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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte WILLIAM TOREKI, SUSAN LEANDER, and GERALD M. OLDERMAN[1]

Appeal 2016-003905
Application 12/796,708
Technology Center 1600

Before ERIC B. GRIMES, DEBORAH KATZ, and JOHN E. SCHNEIDER, *Administrative Patent Judges*.

KATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal the rejection of claims 1, 3–5, 9, 10, 12, 14, 16–18, 22, 23, 25, and 31-34[2] in the instant case, seeking our review under 35

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[1] The real party-in-interest is reported to be Quick-Med Technologies, Inc. (App. Br. 3.)

[2] Claims 2, 6–8, 11, 13, 15, 19–21, 24, 26–30, and 35–79 were canceled. (*See* App. Br. 34–40, Claims App'x.)

U.S.C. § 134(a). (App. Br. 1.) We have jurisdiction under 35 U.S.C. § 6(b). Oral argument was held on February 1, 2018. We AFFIRM.

Appellants' Specification is directed to water-absorbing resins, called "superabsorbent polymers" or "SAPs," which are useful in sanitary goods, diapers, and wiping cloths, as well as condensation-preventing agents and release-control agents for various chemicals. (Spec. 1:16–28.) Appellants state that they have invented compositions having antimicrobial properties by treating a superabsorbent polymer with hydrogen peroxide and, optionally, a metal salt. (*See* Spec. 3:10–11 and 4:15–21.) The Specification explains further that making these compositions "involves swelling the superabsorbent polymer with an aqueous solution of hydrogen peroxide, followed by drying the polymer." (*See* Spec. 3:12–15.)

The Examiner made the following rejections of Appellants' pending claims:

Claims	Reference(s)	Basis	Non-Final Rejection[3]
1, 3–5, 9, 10, 12, 14, 16–18, 22, 23, 25, and 31–34	SCA[4]	35 U.S.C. §§ 102(a) and 102(e)	Pages 5–6
1, 3–5, 9, 10, 12, 14, 16–18, 22, 23, 25, and 31–34	SCA	35 U.S.C. § 103(a)	Page 10
1, 3, 4, 14, 16, 17, and 31–34[5]	Borja[6]	35 U.S.C. § 102(b)	Pages 7–8

[3] Mailed September 8, 2014.
[4] International Patent Application Publication WO 2008/058565 A1, published May 22, 2008, filed by SCA Hygiene Products AB.
[5] The Examiner withdrew the rejection of claims 9, 10, 12, 22, and 23 under pre-AIA 35 U.S.C. § 102(b) as being anticipated by Borja. (*See* Ans. 2.)
[6] U.S. Patent 6,350,794 B1, issued February 26, 2002.

1, 3–5, 14, 16–18, 25, and 31–34	Borja in view of Xia[7]	35 U.S.C. § 103(a)	Pages 10–11

Appellants' claim 17 is representative of the limitations in Appellants' other independent claims[8] and recites[9]:

> An antimicrobial superabsorbent polymer in the form of a dried powder or granular material,
>
> wherein peroxide is sequestered within or on the surface of the antimicrobial superabsorbent polymer, and
>
> wherein said antimicrobial superabsorbent polymer further comprises a metal salt,
>
> produced by swelling to uniformly wet a cross-linked fully- or partially-neutralized salt of an acrylic acid-based superabsorbent polymer with an aqueous treatment solution, comprising 0.005 grams to 0.2 grams of hydrogen peroxide per gram of the acrylic acid-based superabsorbent polymer and a metal salt, in an amount suitable to treat

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[7] U.S. Patent Application Publication 2005/0214382 A1, published September 29, 2005.

[8] Independent claim 1 is similar to claim 17, but is broader, not requiring that the superabsorbent polymer comprise a metal salt and not requiring a specific level of reduction of viable bacteria in a liquid.

Like independent claim 17, independent claim 4 requires that the antimicrobial superabsorbent polymer further comprise a metal salt, selected from the group consisting of zinc, magnesium, and zirconium salts. (*See* App. Br. 34–35, Claims App'x.) Claim 4 does not recite a limitation to reduction in the amount of viable bacteria.

Independent claim 14 is similar to claim 17, requiring that the addition of the recited antimicrobial superabsorbent polymer "to approximately 1,000,000 viable bacteria in about 11 milliliters of an aqueous liquid produces at least a 3-log reduction of viable bacteria in said aqueous liquid." (*See* App. Br. 36, Claims App'x.) Claim 14 does not require that the superabsorbent polymer include a metal salt.

[9] Indentations added for clarity. *See* 37 C.F.R. § 1.57 (i)("Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.")

> said superabsorbent polymer with at least 0.02 grams of the metal salt per gram of superabsorbent polymer, followed by drying of the swelled superabsorbent polymer,
>
> wherein said metal salt is selected from the group consisting of zinc, magnesium, and zirconium salts,
>
> wherein said sequestered peroxide is available for sustained [sic[10]], and
>
> whereby addition of about 0.2 grams of the antimicrobial superabsorbent polymer [SAP] to approximately 1,000,000 viable bacteria in about 11 milliliters of an aqueous liquid produces at least a 3-log reduction of viable bacteria in said aqueous liquid.

(App. Br. 37, Claims App'x.) Thus, Appellants' claim 17 is drawn to antimicrobial superabsorbent polymer in the form of a dried powder or granular material comprising a metal salt (zinc, magnesium, or zirconium salt) and having the peroxide "sequestered" within or on the surface of the polymer. Claim 17 further requires that when 0.2 grams of the antimicrobial superabsorbent polymer is added to approximately 1,000,000 viable bacteria in about 11 milliliters of an aqueous liquid, there is at least a 3-log reduction of viable bacteria in the liquid.

Anticipation over SCA

The Examiner rejected all of Appellants' pending claims under 35 U.S.C. § 102(b) over SCA. (*See* Non-Final Act. 5–6.)

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[10] Claim 17 appears to be missing one or more words to complete the limitation "wherein said sequestered peroxide is available for sustained." (*See* Amendment of December 30, 2014, at 6.) Because this limitation does not impact any of the issues on appeal or Appellants' arguments, we do not render any decision about it. In the event of further prosecution, the limitation should be addressed.

Findings of Fact

1. SCA teaches superabsorbent polymers based on homo or copolymers, which comprise at least one polymerizable unit having an acidic group such as a poly(meth)acrylic acid, which are at least partially neutralized. (*See* SCA 7–8.)

2. SCA teaches treating a superabsorbent polymer with a mixed solution of peroxy compound and organic zinc salt. (*See* SCA 13.)

3. SCA includes an Example in which test cores of superabsorbent material were treated with a solution of hydrogen peroxide and zinc ricinoleate, either by dripping the solution onto the test core or by dipping one side of the test core into the solution. (*See* SCA 16–17.)

4. SCA teaches that after the peroxide/zinc solution is applied to the test core there is a one week wait before the core is tested for the ability to absorb urine. (*See* SCA 16–17.)

5. SCA explains that an absorbent core of polymer is regarded as "dry" after a test core having a specified thickness and diameter and compressed to a specified bulk has been kept for at least one week at ambient temperature (e.g. 20 °C) and a specified relative humidity. (*See* SCA 11.)

6. SCA teaches that the amount of peroxy compound is most preferably at least 1 x 10^{-3} g (0.001 g) peroxy compound per gram of dry absorbent core and that it may not be economical to add more than 0.01 g or 0.1 gram peroxy compound per gram dry absorbent core. (*See* SCA 12.)

Analysis

Appellants argue that SCA does not teach "swelling to uniformly wet the acrylic acid-based superabsorbent polymer with an aqueous treatment

solution comprising aqueous hydrogen peroxide, followed by drying of the swelled superabsorbent polymer," as required in claim 1 and reflected in the other independent claims. (*See* App. Br. 8.)

We are not persuaded by this argument for several reasons. First, as the Examiner determined, Appellants present product by process claims, wherein the claimed polymer material is produced by swelling and drying. (*See* Ans. 3.) Patentability depends on the nature of the product claimed, not the process by which it is made. *See In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985) ("The patentability of a product does not depend on its method of production. [Citation omitted] If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."). Thus, despite Appellants' arguments, the technical aspects of "swelling to uniformly wet" and "drying" the superabsorbent polymer do not create a patentable difference from SCA unless these steps result in a difference in the product.

According to Appellants' Specification, it was "expected that HP [hydrogen peroxide] would be completely removed from the SAP [superabsorbent polymer] substrate by drying because it is relatively volatile. However, a significant amount of antimicrobial effect was observed for the dried SAP materials after treatment with HP." (Spec. 21.) This portion of Appellants' Specification teaches that drying does not destroy the antimicrobial effect; but it does not teach that drying creates or alters the antimicrobial effect. Thus, this portion of Appellants' Specification does not teach that drying the polymer results in a difference in the resulting product.

Elsewhere, in regard to drying the superabsorbent polymer, Appellants' Specification states: "Attainment of constant weight is a useful tool to measure extent of dryness; however, the attainment of constant weight is not the actual factor that enables non-leachable attachment of the antimicrobial to the substrate." (Spec. 31.) Thus, in contrast to Appellants' assertion that their Specification teaches "to dry the swelled polymer *in order to sequester* the peroxide in or on the superabsorbent polymer" (App. Br. 8 (emphasis added)), the Specification teaches that drying does not cause the peroxide to attach to the polymer.

Appellants do not direct us to portions of their Specification or to other evidence demonstrating that drying the polymer causes sequestration of the peroxide. Neither do Appellants direct us to evidence that "swelling" the polymer with solution causes sequestration of the peroxide differently than any other way of adding solution. In the absence of evidence that these steps produce a different polymer material, we agree with the Examiner that the swelling and drying steps recited in Appellants' independent claims do not distinguish the products from the polymer taught in SCA.

We are also not persuaded by Appellants' argument that SCA fails to teach the superabsorbent polymer material claimed because the Example of SCA teaches applying a peroxide solution to superabsorbent polymer and drying it. Specifically, SCA teaches dipping a test core of polymer into a peroxide solution and then waiting a week for testing, which would dry the test core. (*See* SCA 16–17; *see* Ans. 5–6.)

Appellants attempt to distinguish the application of peroxide solution to the polymer in SCA from the swelling recited in their claims by arguing that SCA teaches using a minimum amount of fluid to ensure the absorption

capacity of the material is not impaired. According to Appellants, the small amount of solution would be quickly absorbed in a localized manner and would not swell the polymer. (*See* App. Br. 8, citing SCA 14–15; *see* Reply Br. 6–7.) We are not persuaded by this argument because we do not find an express teaching in SCA to use a minimum amount of peroxy solution. (*See* Ans. 5.) SCA teaches using a high concentration peroxy solution to "ensure[] that the absorption capacity of the superabsorbent material is not impaired more than necessary" (SCA 14–15), but the portion cited by Appellants does not indicate a volume. Appellants do not direct us to a definition of "swelling" that would exclude dipping the test core into a peroxy solution. Accordingly, we are not persuaded that SCA fails to teach this processing step.

In regard to drying superabsorbent polymer, SCA teaches that an absorbent core is regarded as "dry" after it *has been kept for at least one week at ambient temperature* and a specified relative humidity. (SCA 11 (emphasis added); *see* Ans. 5–6.) According to this definition, the test core of the Example in SCA would be considered to be dry by waiting one week after dipping it into a peroxide solution. Because Appellants do not direct us to a definition of "dry" in their own Specification that differs from the definition provided in SCA,[11] we are not persuaded that there would be a difference in the product.

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[11] Appellants' Specification provides that "thoroughly dried means, for instance, that a substrate exposed to a solution of hydrogen peroxide is then dried to a constant weight" (Spec. 31), but Appellants do not claim "thoroughly drying" the superabsorbent polymer. (*See* Ans. 5–6.)

Appellants argue that the discussion of "dry" in SCA refers to a dry absorbent "core" not a dry absorbent "article." (*See* App. Br. 12; *see also* Reply Br. 5.) We are not persuaded that this difference indicates the material of SCA would not be dry as required in Appellants' claims because Appellants' claims recite polymer in the form of dried powder or granular material, not articles.

Appellants argue further that physical and functional properties resulting from the claimed treatment distinguish the claimed polymer from that taught in SCA. (*See* App. Br. 9–12.) According to Appellants, the absorbent articles of SCA retain residual water from manufacture so as not to impair the absorption capacity of the superabsorbent material more than necessary. (*See* App. Br. 9–10, citing SCA 14–15.) The Example of SCA contradicts Appellants' argument because the Example teaches drying an absorbent core after it has been dipped in a peroxy/metal salt solution. Thus, the Example of SCA persuades us that the superabsorbent polymer taught in SCA would have the same properties as Appellants' claimed polymer material. Appellants have not persuaded us otherwise. *See In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990) ([W]hen the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.").

Appellants also argue that the level of incorporated hydrogen peroxide in the absorbent articles of SCA differs from that of the claimed superabsorbent polymer. (*See* App. Br. 10.) Although the claims recite an amount of hydrogen peroxide used to swell the superabsorbent polymer, Appellants' claims do not recite any specific or relative level of hydrogen peroxide ultimately incorporated into the polymer. (*See* Ans. 6–7.) We are

not persuaded that if there was a difference in the level of incorporated hydrogen peroxide taught in SCA, it would be a patentable difference from Appellants' claimed polymer.[12] (*See* Ans. 6–7.) Furthermore, we note that SCA teaches using an amount of hydrogen peroxide that overlaps with the amount recited in Appellants' independent claims. (*See* SCA 12 ("the amount of peroxy compound is . . . most preferably at least 1 x 10^{-3} g peroxy compound per g of dry absorbent core. Beyond a certain amount of peroxy compound (for instance 0.01 g or 0.1 g per g dry absorbent core), it may no longer be economical to add further peroxy compound."); *see* Ans. 6–7.)

Appellants argue further that the claimed polymers are antimicrobial superabsorbent polymers, which kill bacteria, while the absorbent articles of SCA are described to "suppress[] bacterial growth" and "maintain[] bacterial flora." (*See* App. Br. 10–11, citing SCA 2; *see also* SCA 4; *see* Reply Br.

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[12] In the Reply Brief, Appellants argue that Example 13 of their Specification exemplifies a physical difference in the sequestration of hydrogen peroxide in the claimed superabsorbent polymer. (*See* Reply Br. 5, citing Spec. 36–39.) Appellants do not explain why one of skill in the art would not expect that the same results with the peroxide treated superabsorbent polymers of SCA. Accordingly, even if Appellants had directed us to Example 13 in their Appeal Brief, we would not have been persuaded that it demonstrates a physical difference between the polymer of SCA and the claimed polymer. *See* 37 C.F.R. § 41.41(b)(2) ("Any argument raised in the reply brief which was not raised in the appeal brief, or is not responsive to an argument raised in the examiner's answer, including any designated new ground of rejection, will not be considered by the Board for purposes of the present appeal, unless good cause is shown.")

5.) Specifically, in regard to claim 17, Appellants argue that SCA does not teach a superabsorbent polymer "whereby addition of about 0.2 grams of the antimicrobial superabsorbent polymer to approximately 1,000,000 viable bacteria in about 11 milliliters of an aqueous liquid produces at least a 3-log reduction of viable bacteria in said aqueous liquid" (App. Br. 37, Claims App'x) for the same reasons. (*See* App. Br. 11–12.)

We disagree. SCA teaches that "maintaining the bacterial flora *in the urogenital region*" is a desirable goal for absorbent articles. (*See* SCA 2 (emphasis added).) Because this goal relates to the flora in the body, not the polymer material, we are not persuaded that it indicates the peroxide treated superabsorbent polymer of SCA would fail to reduce the number of viable bacteria by the recited degree if added to a solution of bacteria.

Furthermore, SCA teaches that the described invention "has the function of suppressing bacterial growth." (SCA 4[13].) We do not find this teaching to be contradictory to Appellants' claims as asserted. (*See* App. Br. 12; *see* Reply Br. 5.) Suppression of growth indicates "reduction" of viable bacteria to the extent claimed. (*See* Ans. 8, citing the definition of "antimicrobial" reported in Merriam-Webster.com as "destroying or inhibiting the growth of microorganisms.")

To support their arguments, Appellants present the declaration of Inventor William Toreki as evidence that there was 100% incorporation of hydrogen peroxide in dried antimicrobial superabsorbent polymer at lower

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[13] Appellants cite to page 2 of SCA for the teaching of bacterial growth suppression (*see* App. Br. 11), but we do not find a discussion of that activity on page 2.

hydrogen peroxide concentrations. (*See* App. Br. 13–14.) According to Appellants, Dr. Toreki's declaration shows that the amount of hydrogen peroxide sequestered in the dried polymer can be predicted from the amount used to swell the polymer. (*See* App. Br. 14.) Dr. Toreki's declaration is not persuasive because it has not been shown that the application of peroxide solution to polymer in SCA would not achieve the same result. Dr. Toreki does not mention SCA. Thus, his declaration does not persuaded us that the process recited to produce the claimed superabsorbent polymer results in a patentable difference from the superabsorbent polymer taught in SCA.

Because we are not persuaded by Appellants' arguments that the Examiner erred in rejecting the independent claims as being anticipated by SCA, we affirm the Examiner's rejection. Appellants do not present separate arguments for any of the other claims rejected under 35 U.S.C. § 102(b) over SCA. Accordingly, we affirm the rejection of the dependent claims as well.

Anticipation over Borja

The Examiner rejected claims 1, 3, 4, 14, 16, 17, and 31–34 under 35 U.S.C. § 102(b) over Borja. (*See* Non-Final Act. 7–8; Final Act. 3.)

Findings of Fact

7. Borja teaches denture adhesive or stabilizer. (Borja 1:6–7.)

8. Borja teaches that prior art denture adherent powders have the property of swelling to many times their original volume upon the addition of water. (Borja 1:12–15.)

9. Borja teaches that its denture adhesive includes a polyethylene oxide and a polycarbophil component. (Borja 1:62–64.)

10. Borja teaches that the polycarbophil component can be a calcium salt of cross-linked polyacrylic acid that absorbs not less than 35 grams of solution per gram of absorbing polymer. (Borja 1:6–7 and 2:57–67.)

11. Borja teaches that the denture adhesive can include antimicrobial agents, such as hydrogen peroxide. (Borja 4:35–42.)

12. Borja teaches that the denture adhesive can include a magnesium metal salt. (Borja 5:50–53.)

Analysis

Appellants argue that Borja fails to teach "a cross-linked fully- or partially-neutralized salt of an acrylic acid-based superabsorbent polymer" as required in Appellants' independent claims. (*See* App. Br. 16.) According to Appellants, Borja teaches a denture adhesive formulation comprising a polyethylene oxide and a polycarbophil in combination. (*See* App. Br. 17, citing Borja 1:62–67 and 2:34–46.) Appellants argue that "[i]t is erroneous to equate the combination mixture of Borja as being the same as the antimicrobial superabsorbent polymer of [their] claims." (App. Br. 17; *see* Reply Br. 8.)

Claim 17 recites "[a]n antimicrobial superabsorbent polymer in the form of a dried powder or granular material . . . wherein said antimicrobial superabsorbent polymer *further comprises* a metal salt . . . ." (App. Br. 37, Claims App'x (emphasis added).) The transitional term "comprising" indicates that the claimed material encompasses components in addition to the recited cross-linked salt of an acrylic acid-based superabsorbent polymer. The Examiner finds that the addition of other ingredients such as a metal salt or polyethylene oxide to the powdered polycarbophil would not

prevent sequestration of hydrogen peroxide. (*See* Ans. 11.) Thus, Appellants' claim 17[14] encompasses a polymer with a combination of a polycarbophil that is a calcium salt of cross-linked polyacrylic acid and polyethylene oxide as taught in Borja (*see* FFs 9 and 10; Borja 1:62–64 and 2:57–67).

Appellants' argument that the combination of polycarbophil and polyethylene oxide "makes up the novel dental composition having its properties . . ." (App. Br. 18) does not persuade us otherwise because the Examiner's rejection is not based on the novel properties of the final product of Borja. Instead, the rejection is based on the teaching of superabsorbent polymer with sequestered peroxide.

Appellants argue further that Borja fails to teach a process including the steps of "swelling to uniformly wet the acrylic acid-based superabsorbent polymer with an aqueous treatment solution comprising aqueous hydrogen peroxide, followed by drying of the swelled

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[14] Appellants do not argue for the separate patentability of any of the independent claims regarding the addition of polyethylene oxide in Borja. We note, though, that Appellants' independent claims 1 and 14 do not use the term "comprising." Nevertheless, Appellants' Specification acknowledges that water-absorbing resins can be a variety of chemical forms, including polyethylene oxides. (*See* Spec. 1:20–24.) Because Appellants' claims 1 and 14 do not expressly exclude other polymers and in light of the inclusion of other ingredients, such as metal salts, in Appellants' invention, we determine that the broadest reasonable interpretation of claims 1 and 14 in light of the Specification encompasses material that includes polyethylene oxide. *See In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) ("[T]he PTO must give claims their broadest reasonable construction consistent with the specification.").

superabsorbent polymer," as recited in claim 1. (*See* App. Br. 17–18.) As explained above, Appellants' independent claims are product-by-process claims and, thus, patentability depends on the nature of the product recited. *See Thorpe*, 777 F.2d at 697.

Appellants argue that the Examiner fails to show that the superabsorbent polymer of Borja "produces at least a 3-log reduction of viable bacteria" as required in claim 17. (*See* App. Br. 20.) We agree with the Examiner that because the powder of Borja is within the scope of the claimed polymer it will have the same antimicrobial effect claimed. (*See* Ans. 13.) Appellants do not direct us to evidence otherwise.

Because we are not persuaded by Appellants' arguments that the Examiner erred in rejecting the independent claims as being anticipated by Borja, we affirm the rejection.

Appellants argue separately for the patentability of claims 5, 18, 23, and 25, citing the Examiner's statement that Borja does not teach magnesium, zinc, or zirconium acetate salts as required in those claims. (*See* App. Br. 21.) These claims were not included in the Examiner's rejection under 35 U.S.C. § 102(b) over Borja as recited in the Final Office Action of February 3, 2015 (*see* p. 3) or Examiner's Answer (*see* p. 2). Accordingly, Appellants' argument is moot.

Because Appellants do not present separate arguments for any of the other claims rejected under 35 U.S.C. § 102(b) over Borja, we affirm the rejection.

Obviousness over SCA

The Examiner rejected claims 1, 3–5, 9, 10, 12, 14, 16–18, 22, 23, 25, and 31–34 under 35 U.S.C. § 103(a) over SCA. (*See* Non-Final Act. 10.)

Appellants argue that there would not have been a motivation or suggestion in the art to prepare a polymer as claimed by "swelling to uniformly wet the acrylic acid-based superabsorbent polymer with an aqueous treatment solution comprising aqueous hydrogen peroxide, followed by drying of the swelled superabsorbent polymer," particularly the drying step. (*See* App. Br. 22–23.) For the reasons discussed above, we are not persuaded that even if SCA fails to teach these process steps, the recited product is unpatentable over SCA. (*See* Ans. 13–14.)

Appellants also argue that SCA fails to motivate or suggest to one of ordinary skill in the art to design an absorbent article that kills bacteria. (*See* App. Br. 23.) We are not persuaded by Appellants' argument because, as discussed above, the polymer of SCA "has the function of suppressing bacterial growth." (SCA 4; *see* Ans. 14.)

Appellants argue that the polymers of claims 1, 3, 9, 10, 14, 16, 22, 31, and 33, which do not recite a metal salt, would not have been obvious because the Comparative Example in SCA teaches that hydrogen peroxide in the absence of metal salt was not effective in suppressing ammonia formation. (*See* App. Br. 24–25, citing SCA 17–19.) According to Appellants, the inability to suppress ammonia indicates that the bacteria producing ammonia were also not suppressed. (*See* App. Br. 25.) We are not persuaded by this argument because the Comparative Example of SCA reports ammonia formation only, not bacterial growth. (*See* SCA 17–18.) SCA explains that "the peroxy compound, e.g. the hydrogen peroxide, has

the function of suppressing bacterial growth while the organic zinc salt, e.g. the zinc ricinoleate removes the ammonia (NH_3) actually formed." (SCA 4.) Thus, we are not persuaded that because peroxy compound alone fails to suppress ammonia, it would not have been expected that peroxy compounds alone would suppress bacterial growth.

Appellants also argue that because it was expected that drying would remove the antimicrobial effects of hydrogen peroxide, there would not have been a reasonable expectation of success in producing an antimicrobial polymer material given the teachings of SCA. (*See* App. Br. 25–26.) Because, as discussed above, SCA teaches a polymer that suppresses bacterial growth, this argument is not persuasive.

Because we are not persuaded by Appellants' arguments that the Examiner erred in rejecting the claims as being rendered obvious by SCA, we affirm the rejection.

Obviousness over Borja and Xia

The Examiner rejected claims 1, 3–5, 14, 16–18, 25, and 31–34 under 35 U.S.C. § 103(a) over Borja and Xia. (Non-Final. Act. 10–11.) Although Borja fails to teach counter ions suitable for acetate, Xia teaches that zinc acetate is a preservative. (*See* Xia ¶ 70, *passim*.)

Appellants present many of the same arguments posed for the Examiner's other rejections, including, for example, that neither Borja nor Xia teaches the process steps recited in Appellants' claims. (*See* App. Br. 27–31.)

Appellants also argue that because Borja relates to a denture adhesives, the compositions it teaches are unlikely to be suitable for use as components in tampons, sanitary napkins, diapers, or wipes because the

compositions of Borja would be likely to adhere to body cavities. (*See* App. Br. 31–32; *see* Reply Br. 9.) We are not persuaded by this argument because Appellants claim only superabsorbent polymer, not articles made with it. (*See* Ans. 17.)

Because we are not persuaded by Appellants' arguments that the Examiner erred in rejecting the claims as being rendered obvious by Borja and Xia, we affirm the rejection.

Conclusion

Upon consideration of the record and for the reasons given, the rejections of claims 1, 3–5, 9, 10, 12, 14, 16–18, 22, 23, 25, and 31–34 are sustained.

Therefore, we affirm the decision of the Examiner.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136.

AFFIRMED