing gloss Reflectance at 75°	Ink setting	Dry picking resistance	Percentage missing dots-number
		(Tg °C)	(g/m²)	(°C)		%	%			
Example 1	Pigmented paper	A (107)	1.6	Super (65)	No-adhesion	63.9	89.0		High	0.11
Example 2	〃	A (107)	1.6	Super (82)	No-adhesion	71.5	92.2		〃	
Example 3	〃	A (107)	1.6	Gloss (92)	No-adhesion	62.9	88.6		〃	
Comparative Example 1	〃	A (107)	1.6	Gloss(120)	Adhesion	44.7	64.1		Medium	4.30
Example 4	〃	A (107)	0.7	Super (82)	No-adhesion	68.4	90.8		High	
Example 5	〃	A (107)	2.8	Super (82)	No-adhesion	72.3	93.0		〃	
Example 6	〃	A (107)	5.5	Super (82)	Partial adhesion	58.4	85.7		〃	1.25
Example 7	〃	B (85)	1.2	Super (65)	No-adhesion	65.1	87.6		〃	0.11
Example 8	〃	B (85)	1.2	Super (82)	No-adhesion	73.4	95.4		〃	
Comparative Example 2		B (85)	1.2	Gloss(120)	Adhesion	38.8	56.8		Medium	
Comparative Example 3		C (72)	1.4	Super (65)	Partial adhesion	51.3	70.4		Low	3.22
Comparative Example 4		C (72)	1.4	Gloss (95)	Adhesion	32.2	49.5		〃	
Comparative Example 5	Wood-free paper	B (85)	2.6	Super (82)	No-adhesion	15.8	35.5		〃	8.51
Comparative Example 6	Pigment coated paper	B (85) Pigment coating material	8.7	Super (82)	No-adhesion	53.4	80.3		High	0.12

Note: unprinted gloss of art paper and cast coated paper (Reflectance at 60)
Super art (SA Kanafuji) 54.1%
Cast coat (Mirror coat platinum) 63.6%

The test methods and evaluations are as follows.

Gloss of unprinted paper

Gloss is measured by adopting the reflectance at an angle of 60° using a Murakami type gloss meter, since the reflectance at an angle of 75° gives equal gloss-values in high gloss papers. As the standard gloss of unprinted paper, the reflectances at 60° and 75° are shown in a superart paper (SA) and cast-coated paper (CC).

	Reflectance at 60°	Reflectance at 75°
S A : C C :	54.1% 63.6%	83.6% 84.7%
S A : Superart paper C C : Cast-coated paper		

Printing gloss

A paper is printed by means of an RI-II type printing tester, and is measured by Murakami-type gloss meter under the use of a reflectance at 75°.

Ink setting

A paper is printed by means of an RI-II type printing tester. Then, an unprinted paper is contacted with the printed surface. The ink-transfer degree onto an unprinted paper is evaluated visually as follows.

○ means no ink-transfer onto an unprinted paper
△ means partial ink-transfer
X means remarkable ink-transfer

Gravure printability

A paper was printed by a gravure printing tester (manufactured by Kumagaya Riki Co.) using a half tone gravure as plate. The percentage (%) of missing dots, based on the total number of dots, is indicated.

As is clear from Table 1, the coated printing papers of the present invention have a higher gloss than super-art papers. These coated printing papers are superior in terms of printability such as ink setting, dry picking resistance and dots. Further, their preparation is superior in terms of adhesion of the polymer latex to calender rolls, that is, an index of easy productivity.

In contrast, the coated papers of the Comparative Examples have insufficient gloss, and are inferior or insufficient in some indexes of printability or adhesion to calender rolls, which means that the purpose of the present invention is not achieved.

Claims

1. A coated printing material which comprises a substrate bearing on one or both sides a pigment layer and a surface layer of a thermoplastic latex polymer having a second-order transition temperature of at least 80°C, the or each surface layer having been treated by a calender at a temperature less than the second-order transition temperature of the thermoplastic latex polymer.

2. A material according to claim 1, wherein the or each surface layer is obtainable by coating the or each pigment layer with a latex of the thermoplastic latex polymer at a coating rate of 0.3-3 g/m^2.

3. A material according to claim 1 or 2, wherein the substrate is paper.

4. A material according to any one of the preceding claims, wherein the coating rate of pigment on the substrate is 2-40 g/m^2 in the or each pigment layer.

5. A process for producing a coated printing material which comprises forming a pigment layer on one or both sides of a substrate, coating thereon a latex of a thermoplastic polymer having a second-order

transition temperature of at least 80 °C to prepare a surface-layer on the or each pigment layer, drying the obtained material and then treating the or each surface layer with a calender at a temperature less than the second-order transition temperature of the thermoplastic polymer.

6. A process according to claim 5, wherein the or each surface layer is produced by coating with said latex at a coating rate of 0.3-3 g/m^2.

7. A process according to claim 5 or 6, wherein the substrate is paper.

8. A process according to any one of claims 5 to 7, wherein the coating rate of pigment on the substrate is 2-40 g/m^2 in the or each pigment layer.

9. A process according to any one of claims 5 to 8, wherein the or each surface layer is treated by a calender at a temperature 10-30 °C lower than the second-order transition temperature of the thermoplastic latex.

Patentansprüche

1. Beschichtetes Druckmaterial, daß ein Substrat enthält, das auf einer oder auf beiden Seiten eine Pigmentschicht und eine Oberflächenschicht aus einem thermoplastischen Latexpolymer mit einem Glasumwandlungspunkt von wenigstens 80 °C trägt, die oder jede Oberflächenschicht ist mit einer Satiniermaschine bei einer geringeren Temperatur als dem Glasumwandlungspunkt des thermoplastischen Latexpolymers behandelt worden.

2. Material nach Anspruch 1, bei dem die oder jede Oberflächenschicht durch Überziehen der oder jeder Pigmentschicht mit einem Latex eines thermoplastischen Latexpolymers mit einer Beschichtungsrate von 0,3-3 g/m^2 erhalten wird.

3. Material nach Anspruch 1 oder 2, bei dem das Substrat Papier ist.

4. Material nach irgendeinem der vorhergehenden Ansprüche, bei dem die Beschichtungsrate des Pigments auf das Substrat 2-40 g/m^2 in der oder jeder Pigmentschicht ist.

5. Verfahren zur Herstellung eines beschichteten Druckmaterials, daß die Bildung einer Pigmentschicht auf einer oder beiden Seiten eines Substrates, das Beschichten dessen mit einem Latex eines thermoplastischen Polymers mit einem Glasumwandlungspunkt von wenigstens 80 °C, um eine Oberflächenschicht auf der oder auf jeder Pigmentschicht herzustellen, das Trocknen des erhaltenen Materials und dann die Behandlung der oder jeder Oberflächenschicht mit einer Satiniermaschine bei einer geringeren Temperatur als dem Glasumwandlungspunkt des thermoplastischen Polymers, umfaßt.

6. Verfahren nach Anspruch 5, bei dem die oder jede Oberflächenschicht durch Beschichten mit besagtem Latex mit einer Beschichtungsrate von 0,3-3 g/m^2 hergestellt wird.

7. Verfahren nach Anspruch 5 oder 6, bei dem das Substrat Papier ist.

8. Verfahren nach irgendeinem der vorhergehenden Ansprüche 5 bis 7, bei dem die Beschichtungsrate des Pigments auf das Substrat 2-40 g/m^2 in der oder jeder Pigmentschicht ist.

9. Verfahren nach irgendeinem der Ansprüche 5 bis 8, bei dem die oder jede Oberflächenschicht mit einer Satiniermaschine bei einer 10-30 °C niedrigeren Temperatur als dem Glasumwandlungspunkt des thermoplastischen Latex behandelt wird.

Revendications

1. Support d'impression enduit, comprenant un substrat portant sur une face ou sur les deux une couche de pigment et une couche surfacique d'un polymère de latex thermoplastique ayant une température de transition du deuxième ordre d'au moins 80 °C, la ou chaque couche surfacique ayant été traitée par une calandre à une température inférieure à la température de transition du deuxième ordre du

polymère de latex thermoplastique.

2. Support selon la revendication 1, dans lequel la ou chaque couche surfacique peut être obtenue en appliquant sur la ou chaque couche de pigment un latex du polymère de latex thermoplastique à un taux d'application de 0,3 à 3 g/m2.

3. Support selon l'une des revendications 1 ou 2, dans lequel le substrat est du papier.

4. Support selon l'une des revendications précédentes, dans lequel le taux d'application du pigment sur le substrat est 2 à 40 g/m2 dans la ou chaque couche de pigment.

5. Procédé de fabrication d'un support d'impression enduit, comprenant les étapes suivantes : former une couche de pigment sur une face ou les deux faces d'un substrat, appliquer sur elle(s) un latex d'un polymère thermoplastique ayant une température de transition du deuxième ordre d'au moins 80 °C pour préparer une couche surfacique sur la ou chaque couche de pigment, sécher le support obtenu et traiter ensuite la ou chaque couche surfacique avec une calandre à une température inférieure à la température de transition du deuxième ordre du polymère thermoplastique.

6. Procédé selon la revendication 5, dans lequel la ou chaque couche surfacique est produite en appliquant ledit latex à un taux d'application de 0,3 à 3 g/m2.

7. Procédé selon l'une des revendications 5 ou 6, dans lequel le substrat est du papier.

8. Procédé selon l'une des revendications 5 à 7, dans lequel le taux d'application du pigment sur le substrat est 2 à 40 g/m2 dans la ou chaque couche de pigment.

9. Procédé selon l'une des revendications 5 à 8, dans lequel la ou chaque couche surfacique est traitée par une calandre à une température de 10 à 30 °C inférieure à la température de transition du deuxième ordre du latex thermoplastique.
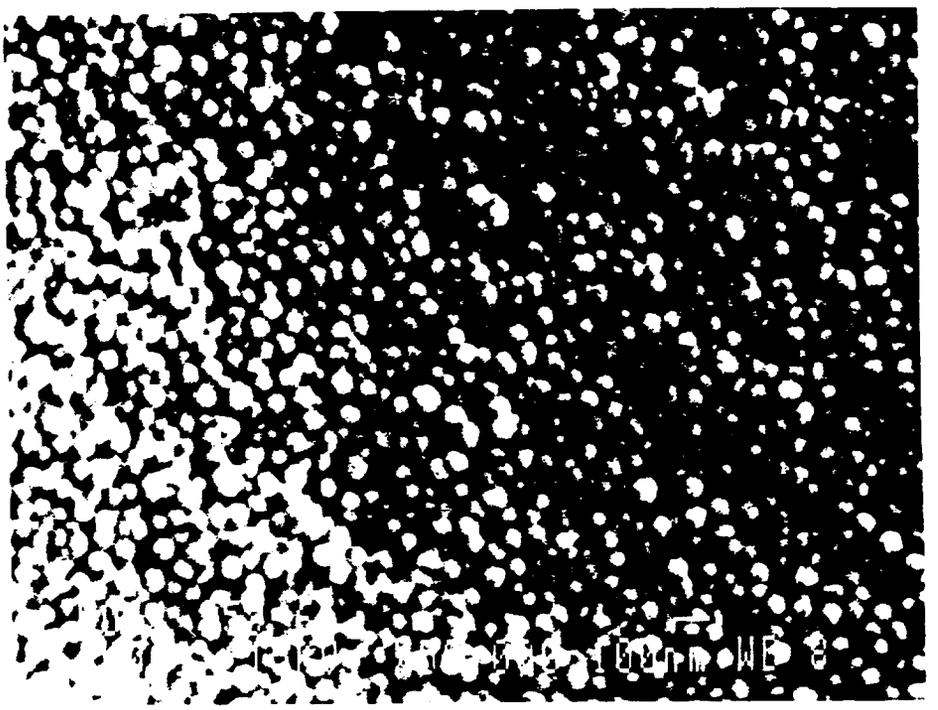
FIG. 1