Paper No. 10

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHIEH-MIN CHENG
And MIN-HONG FU

Appeal No. 2002-0178
Application No. 09/385,909

ON BRIEF

Before OWENS, WALTZ and PAWLIKOWSKI, Administrative Patent Judges.

PAWLIKOWSKI, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-37, 41, and 43. A copy of each of these claims is set forth in the attached appendix.

The references relied upon by the examiner as evidence of unpatentability are:

Lundberg et al. (Lundberg)	4,387,174	June 7, 1983
Beach et al. (Beach)	5,719,204	Feb. 17, 1998
Satake et al. (Satake)	5,814,685	Sep. 29, 1998
Wong et al. (Wong '695)	5,762,695	June 9, 1998
Wong et al. (Wong '043)	5,837,043	Nov. 17, 1998
Puschak et al. (Puschak)	5,849,833	Dec. 15, 1998
Lin	5,851,274	Dec. 22, 1998
Villiger et al. (Villiger)	5,852,073	Dec. 22, 1998
Collins et al. (Collins)	5,891,950	Apr. 6, 1999

Breton et al. (Breton)	5,977,209	Nov. 2, 1999
Patel et al. (Patel)	5,977,210	Nov. 2, 1999
Tsutsumi et al. (Tsutsumi)	5,998,501	Dec. 7, 1999

Claims 1-8, 12, 15, 18-21, 24, 27, 28, 31, 41, and 43 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Collins.

Claims 9 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Collins in view of either Puschak or Villiger.

Claims 10 and 11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Collins in view of Lundberg.

Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Collins in view of Beach.

Claim 23 stands rejected under 35 U.S.C. § 103 as being unpatentable over Collins in view of Satake.

Claim 26 stands rejected under 35 U.S.C. § 103 as being unpatentable over Collins in view of Breton.

Claim 29 stands rejected under 35 U.S.C. § 103 as being unpatentable over Collins in view of Wong '695.

Claims 25 and 34-37 stand rejected under 35 U.S.C. § 103 as being unpatentable over Collins.

Claims 1-8, 12, 15, 17, 23, 25, 27, 28, 30-32, 34-37, 41, and 43 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tsutsumi.

Claims 9 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tsutsumi in view of either Puschak or Villiger.

Claims 10 and 11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tsutsumi in view of Lundberg.

Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tsutsumi in view of Beach.

Claims 19 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable Tsutsumi in view of Collins or Patel.

Claim 22 stands rejected under 35 U.S.C. § 103 as being unpatentable over Tsutsumi in view of Wong '043.

Claim 29 stands rejected under 35 U.S.C. § 103 as being unpatentable over Tsutsumi in view of Wong '695.

Claim 33 stands rejected under 35 U.S.C. § 103 as being patentable over Tsutsumi in view of Lin.

On pages 6-7 of the brief, appellants state that the claims do not stand or fall together, and state that each of the claims in each of the rejections are to be specifically and separately considered. Hence, we consider claims within each grouping of claims to the extent that appellants provide arguments supporting patentability for a particular claim. 37 CFR §1.192 (c)(7)(8)(2000).

OPINION

I. The rejection of claims 1-8, 12, 15, 18-21, 24, 27, 28, 31, 41 and 43 under 35 U.S.C. § 102(e) as being anticipated by Collins

On page 7 of the brief, appellants argue that Collins, at column 5, beginning at line 43, sets forth that the water based emulsion polymerization to prepare the SAAP, preferably occurs in the presence of a nonionic surfactant and an anionic surfactant. Appellants state that these surfactants are utilized to prepare the SAAP. Appellants states that the PPAE is the reaction product of a surfactant stabilized SAAP and a poly(alkylenimine), and refer to column 2, beginning at line 48 of Collins.

Appellants state that this process is different from the process set forth in their claim 1.

On page 19 of the answer, the examiner rebuts and states that Latex Example 4 at columns 12-13 and Ink Example 9 at column 15, of Collins, indicate that polymerization occurs in the presence of a mixture of nonionic surfactant and anionic surfactants. On page 20 of the answer, the examiner states that Latex Example 4 of Collins clearly meets the latex in the present claims.

On page 20 of the answer, the examiner further states that column 4 at lines 52-54 of Collins indicates that the ink comprises a mixture of PPAE latex and acetoacetoxy-functional polymer which is formed by reacting a mixture of olefinic monomers in the presence of nonionic surfactants and anionic surfactants (column 5, line 17-21 and 43-45, and column 6, lines 31-35 of Collins). The examiner states that thus it is clear that Collins discloses the same latex as claimed by appellants.

Upon our review of Collins, we provide the following comments.

Latex Example 4 described at columns 12 and 13 of Collins sets forth a process wherein a latex is generated by the polymerization of a mixture of olefinic monomers in the presence of an anionic surfactant and a nonionic surfactant. Hence, we agree with the examiner's comments made at the bottom of page 19 of the answer.

Ink Example 9 described in column 15 of Collins indicates that the latex from Example 4 is then mixed with water and a pigment. This disclosure therefore satisfies the aspect of appellants' claim 1 in connection with mixing an ink vehicle and colorant with the latex.

We are mindful of appellants' comments regarding the preparation of the SAAP and the PPAE. However, as stated by the examiner on page 20 of the answer, Collins, at column 4 beginning at line 52, states that another preferred ink composition contains a pigment and a mixture of PPAE latex and an acetoacetoxy-functional polymer latex (SAAP). Also, we refer to column 6, beginning at line 31 of Collins, which discloses that the ionic sulfonate monomer and other stabilizing monomers may be incorporated into the SAAP. Hence, in fact, the acetoacetoxy-functional polymer (SAAP) is polymerized in the presence of olefinic monomers and also in the presence of an ionic sulfonate monomer.

In view of the above, we find that Collins does anticipate claims 1-8, 12, 15, 18-21, 24, 27, 28, 31, 41, and 43. We note that appellants do not argue the other claims in connection with this anticipation rejection, and therefore we need only consider the patentability of separate claims to the extent that appellants argue them. Hence, in this rejection, appellants only argue claim 1 and we therefore only need to consider claim 1. We do note that with respect to claim 8, the sodium 2-acrylamido-2-methylpropane sulfonate disclosed in column 6 at lines 31-34 of Collins anticipates the formula set forth therein.

For the reasons stated above, we affirm this rejection.

II. **The rejection of claims 9 and 16 under 35 U.S.C. § 103 as being unpatentable over Collins in view of either Puschak or Villiger**

We note that claim 9 depends on claim 8. Claim 9 recites "wherein m is zero, or 1." Hence, m can have the value of 1 in claim 9. Collins meets the requirement of claim 9 when m is 1, for the same reason discussed above with respect to claim 8, and hence, because anticipation is the epitome of obviousness, we affirm this rejection with respect to claim 9.

With respect to claim 16, claim 16 depends upon claim 1 and recites "wherein said ionic sulfonate monomer is sodium vinyl sulfonate, or potassium vinyl sulfonate." The examiner relies upon the secondary references of Puschak or Villiger to meet this aspect of claim 16. However, the examiner has not explained the motivation of why one of ordinary skill in the art would have utilized the sodium vinyl sulfonate as set forth in Villiger (which is used in Villiger as a anchoring agent in promoting the anchoring of an encapsulating polymer to the surfaces of colorant particles during polymerization for ensuring that all the colorant particles are uniformly coated by the polymer). Nor has the examiner explained why one of ordinary skill in the art would have substituted the sodium vinyl sulfonate of Puschak (Puschak utilizes the sodium vinyl sulfonate as an acid functional monomer to obtain a desired range of acid number). The examiner has not explained why either of these utilities would be useful in the process of Collins. In this context, we therefore agree with appellants' comments made on pages 8-9 of the brief. We therefore reverse the rejection of claim 16.

III. <u>The rejection of claims 10 and 11 under 35 U.S.C. § 103 over Collins in view of Lundberg</u>

We note that the claims 10 and 11 do not require alkylene. That is, both claims 10 and 11 depend upon claim 8 and in claim 8, R' can be alkylene or $-CO-R_2$. Hence, when R' is $-CO-R_2$, which is satisfied by Collins, in effect, Collins satisfies claims 10 and 11.

We therefore affirm this rejection.

IV. **The rejection of claims 13 and 14 under 35 U.S.C. § 103 over Collins in view of Beach**

Claims 13 and 14 depend upon claim 8 and claim 13 recites that X can be sodium, and claim 14 recites that X can be an alkali metal. Therefore, Collins satisfies claims 13 and 14 when X is ammonium or when X is an alkali metal. See column 6, lines 31-35 of Collins.

Hence, we affirm this rejection.

V. **The rejection of claim 23 under 35 U.S.C. § 103 over Collins in view of Satake**

Claim 23 depends upon claim 1, and recites "wherein the colorant is a dye." Claim 1 uses the word "comprises". Hence, additional colorants, in addition to a dye, may exist in the preparation of the ink according to claim 1. As pointed out by the examiner on page 9 of the answer, Satake discloses the use of a dye in conjunction with a pigment in order to adjust the hue of the ink. We find such disclosure provides sufficient motivation to utilize a dye (in conjunction with a pigment, which claim 1 does not exclude) in an ink composition to adjust the hue of the ink.

VI. <u>The rejection of claim 26 under 35 U.S.C. § 103 over Collins in view of Breton</u>

Claim 26 concerns the particle size distribution of the colorant. The examiner relies upon Breton for teaching a particle size distribution wherein at least about 90% of the pigment particles have a diameter of about 0-1 μm with the remaining pigment particles being a diameter of about 1.0μm. See column 4, lines 13-16. As stated by the examiner on pages 9-10 of the answer, the motivation for using such a size pigment is to prevent the ink from clogging the printer nozzles. We find such motivation sufficient, and hence, affirm this rejection.

VII. <u>The rejection of claim 29 under 35 U.S.C. § 103 over Collins in view of Wong '695</u>

Claim 29 depends upon claim 28, and claim 28 recites the addition of ink additives. Claim 29 recites specific kinds of additives and amounts. As pointed out by the examiner on page 10 of the answer, Wong '695 discloses the use of surfactants such as polyethylene glycol monolaurate, etc., and refers to column 4, lines 42-48. We note also that Collins, at column 3 beginning at line 44, indicates that the ink compositions of the invention may also contain "common ink additives" such as surfactants. Therefore, the utilization of the specific kind of surfactants disclosed in Wong as the surfactants disclosed in Collins would have been obvious to one of ordinary skill in the art in view of the fact that Collins teaches that common ink additives include surfactants and in view of the fact that Wong '695 teaches the specific kind of surfactants are known.

Hence, we affirm this rejection.

VIII. The rejection of claims 25 and 34-37 under 35 U.S.C. § 103 as being unpatentable over Collins

On page 11 of the answer, the examiner states that Collins fails to exemplify the specific polymers in the claims of this rejection. The examiner states that, nevertheless, in light of the overlap between the monomers used to obtain the polymer, and the corresponding monomers disclosed by Collins, it would have been within the bounds of routine experimentation, to use a specific polymer to arrive at the particularly claimed polymers.

On page 11 of the brief, appellants respond and state that Collins does not render the claims of the present application obvious, but does not set forth in any detail reasons in support thereof.

We find that, for example, claim 25 requires the formation, subsequent to polymerization, of a particular kind of polymer recited therein. We find that Collins provides for the formation of a polymer made from a monomer, such as a butyl acrylate, and a ionic sulfonate monomer, such as sodium 2-acrylamido-2-methyl-propane sulfonate, and styrene, and therefore this would result in a polymer of, for example, 2-acrylamido-2-methylpropane sulfonate/styrene/butyl acrylate recited in claim 25. See column 6, line 11, line 14, and line 32 of Collins. Hence, we find that Collins satisfies claim 25 in this regard. Collins also satisfies claim 34 in connection with the claimed polymer, poly (2-acrylamido-2-methylpropane sulfonate-styrene-butyl acrylate-acrylic acid). Likewise, the same for claims 35 and 36.

In view of the above, we therefore affirm this rejection.

IX. The rejection of claims 1-8, 12, 15, 17, 23, 25, 27, 28, 30-32, 34-37, 41 and 43 under 35 U.S.C. § 103 as being unpatentable over Tsutsumi

On pages 11-12 of the answer, the examiner states that Tsutsumi discloses a process for preparing an ink comprising mixing an ink vehicle, such as water, a dye, and a latex that is prepared by the polymerization of olefinic monomers in the presence of nonionic surfactant and an anionic surfactant. The examiner states that the ink composition of Tsutsumi further contains ink additives such as biocide and stabilizers. The examiner states that the ink is printed using an ink jet printer. (answer, pages 11-12).

Appellants argue that Tsutsumi illustrates a process for generating an aqueous ink, wherein the process involves the step of dissolving a salt-forming group-having polymer and an hydrophobic dye in a water soluble organic solvent to obtain a solution, adding water and a neutralizing agent to the solution to ionize the salt forming group-having polymer, emulsifying the resulting mixture, and removing the solvent to obtain a dispersion of the polymer particles in which the dye has been encompassed. (brief, page 12). Appellants state that this is different from their claimed process wherein a latex is generated by the polymerization of a mixture of olefinic monomers wherein at least one of the monomers is an ionic sulfonate monomer and wherein the polymerization is accomplished in the presence of an anionic surfactant and a nonionic surfactant. (brief, page 12).

We find that Tsutsumi is directed to a process for producing an aqueous ink for ink jet printing. At column 6, beginning at line 48, Tsutsumi discloses that the polymer is produced by copolymerizing one or more monomers selected from the group consisting of the silicon macromer represented by formula (1) and (meth)acrylamide monomers of a salt-forming group-having polymerizable monomer. The vinyl polymer can be produced by copolymerizing the above-mentioned monomers by known polymerization methods. See column 6, lines 57-59.

The process of Tsutsumi “sometimes involves an additional step of adding a surfactant together with water and a neutralizing agent”. See column 2, lines 44-46.

As the salt-forming group-having polymer, to be used in the invention of Tsutsumi, it is preferable to use a vinyl polymer obtained by copolymerizing at least one monomer selected from the group consisting of a silicone macromer represented by formula (1), an acrylamide monomer and a methacrylamide monomer, excluding those having salt-forming groups, with a salt-forming group-having polymerizable unsaturated monomer and a monomer copolymerizable with the above-mentioned monomers in the presence of a radical polymerization initiator. See column 2, lines 60-68 and column 3, lines 1-5.

Examples of the salt-forming group-having polymerizable unsaturated monomers include cationic monomers and unsaturated ammonium salt containing monomers. Particular examples thereof include monovinylpyridines. See column 4, lines 50-55. Examples of anionic monomers include unsaturated carboxylic acid monomers, unsaturated sulfonic acid monomers, and unsaturated phosphoric acid monomers. See column 5, lines 8-12. Particular examples include unsaturated carboxylic acid monomers such as acrylic acid, methyl acrylate acid, crotonic acid, etc. See column 5, lines 12-27. Particular examples of unsaturated sulfonic acid monomers include 2-acrylamido-2-methylpropane sulfonic acid.[1] See column 5, lines 18-21.

Examples of monomers copolymerizable with the above-mentioned monomers to be used in the invention of Tsutsumi include acrylates, such as methyl acrylate, ethyl acrylate, methyl ethyl acrylate, etc. See column 5, lines 30-56. The polymerization usually is effected at 30 to 100°C. See column 7, lines 39-40.

A dye is also utilized, and it is encompassed within the salt-forming group-having polymer particles in the following manner. First, the salt-forming group-having polymer and the hydrophobic dye are dissolved in the water insoluble organic solvent. Next, a neutralizing agent and water are added to the above-mentioned solution of the salt-forming group-having polymer and the hydrophobic dye in the water insoluble organic solvent to thereby ionize the salt-forming group in the polymer. In this step, surfactants may be further added if necessary. As the bases, use can be made of ammonia, sodium hydroxide, or potassium hydroxide.[2] See column 9, lines 25-32.

The surfactant to be added can be anionic surfactants and cationic surfactants. See column 9, lines 39-64.

The particle size of the resultant polymer particles having the hydrophobic dye encompassed therein preferably ranges from 0.01 to 0.5 μm still preferably from 0.02 to 0.3 μm. See column 10, lines 25-32.

Tsutsumi discloses that it is possible in the process of producing the aqueous ink, to further add "various publicly known

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[1] The salt of this compound meets the compound in appellants' claim 8 and 9, discussed, infra.
[2] These bases form the salt-forming group-having polymer, resulting in the compound recited in appellants' claim 8.

additives", examples which are set forth at column 11, at lines 5-12, which include cationic, anionic or nonionic surfactants, and mildew proofing agents.

In view of the aforementioned disclosure of Tsutsumi, we find that Tsutsumi generates a latex by the polymerization of a mixture of olefinic monomers, wherein at least one of olefinic monomers is an anionic sulfonate monomer satisfying the formula set forth of appellants' claim 8 (and therefore also claims 9, 10, 11, 13, and 14, as explained, supra, in sections II, III, and IV, of this decision, further discussed below).

In view of the above, we affirm this rejection.

X. The rejection of claims 9 and 16 under 35 U.S.C. § 103 over Tsutsumi in view of either Puschak or Villiger

Our analysis for this rejection is based upon the same interpretation of claim 9 discussed in section II of this decision. Based upon this interpretation, we find that Tsutsumi makes obvious the subject matter of claim 9. Hence, we affirm the rejection of claim 9.

With respect to claim 16, our comments are also the same in connection with the other rejection of claim 16 involving the reference of Collins, discussed in section II of this decision. In view of these comments, we reverse the rejection of claim 16.

XI. The rejection of claims 10 and 11 under 35 U.S.C. § 103 over Tsutsumi in view of Lundberg

Our analysis for this rejection is based upon the same interpretation of claims 10 and 11 made in section III of this decision, and we therefore affirm this rejection in view of Tsutsumi alone.

XII. The rejection of claims 13 and 14 under 35 U.S.C. § 103 over Tsutsumi in view of Beach

Our analysis for this rejection is based upon the same interpretation of claims 13 and 14 made in section IV of this decision, and based upon this interpretation, we affirm this rejection in view of Tsutsumi alone.

XIII. The rejection of claims 19 and 20 under 35 U.S.C. § 103 over Tsutsumi in view of Collins or Patel

Claim 19 recites wherein the anionic surfactant is sodium dodecyl sulfate, etc., and the nonionic surfactant is polvinyl alcohol, polyacrylic acid, etc., and wherein the anionic surfactant and the nonionic surfactant are in certain amounts.

Claim 20 recites "wherein the anionic surfactant is sodium dodecyl sulfate," etc., and recites the same kinds of anionic surfactants as recited in claim 19.

In column 9 beginning at line 39, Tsutsumi indicates that surfactants can be added and these can be anionic surfactants and cationic surfactants. The examiner relies upon Collins or Patel for teaching the particularly claimed anionic surfactant and nonionic surfactant. On page 15 of the answer, the examiner states that Patel discloses the use of anionic surfactants as stabilizers and that Collins discloses the use of nonionic surfactants as emulsifiers used in polymerizing a latex. The examiner states that it would have been obvious to utilize the specifically disclosed anionic surfactants and nonionic surfactants in Patel or Collins in the process of Tsutsumi to arrive at appellants' claimed invention in order to effectively and stably produce inks using emulsion polymerization. We determine that this is sufficient motivation to support a prima facie case, and we therefore affirm the rejection of claims 19 and 20.

XIV. The rejection of claim 22 under 35 U.S.C. § 103 over Tsutsumi in view of Wong '043

Claim 22 recites wherein the ink vehicle is present in a particular amount and the ionic surfactant latex polymer is present in a particular amount, in which the ink further includes a biocide in a particular amount, a humectant in a particular amount, and a polymeric additive in a particular amount, and a stabilizer additive. The examiner relies on Wong '043 for utilizing a humectant.

We find that Tsutsumi, in column 11 beginning at line 1 through line 11, discusses the idea of adding other various "publicly known additives", if necessary. Tsutsumi states that examples of such additives include wetting agents, dispersants, defoaming agents, surface tension regulators, and mildew proofing agents. We find this sufficient motivation to utilize the biocide, which can be a mildew proofing agent, and a humectant of Wong '043 (which can qualify as a wetting agent), and a stabilizer.

We thereby affirm this rejection.

XV. The rejection of claim 29 under 35 U.S.C. § 103 over Tsutsumi in view of Wong '695

As mentioned, supra, Tsutsumi discusses the use of publicly known additives which can be anionic or nonionic surfactants. See column 11, lines 5-10. Wong '695 discloses such known surfactants. Therefore, it would have been obvious to utilize the surfactants recited in Wong in the invention of Tsutsumi to arrive at appellants' claimed invention.

Therefore, we affirm the rejection of claim 29.

XVI. The rejection of claim 33 under 35 U.S.C. § 103 over Tsutsumi in view of Lin

The examiner relies on Lin, which discloses ink jet inks, for teaching the use of a printer having 600 spi and nozzle size of 10 to 49 μm, in order to produce an ink image with high resolution, and refers to column 2 at lines 14-17 of Lin.

The examiner states that it would have been obvious to use a printer with Lin's specific spi and nozzle size when printing the ink of Tsutsumi in order to produce a high resolution image. We find that sufficient motivation exists in this regard. We therefore affirm the rejection of claim 33.

XVII. Conclusion

All the art rejections are affirmed except for the rejections of claim 16 (claim 16 was rejected under 35 U.S.C. § 103 over Collins in view of either Puschak or Villiger, and claim 16 was also rejected under 35 U.S.C. § 103 over Tsutsumi in view of Puschak or Villiger).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR 1.136(a).

AFFIRMED-IN-PART

Terry J. Owens Administrative Patent Judge	)	
Thomas A. Waltz Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
Beverly A. Pawlikowski Administrative Patent Judge	)	

BAP/cam

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APPENDIX

1. A process for the preparation of an ink which comprises mixing an ink vehicle, a colorant and a latex generated by the polymerization of a mixture of olefinic monomers, wherein at least one of said olefinic monomers is an ionic sulfonate monomer and which polymerization is accomplished in the presence of an anionic surfactant, and a nonionic surfactant.

2. A process in accordance with **claim 1** wherein said latex is generated from a mixture of from about 2 to about 10 monomers.

3. A process in accordance with **claim 1** wherein said latex is generated from a mixture of from about 2 to about 4 monomers.

4. A process in accordance with **claim 1** wherein said olefinic monomer is a styrene acrylate, a styrene methacrylate, a methacrylate, or an acrylate.

5. A process in accordance with **claim 1** wherein said olefinic monomers are comprised of said ionic sulfonate monomer, an alkyl acrylate, and an alkyl methacrylate.

6. A process in accordance with **claim 1** wherein said olefinic monomers are comprised of said (1) ionic sulfonate monomer, and (2) an alkyl acrylate, an alkyl methacrylate, a benzyl methacrylate, an acrylonitrile, a styrene functional monomer, or an acid olefinic monomer.

7. A process in accordance with **claim 1** wherein subsequent to polymerization there results a terpolymer, or a copolymer.

8. A process in accordance with **claim 1** wherein the ionic sulfonate monomer is of the formula

$$CH_2 = CR(R')_mSO_3X$$

wherein R is hydrogen or alkyl, R' is alkylene, or –CO-R_2 wherein R_2 is amino substituted with alkyl or hydrogen, or R_2 is $(CH_2)_n$-0, wherein n represents a number of from about 0 to about 5; X is hydrogen, or a monovalent cation and m represents the number of segments of R', and wherein the ionic sulfonate monomer is selected in an amount of from about 0.5 to about 15 weight percent based on the amount of monomers selected to generate the latex polymer.

9. A process in accordance with **claim 8** wherein m is zero, or 1.

10. A process in accordance with **claim 8** wherein alkylene contains from 2 to about 18 carbon atoms.

11. A process in accordance with **claim 8** where alkylene is ethylene, propylene, or butylene.

12. A process in accordance with **claim 8** wherein amino substituted with alkyl is acrylamide, methacrylamido, or acrotonylamido.

13. A process in accordance with **claim 8** wherein said monovalent cation X is ammonium, sodium, or potassium.

14. A process in accordance with **claim 8** wherein said monovalent cation X is an alkali metal.

15. A process in accordance with **claim 1** wherein said ionic sulfonate monomer is ammonium 2-acrylamido-2-methylpropane sulfonate, sodium 2-acrylamido-2-methylpropane sulfonate, or 2-acrylamido-2-methylbutane sulfonic acid.

16. A process in accordance with **claim 1** wherein said ionic sulfonate monomer is sodium vinyl sulfonate, or potassium vinyl sulfonate.

17. A process in accordance with **claim 1** wherein said ionic sulfonate monomer is comprised of the salts thereof of 2-acrylamido-2-methylpropanesulfonic acid ammonium salt, 2-acrylamido-2-methylpropane sulfonic acid sodium salt, or 2-acrylamido-2-methylbutanesulfonic acid potassium salt.

18. A process in accordance with **claim 1** wherein a mixture of two monomers is selected.

19. A process in accordance with **claim 1** wherein the anionic surfactant is sodium dodecyl sulfate, sodium dodecylbenzene sulfonate, sodium dodecyl naphthalene sulfate, sodium dodecyl diphenyloxide disulfonate, or sodium N-decyl diphenyloxide disulfonate, and the nonionic surfactant is

polyvinyl alcohol, polyacrylic acid, methyl cellulose, polyoxyethylene octylphenyl ether, or polyoxyethylene nonylphenyl ether; wherein the anionic surfactant is selected in an amount of from about 0.1 to about 10 weight percent based on the total weight percent amount of monomers, anionic surfactant, and nonionic surfactant; wherein the nonionic surfactant is selected in an amount of from about 0.1 to about 6 weight percent based on the total weight percent amount of monomers, anionic surfactant, and nonionic surfactant.

20. A process in accordance with **claim 1** wherein the anionic surfactant is sodium dodecyl sulfate, sodium dodecylbenzene sulfonate, sodium dodecyl naphthalene sulfate, sodium dodecyl diphenyloxide disulfonate, or sodium N-decyl diphenyloxide disulfonate.

21. A process in accordance with **claim 1** wherein the nonionic surfactant is selected in an amount of from about 0.1 to about 6 weight percent based on the total weight percent amount of monomer, anionic surfactant, and nonionic surfactant.

22. A process in accordance with claim 1 wherein the ink vehicle is present in an amount of from about 50 to about 99 percent by weight, the colorant is present in an amount of from about 1 to about 20 percent by weight, and the ionic sulfonate latex polymer generated after polymerization is present in an amount of from about 0.05 to about 20 percent by weight, and which ink further includes a biocide present in an amount of from about 0.1 to about 10 percent by weight, a humectant present in an amount of from about 0.1 to about 50 percent by weight, a polymeric additive present in an amount of from about 0.1 to about 10 percent by weight, and a stabilizer additive present in an amount of from about 0.1 to about 5 percent by weight, based on the total amount of components in the ink and which total is about 100 percent.

23. A process in accordance with **claim 1** wherein the colorant is a dye.

24. A process in accordance with **claim 1** wherein the colorant is a pigment.

25. A process in accordance with **claim 1** wherein subsequent to polymerization there is formed a polymer of 2-acrylamido-2-methylpropane sulfonate/styrene/butyl acrylate/acrylic acid, 2-acrylamido-2-methylpropane sulfonate/styrene/butyl acrylate, or vinyl sulfonate/styrene/butyl acrylate/acrylic acid.

26. A process in accordance with **claim 1** wherein said colorant possesses a particle size distribution wherein at least about 90 percent of said colorant particles are of a diameter of about 0.1 μm with the remaining colorant particles being of a diameter of about 1.0 μm.

27. A process in accordance with **claim 1** wherein the latex contains water.

28. A process in accordance with **claim 1** wherein there is added said ink, ink additives.

29. A process in accordance with **claim 28** wherein said additives are surfactants of poly(ethylene glycol) monolaurate, poly(ethylene glycol) monoricinoleate, poly(ethylene glycol) lanolin alcohol ether, poly(ethylene glycol) monooleate, poly(ethylene glycol) castor oil, poly(ethylene glycol) tetramethyl decynediol, or poly(ethylene glycol) lanolin, and which surfactants are optionally present in an amount of from about 0.01 to about 7 weight percent or parts based on the total amount of ink components.

30. A process in accordance with **claim 28** wherein said additives are comprised of a biocide, a humectant, or mixtures thereof.

31. A process in accordance with **claim 1** wherein the vehicle is water, a glycol, or a mixture of glycols.

32. A high resolution printing process comprising applying in imagewise fashion to a substrate an ink composition obtained by the process of **claim 1.**

33. A process in accordance with **claim 32** wherein the substrate is paper, and there is selected a printer with at least one nozzle of a channel width or diameter ranging from about 10

to about 40 microns and intercolor bleed is minimized or eliminated, and wherein said printing process is optionally accomplished with a 600 spi ink jet printer with a radiant heat assisting drying process.

34. A process in accordance with **claim 1** wherein subsequent to polymerization there is formed a polymer selected from the group consisting of poly(2-acrylamido-2-methylpropanesulfonate-styrene-butyl acrylate-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-styrene-acrylonitrile-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-styrene-butadiene-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-styrene-vinyl acetate-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-styrene-butyl acrylate-methacrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-benzyl methacrylate-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-benyl methacrylate-butyl acrylate), poly(2-acrylamido-2-methylpropane-sulfonate-styrene-ethyl acrylate-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-butyl methacrylate-methacrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-benzyl methacrylate-methacrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-butyl acrylate-methacrylic acid), poly(vinyl sulfonate-styrene-butyl acrylate-acrylic acid), poly(vinyl sulfonate-styrene butyl acrylate), poly(vinyl sulfonate-styrene-acrylonitrile-acrylic acid), poly (vinyl sulfonate-styrene-butadiene-acrylic acid), poly(vinyl sulfonate-styrene-vinyl acetate-acrylic acid), poly(vinyl sulfonate-styrene-butyl acrylate-methacrylic acid), poly(vinyl sulfonate-ethyl methacrylate-acrylic acid), poly(vinyl sulfonate-benzyl methacrylate-acrylic acid), poly(vinyl sulfonate-styrene-methyl acrylate-acrylic acid), poly(vinyl sulfonate-styrene-ethyl acrylate-acrylic acid), poly(vinyl sulfonate-butyl methacrylate-butyl acrylate), poly(vinyl sulfonate-benzyl methacrylate-methacrylic acid), and preferably, poly(2-acrylamido-2-methylpropanesulfonate-styrene-butyl acrylate-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-styrene-butyl acrylate), poly(2-acrylamido-2-methylpropanesulfonate-benzyl methacrylate-acrylic acid), and poly(vinyl sulfonate-styrene-butyl acrylate-acrylic acid).

35. A process in accordance with **claim 1** wherein subsequent to polymerization there is formed a polymer selected from the group consisting of poly(2-acrylamido-2-methylpropanesulfonate-styrene-butyl acrylate-acrylic acid), poly(2-acrylamido-2-

methylpropanesulfonate-styrene-acrylonitrile-acrylic acid), poly(2-acrylamido-2-methylpropane sulfonate-styrene-butadiene-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-styrene-vinyl acetate-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-styrene-butyl acrylate-methacrylic acid), and poly(2-acrylamido-2-methylpropanesulfonate-styrene-butyl acrylate).

36. A process in accordance with **claim 1** wherein subsequent to polymerization there is formed a polymer selected from the group consisting of poly(2-acrylamido-2-methylpropanesulfonate-benzyl methacrylate-acrylic acid), poly(2-acrylamido-2-methyl-propanesulfonate-benzyl methacrylate-butyl acrylate), poly(2-acrylamido-2-methylpropanesulfonate-styrene-ethyl acrylate-acrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-butyl methacrylate-methacrylic acid), poly(2-acrylamido-2-methyl-propanesulfonate-benzyl methacrylate-methacrylic acid), poly(2-acrylamido-2-methylpropanesulfonate-butyl acrylate-methacrylic acid), poly(vinyl sulfonate-styrene-butyl acrylate-acrylic acid), poly(vinyl sulfonate-styrene-butyl acrylate), poly(vinyl sulfonate-styrene-acrylonitrile-acrylic acid), and poly(vinyl sulfonate-styrene-butadiene-acrylic acid).

37. A process in accordance with **claim 1** wherein subsequent to polymerization there is formed a polymer of poly(vinyl sulfonate-styrene-butyl acrylate-acrylic acid).

41. A process in accordance with **claim 6** wherein said styrene functional monomer is selected from the group consisting of styrene, α-methylstyrene, 4-methylstyrene, 3-chlorostyrene, 2,5-dichlorostyrene, 4-bromostyrene, 4-tertbutylstyrene, and 4-methoxystryrene.

43. A process for the preparation of an ink consisting essentially of mixing an ink vehicle, a colorant and a latex generated by the polymerization of a mixture of olefinic monomers, wherein at least one of said olefinic monomers is an ionic sulfonate monomer and which polymerization is accomplished in the presence of an anionic surfactant, and a nonionic surfactant.