IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Brook & Whittle Limited
U.S. Patent No.:	11,961,422
Issue Date:	April 16, 2024
Appl. Serial No.:	18/103,234
Filing Date:	January 30, 2023
Title:	RECYCLABLE HEAT SHRINK FILM FOR RECYCLABLE CONTAINER

DECLARATION OF MR. CRAIG BUSHMAN

I, Craig Bushman, declare that:

I. INTRODUCTION AND SCOPE OF WORK

1. I am Vice President of Global Research and Development of Multi-Color Corporation ("Petitioner"). I have held this position from 2018 - present.

2. I have been asked by Petitioner's Counsel ("Counsel") to provide information relating to a Petition challenging Claims 1-19 of U.S. Patent No. 11,961,422 ("the '422 patent") (Ex. 1001). This Declaration is based on my education in Chemical Engineering, as well as my work and research regarding shrink sleeve labels and recyclable labels.

3. In writing this Declaration, I have considered the following: the '422 patent, the prosecution history of the '422 patent, the prior art cited below, the materials discussed and referenced herein, and my own knowledge and experience, including my work experience in the fields described herein, and my experience of working with others in those fields during the relevant period.

4. As noted above, I am an employee of Petitioner, and have been from 2008 – present. As an employee, it could be argued that I have a financial interest in Petitioner and the outcome of this proceeding. I am not being compensated for my work on an hourly basis for all tasks involved with this Declaration, although, once again, I am an employee of Petitioner and am compensated in connection therewith.

II. QUALIFICATIONS

5. My *curriculum vitae*, which includes a more detailed summary of my background, experience, and publications, is attached as APPENDIX-A.

6. I earned a Bachelor of Science in Engineering degree from the University of Michigan (1990), and a Doctor of Philosophy degree in Chemical Engineering from the University of Illinois (1995).

7. I have served in the following capacities with Petitioner, associated with the noted dates: VP Global R&D (2018-present); Director R&D (2010-2018); Research Manager (2009-2010). Petitioner is the successor to the Fort Dearborn Company.

8. I have approximately 16 years of experience in the field of labels and label construction. As a part of this experience, I have for many years been involved in material identification and characterization, as well as use of multiple analytical methods for purposes of field sampling, including analytical techniques such as GCMS and FTIR to analyze and classify materials. I have also for many years been involved with the recyclability of labels. As a result of my experience and frequent interaction with skilled artisans, I am familiar with the knowledge and understanding of a person of ordinary skill.

9. The following is based on my education, experience, and background in the fields discussed above.

III. MATERIALS CONSIDERED

10. I have reviewed the ’422 patent (Ex. 1001) and relevant excerpts of its prosecution history (Ex. 1002). I have also reviewed the materials listed below and discussed and referenced herein:

- U.S. Patent No. 11,961,422 (Ex. 1001)
- The Prosecution History of the ’422 Patent (“the Prosecution History”) (Ex. 1002)
- Petitioner’s Gatorade Label (“Gatorade Label”) (Ex. 1003)
- Petitioner’s Febreze Label (“Febreze Label”) (Ex. 1004)
- PET-CG-02 – Critical Guidance protocol for clear PET articles with labels and closures (“PET-CG-02”) (Ex. 1005)
- PET-P-00 – PET Standard Laboratory Processing Practices (“PET-CG-00”) (Ex. 1006)
- PET-S-04 – PET Package Materials Balance Test (“PET-S-04”) (Ex. 1007)
- PET-S-01 – Labels for PET - Wash Water Test (“PET-S-01”) (Ex. 1008)
- Shrink Sleeve Labels on PET Containers APR Resource Document (“APR-RES-LBL-2”) (Ex. 1009)
- Evaluation of the Near Infrared (NIR) Sorting Potential of a Whole Plastic Article (SORT-B-01) (Ex. 1010)

- Evaluation of Sorting Potential for Plastic Articles Utilizing Metal, Metalized or Metallic Printed Components (SORT-B-03) (Ex. 1011)
- RD-TM-210-4 (Ex. 1012)
- Declaration of Mr. Craig Bushman (this Declaration) (Ex. 1013)
- Declaration of Dr. Michael Deible (Ex. 1014)
- ASTM D2732 (Ex. 1015)
- SKC inc. EL62 Product Description (Ex. 1016)
- Brook+Whittle webpage print, retrieved from https://brookandwhittle.com/recyclable-light-blocking-shrink-sleeves/ (Ex. 1017)
- Association of Plastic Recyclers recognition correspondence (Ex. 1018)
- Watson Standard Technical Data Sheet (Ex. 1019)

11. Although this Declaration refers to selected portions of the cited references for the sake of brevity, it should be understood that these are examples, and that one of ordinary skill in the art would have viewed the references cited herein in their entirety and in combination with other references cited herein or cited within the references themselves. The references used in this Declaration, therefore, should be viewed as being incorporated herein in their entireties. I have reviewed the entirety of the references themselves.

12. Counsel has informed me that I should consider these materials through the lens of a person of ordinary skill in the art ("POSITA") which is discussed further below, as of the effective date of the '422 patent, and I have done so. Unless otherwise stated, my testimony below refers to the knowledge of a POSITA as of the effective date.

IV. LEGAL PRINCIPLES

14. In forming this Declaration, I have applied the legal principles described in the following paragraphs, which were provided to me by Counsel for the Petitioner.

A. Person of Ordinary Skill in the Art

15. I understand that the factors considered in determining the ordinary level of skill in a field of art include: the level of education and experience of persons working in the field; the types of problems encountered in the field; the teachings of the prior art regarding solutions to such problems; and the sophistication of the technology at the time of the alleged invention's effective filing date. I understand that a person of ordinary skill in the art ("POSITA") is not a specific real individual, but rather is a hypothetical individual having the qualities reflected by the factors above and knowledge of all relevant prior art references, including the references I cite in my analysis below.

B. Anticipation

16. I have been informed that a patent claim is anticipated if a single reference discloses all of the elements of the claim within the four corners of the reference, and also discloses those elements as arranged in the claim.

C. Obviousness

17. I have been informed that a patent claim is invalid as "obvious" under 35 U.S.C. § 103 in light of one or more prior art references if it would have been obvious to a POSITA, taking into account (1) the scope and content of the prior art, (2) the differences between the prior art and the claims, (3) the level of ordinary skill in the art, and (4) any so called "secondary considerations" of non-obviousness, which include: (i) "long felt need" for the claimed invention, (ii) commercial success attributable to the claimed invention, (iii) unexpected results of the claimed invention, and (iv) "copying" of the claimed invention by others.

18. I have been informed that a claim can be obvious in light of a single prior art reference or multiple prior art references. To be obvious in light of a single prior art reference or multiple prior art references, there must be a reason to modify the single prior art reference, or combine two or more references, in order to achieve the claimed invention. This reason may come from a teaching, suggestion, or motivation to combine, or may come from the reference or references themselves, the knowledge or "common sense" of one skilled in the art, or from the nature of the problem to be solved, and may be explicit or implicit from the prior art as a whole. I have been

informed that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I also understand it is improper to rely on hindsight in making the obviousness determination.

19. I understand that an obviousness determination also requires that a POSITA would have had a reasonable expectation of success. This concept has been explained to me as relating to the relative likelihood or predictability - from the perspective of a POSITA - of successfully supplementing and/or modifying the prior art in a manner that would meet the claimed limitations of the patent being challenged (here the ’422 patent). I understand that the expectation of success need only be “reasonable” and, thus, does not require the absolute certainty gleaned from physically creating the proposed prior art modification.

D. Indefiniteness

20. It is my understanding that in a post-grant proceeding, a claim is invalid for indefiniteness if, when read in light of the specification delineating the patent and the prosecution history, it fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention.

E. Claim Construction Standard

21. It is my understanding that the claim construction standard includes construing the claim in accordance with the ordinary and customary meaning of

such claim as understood by a person of ordinary skill in the art. As explained above, I was at least a person of ordinary skill in the art before the earliest filing date of the challenged patent.

22. I understand that in a post-grant review proceeding, claims are interpreted under the same construction standard that is used in a United States federal court. I understand that, for purposes of my analysis in this post-grant review proceeding, the meaning of terms appearing in the patent claims should be interpreted from the viewpoint of a POSITA at the time of the alleged invention. I further understand that the words of the claims are generally given their ordinary and customary meaning as understood by one of ordinary skill in the art in light of the specification and prosecution history pertaining to the patent. I understand, however, that claim terms are generally not limited by the embodiments described in the specification.

23. I have used the earliest priority date of the ’422 patent as the point in time for claim interpretation purposes. I understand that date was May 13, 2022, based on the face of the ‘422 patent and its indication that the patent application that issued as the ‘422 patent is a continuation of a patent application filed on May 13, 2022. Still, I note that if the priority date were different by less than two years, my analysis would not be impacted.

V. PERSON OF ORDINARY SKILL IN THE ART

A. A POSITA's Ordinary Level of Skill

24. I understand that Dr. Michael Deible has offered an opinion regarding the level of skill and experience of a person of ordinary skill in the art ("POSITA"). I understand that Dr. Deible has offered an opinion that a POSITA would have had at least (1) a Bachelor's degree in chemistry or a related field, with (2) 5 years of experience in material identification and characterization using multiple analytical methods and field sampling, or equivalent research or professional experience. I have accepted this for purposes of this Declaration.

25. Accordingly, my analysis and conclusions expressed in this Declaration are based on the perspective of a POSITA having this level of knowledge and skill. My education, technical expertise, and personal knowledge discussed above demonstrates that I meet the qualifications of a POSITA. As noted herein, I also have personal knowledge regarding labels and their design and manufacture, including the Gatorade Label and the Febreze Label, which are described below.

B. A POSITA's Background Knowledge

1. Background of the technology

26. I understand that the '422 patent's inventors claim to have invented, and the two independent claims of the '422 patent, i.e., claims 1 and 19, claim a heat shrink label comprising a heat shrink film of polyethylene terephthalate (PET) that is

recyclable with a PET container and includes a light blocking layer. The ’422 patent describes this as follows:

> A recyclable shrink label includes a heat shrink film having a first surface and a second surface opposite of the first surface; and a light blocking layer disposed adjacent the first surface and comprising a light blocking component, the light blocking layer being constructed for the recyclable shrink label to block at least 80% of incident light having wavelengths in a range of 200 nm to 900 nm. The recyclable shrink label may further include an indicia layer. The recyclable shrink label may further include a high opacity layer. The recyclable shrink label may be applied to a container, e.g., a recyclable container. Articles including the recyclable shrink label may be recycled in a process where both the container and the label are recognized as a resin and may be directed into a corresponding recycling stream. In some cases, both the container and the label include PET.

Ex. 1001, Abstract.

2. The known nature of recyclable packaging

27. Based on my many years of experience with Multi-Color, I am aware that recyclable packaging has been known for decades. In addition, the ’422 patent specification acknowledges as Background to the purported invention that “the consumer packaged-goods markets globally aspire to utilize recyclable packaging for most products.” The ’422 patent provides an example of that known recyclable packaging as “…PET packaging,” which “provides a cost effective recyclable option.” Ex. 1001, at 1:14-23.

3. The known nature of light protective packaging

28. Based on my many years of experience with Multi-Color, I am aware that light protective packaging has been known for decades. In addition, the ’422 patent specification acknowledges that the market has required light protective packaging, so as to block light waves that are harmful to ingredients. Ex. 1001, at 1:14-23. That is because harmful light waves are known to impact the shelf life and performance of those products. *Id.*

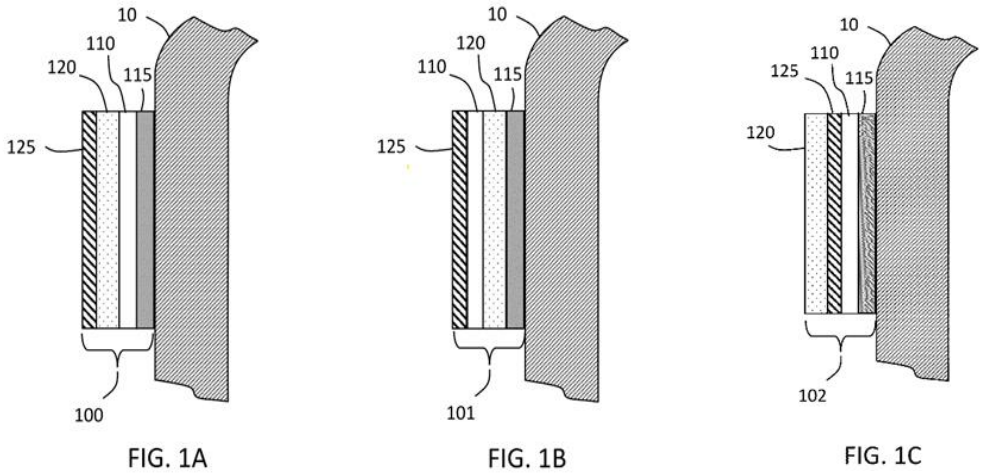
4. The known use of shrink films to provide light blocking

29. Based on my many years of experience with Multi-Color, I am aware that shrink films that provide light blocking have been known for decades. In addition, according to the ’422 patent specification, “shrink films printed with…light blocking layers” have been “traditionally” used in order to block light waves that are harmful to ingredients. Ex. 1001, at 1:14-23.

VI. OVERVIEW OF THE ’422 PATENT

A. The ’422 Patent

30. The ’422 patent is directed to “[a] recyclable shrink label” that includes “a light blocking layer.” Ex. 1001, Abstract. The light blocking layer comprises a light blocking component that is constructed “to block at least 80% of incident light having wavelengths in a range of 200 nm to 900 nm.” *Id.*



Ex. 1001, Fig. 1A and 1B and 1C

31. The ’422 patent describes different embodiments of the recyclable shrink label, including with respect to the layers of the label. For example, Figure 1A (reproduced above) shows an article 10 (e.g., a bottle or other container) having a heat shrink label 100 applied on its outside surface. Ex. 1001, at 17:24-33. The heat shrink label 100 includes a heat shrink film 120, upon which indicia layer 125 (e.g., graphics) is disposed on one surface thereof. *Id.* An opposing surface includes a high opacity layer 110, and a light blocking layer 115, on the high opacity layer 110. *Id.* In this embodiment, the light blocking layer 115 is the closest to the article that the heat shrink label 100 is applied to. *Id.*

32. Fig. 1B shows an alternative embodiment. In Fig. 1B, the article 10 (e.g., a bottle or other container) has a heat shrink label 101 applied on its outside surface. Ex. 1001, at 17:34-42. The heat shrink label 101 includes a heat shrink film 120, upon which a light blocking layer 115 is disposed on one surface and an

opposing surface having a high opacity layer 110. *Id.* Disposed on the surface of the high opacity layer 110 opposite the heat shrink film 120 is an indicia layer 125. *Id.* In this embodiment, the light blocking layer 115 is the closest to the article 10 that the heat shrink label 101 is applied to. *Id.*

33. Fig. 1C shows yet another alternative embodiment. In Fig. 1C, an article 10 (e.g., a bottle or other container) having a heat shrink label 102 applied on its outside surface. Ex. 1001, at 17:43-51. The heat shrink label 102 includes a heat shrink film 120, upon which an indicia layer 125 is disposed on its surface, a high opacity layer 110 is disposed on the surface of the indicia layer 125. *Id.* A light blocking layer 115 is disposed on the high opacity layer 110. *Id.* In this embodiment, the light blocking layer 115 is the closest to the article 10 that the heat shrink label 102 is applied to. *Id.*

B. The Prosecution History of the ’422 Patent

34. The inventors of the ’422 patent purport to have invented a recyclable shrink label that includes a light blocking layer constructed to block at least 80% of incident light having wavelengths in a range of 200 nm to 900 nm. For example, claim 1 recites “[a] recyclable shrink label comprising: a heat shrink film having a first surface and a second surface opposite of the first surface, the heat shrink film having a thickness from 15 μm to 100 μm; and a light blocking layer disposed adjacent the first surface and comprising a light blocking component, the light

blocking layer being constructed for the recyclable shrink label to block at least 80% of incident light having wavelengths in a range of 200 nm to 900 nm." Ex. 1001, at 28:21-37.

35. In issuing the '422 patent, the USPTO did not have before it a single heat shrink label that had been commercially available or offered for sale and sold before the priority date. For example, Petitioner's Gatorade Label was offered for sale and sold before the priority date, but that was not presented for consideration by the Patent Examiner. Petitioner's Gatorade Label (Ex. 1003) is a recyclable shrink label, and includes a light blocking layer. As another example, Petitioner's Febreze Label (Ex. 1004) was offered for sale and sold before the priority date, but that was not presented for consideration by the Patent Examiner.

36. The fact that Petitioner's Gatorade Label, a recyclable shrink label with a light blocking layer, was offered for sale and sold before the priority date of the '422 patent, should not be any surprise given the market forces acknowledged by the '422 patent. That is, it should be no surprise that Petitioner's Gatorade Label was offered for sale and sold in light of the undisputed fact that recyclable packaging has been known for decades. In addition, the market has required light protective packaging, so as to block light waves that are harmful to ingredients, and that "shrink films printed with…light blocking layers" have been "traditionally" used in order to block light waves that are harmful to ingredient." Ex. 1001, at 1:14-23.

37. For similar reasons, it is my opinion that the fact that Petitioner's Febreze Label, a shrink label with a light blocking layer, was offered for sale and sold before the priority date of the '422 patent, should not be any surprise given the market forces acknowledged by the '422 patent. As noted above, the market has required light protective packaging, so as to block light waves that are harmful to ingredients, and that "shrink films printed with…light blocking layers" have been "traditionally" used in order to block light waves that are harmful to ingredient." Ex. 1001, at 1:14-23.

38. Patent Owner filed the '422 patent as U.S. Patent Application No. 18/103,234 (the "'234 application") on January 30, 2023. Ex. 1001, at 1. Patent Owner claimed priority to a Continuation of Application No. PCT/US2022/029280, filed on May 13, 2022. *Id.* Patent Owner then submitted an Information Disclosure Statement, also January 30, 2023, citing an Association of Plastic Recyclers resource documents, benchmark evaluation document, protocol document, evaluation documents, and a PCT Search Report associated with Application No. PCT/US2022/029280. Ex. 1002, at 92-93.

39. Concurrently with filing the application, Patent Owner filed a Track One Request for prioritized examination under 37 C.F.R. §102(e)(1). *Id.* at 139. The Request for prioritized examination was granted on March 22, 2023. *Id.* at 204.

40. On August 9, 2023, the Examiner issued an Office Action citing additional references, including Mitchell et al. (US 2017/0223879), and making

rejections including under 35 U.S.C. §103. Ex. 1002, at 221-243. The Examiner determined that the term "recyclable" is considered functional language and does not further limit the structure. *Id.* at 229. The Examiner also determined that Mitchell teaches "that the shrinkable labels provide easy separate (sic) during recycling process." *Id.*

41. In connection with the August 9, 2023 Office Action, the Examiner also cited Mitchell et al. (US 2017/0223879), noting that it "teaches that the metallization layer can be provided on either of the skin layers ([0101-0106]). It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to provide the metallization layer (high opacity layer) such that it is positioned between the printing (indicia layer) and the third layer/skin (7; light blocking layer) to ensure the printing is visible and provide (sic) a metallic look to the label." *Id.* at 239.

42. Applicant conducted an Examiner Interview on October 13, 2023. *Id.* at 333. As summarized by Applicant, "[p]otential claim amendments and differences between claims and the prior art were discussed." *Id.*

43. As summarized in the Applicant-Initiated Interview Summary, "[n]o agreement regarding allowability was reached during the interview." *Id.* at 344.

44. Applicant filed an Amendment in response to the Office Action on October 16, 2023. *Id.* at 333-341. Among other amendments, Applicant amended

application claim 1 to incorporate the limitation "wherein the recyclable shrink label is recyclable with a PET container." *Id.* at 336.

45. In connection with the above-referenced Amendment, Applicant made the following arguments: "The shrink labels taught by Mitchell '879 are not made of PET and would not be recyclable with a PET container. Labels made of other materials, including polypropylene, polyethylene, and paper, are considered contaminants in a PET recycling stream and need to be removed for the PET container to be recycled. This is supported by a Resource Documents by the Association of Plastic Recyclers (APR), provided herewith. The APR document states: 'APR recommends films that are compatible with PET recycling such as: 1. Films that float in water and that can be separated from PET that sinks in water, or, 2. PET based films that crystallize and can be recovered with the PET stream.'" *Id.* at 336.

46. Also in connection with the above-referenced Amendment, Applicant made arguments with respect to Mitchell and that "the label becomes unrecyclable", including that "[a]n important consideration for inks on shrink sleeve labels is that the ink no contaminate or discolor PET flake when mixed in hot caustic wash water used in the recycling process…. Even if the label in Mitchell '879 was otherwise capable of being recycled, the pigments being incorporated into the core layer polymer would contaminate the polymer flake during the recycling process." *Id.* at 337. Applicant also argued that "[i]n contrast, the present application teaches that the inks and

pigments used in the recyclable shrink label may be removed by washing, leaving behind a label that can be recycled with the article." *Id.*

47. In connection with the above-referenced Amendment, Applicant did not respond to or dispute the Examiner's citation of Mitchell et al. (US 2017/0223879) or determination that it "teaches that the metallization layer can be provided on either of the skin layers ([0101-0106]). It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to provide the metallization layer (high opacity layer) such that it is positioned between the printing (indicia layer) and the third layer/skin (7; light blocking layer) to ensure the printing is visible and provide (sic) a metallic look to the label." *Id.* at 333-341.

48. In connection with a November 13, 2023 Office Action, the Examiner similarly cited Mitchell et al. (US 2017/0223879) in connection with Sasaki et al. (JP2009-214535A), noting that "[i]t would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention, to modify the light shielding shrink film (recyclable shrink label) taught by Sasaki et al. to further include the core layer comprising a titanium dioxide pigment between the indicia layer and the crystalline polymer film (light blocking layer) to provide opacity to the overall light shielding shrink film (recyclable shrink label)." *Id.* at 354.

49. Applicant filed an Amendment in response to the Office Action on January 10, 2024. *Id.* at 408-413. Among other amendments, Applicant amended

application claim 1 "to include the subject matter of application claim 12….". *Id.* at 418.

50. A Notice of Allowance was mailed on February 6, 2024. Ex. 1002, at 430. Applicant's arguments made in connection with the January 10, 2024 Amendment were considered persuasive. *Id.* at 434.

VII. APPLICATION OF PRIOR ART TO THE CHALLENGED CLAIMS

A. Overview of the Grounds

51. I understand that Petitioner and Dr. Deible have presented challenges to the claims of the '422 patent as described below:

Ground	Claims	Basis
1	1-3, 5-19	§102 – Gatorade Label
2	4	§103 – Gatorade Label and Knowledge of a POSITA, including Mitchell et al. (US 2017/0223879)
3	4	§103 – Gatorade Label in view of the Febreze Label
4	1-19	§112 – Indefiniteness

B. References Appearing in the Grounds

52. I have been informed that each reference relied on in the above grounds pre-dates the Critical Date of the '422 patent and qualifies as prior art. I am personally familiar with the Gatorade Label and the Febreze Label, and the commercial aspects of their manufacture and sale, which I describe below.

Reference	Public Date	Prior Art Under
Gatorade Label (Ex. 1003)	At least in 2020	§102(a)(1)
Febreze Label (Ex. 1004)	At least in 2018	§102(a)(1)





1. Overview of the Gatorade Label (Ex. 1003)

53. The Gatorade Label is a shrink sleeve label that is recyclable with a PET container. It is a PET film and a washable ink system designed to meet the requirements of recyclability per the APR. It includes light blocking features

(including ink layers of metal particulates, and including aluminum and titanium dioxide for the silver and white ink). Based on my experience with this label, and also by way of confirmation of those in this industry with whom I am familiar, including Patent Owner, the heat shrink film of the Gatorade abel incorporates PET that is crystallizable. Ex. 1017.

54. The Gatorade Label was produced and sold publicly by my company in 2020, in substantial quantities.



55. This image shows that the Gatorade Label was produced as Job# 6561442 on 07/14/2020. This product was put into commerce at least as early as 2020. This product is very popular and hundreds of millions of labels have been supplied to the market with this label construction.

56. The Gatorade Label is an SKC Ecolabel™ sleeve label. Ex. 1016. And, the APR, the Association of Plastic Recyclers, has recognized this label as meeting or

exceeding APR's Critical Guidance Protocol for Clear PET Articles with Labels and Closures Document requirements. Ex. 1018. The SKC Ecolabel™ has received APR Critical Guidance recognition. *Id.* In particular, a Review Committee, appointed per the APR Recognition Operating Procedures, reviewed an April 26, 2019 data submission and concluded the data were correctly obtained by a qualified laboratory and were completely presented to show the labels submitted meet or exceed all critical guidance. *Id.*

57. I also note that the silver ink used in connection with the Gatorade Label is supplied by a company, Watson Standard, which confirms that the silver ink passes recyclability/bleed testing set forth in the protocol established by the Association of Postconsumer of Plastic Recyclers. Ex. 1019.



58. The containers to which the Gatorade Labels were attached are found in the image above. The internal surface of the sleeve or tube is the surface that would face the container, as is therefore disposed thereon.

59. The Gatorade Label is a recyclable shrink label that comprises an indicia layer, a high opacity layer, and a light blocking layer, in close proximity to each other. For this particular label, each printed layer is applied in sequence on the printing press as needed to meet the graphical design intent for the brand. The order of printing onto the film first includes an indicia layer (graphics such as the text elements and certain colored features of the label), followed by a printed metallic layer, and then finally a printed white ink layer to provide opacity. These printed layers are applied to the film substrate in a selected sequence and orientation so that the text and graphics are "right reading" when one observed through the film from the consumer's perspective. Depending on the design intent of the brand owner it is common practice to change the printing sequence to meet certain graphical and functional requirements. Changing the order of the layers, for example to apply the printed white ink opacity layer and then the printed metallic layer is simply a matter of changing the ink printed within each printing station on the press. Such a change would result in the high opacity layer such that it is positioned between the indicia layer and the light blocking layer and this would be a simple change to the manufacturing process for the Gatorade Label.

60. In other words, only a very minor modification of the Gatorade Label would be required. Notably, no additional structures need to be added or removed from the Gatorade Label.

2. Overview of the Febreze Label (Ex. 1004)

61. The Febreze Label is a shrink sleeve label. It includes light blocking features (including ink layers of metal particulates, and including aluminum and titanium dioxide for the silver and white ink).

62. The Febreze Label was produced and sold publicly by my company in 2018, in substantial quantities.





63. These images show that the Febreze Label was produced as Job# 1027458 on 09/27/2018.



64. The containers to which the Febreze Labels were attached are found in the images above. The internal surface of the sleeve or tube is the surface that would face the container, as is therefore disposed thereon.

65. The Febreze Label is a shrink label that comprises an indicia layer, a high opacity layer, and a light blocking layer, in close proximity to each other. This

particular label is applied to a clear plastic aerosol container and one of the brand owner functional requirements for this label construction was that consumers should not see through the shrink sleeve to observe the level of product within the container. As such, this label includes printed graphics indicia as well as a high opacity white layer and a functional metallic pigmented light blocking layer. Certain examples of this label design may also include metallic inks as part of the indicia to achieve a desired graphical effect. For this particular label, each printed layer is applied in sequence on the printing press as needed to meet the graphical design intent for the brand. The order of printing onto the film first includes an indicia layer (graphics such as the text elements and certain colored features of the label), followed by a printed white ink layer to provide a white opaque background to the graphics, and then finally a printed metallic layer for light blocking functionality. These printed layers are applied to the film substrate in a selected sequence and orientation so that the text and graphics are "right reading" when one observed through the film from the consumer's perspective. This particular graphics design results in a high opacity layer that is positioned between the indicia layer and the light blocking layer.

66. In other words, the Febreze Label includes the order of layers such that the white opaque layer is between the indicia and the light blocking layer. Notably, no additional structures need to be added or removed from the Febreze Label.

C. GROUND 4: CLAIMS 1-19 ARE INDEFINITE UNDER 35 U.S.C. § 112

67. As described above, my understanding is that a claim is indefinite if it might have several meanings, and a POSITA would not be able to make a confident choice as to which meaning is appropriate. *Supra* Section IV.E.

68. I am personally familiar, through my work experience, with the recyclable process as it relates to shrink sleeve labels and containers to which shrink sleeve labels are affixed.

69. By way of example, I am familiar with demonstrating whether shrink films are considered recyclable with regard to inks being retained or removed from the film after a caustic wash cycle used in the reclaiming processes. In addition, I am familiar with the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02), Evaluation of the Near Infrared (NIR) Sorting Potential of a Whole Plastic Article (SORT-B-01), and Evaluation of Sorting Potential for Plastic Articles Utilizing Metal, Metalized or Metallic Printed Components (SORT-B-03).

70. Independent claim 1 and independent claim 19 (and therefore all dependent claims) each recite "wherein the recyclable shrink label is recyclable." The claim language has multiple possible meanings, making it impossible for a POSITA to determine a definitive meaning and thus scope of the claim. Therefore, these claims are indefinite.

71. The ‘422 patent defines what renders a shrink label recyclable, but does so is several disparate ways.

72. First, the ‘422 patent provides “Generally clear crystallizable heat shrink films (e.g., PET shrink films) are considered recyclable if no inks are retained on the film after a caustic wash cycle typically used in PET reclaiming processes.” Ex. 1001, at 6:61-65. This demonstrates that ink wash-off from crystallizable PET films is a sufficient requirement to fall within the scope of the claim term “wherein the recyclable shrink label is recyclable.”

73. Second, the ‘422 patent provides “According to an embodiment, the inks utilized in the labels of the present disclosure, including the light blocking inks, are designed to wash off the film during a reclaiming process allowing the labels and containers they cover to be recycled.” Ex. 1001, at 7:9-13.

74. Third, the ‘422 patent provides “According to an embodiment, the labels of the present disclosure can meet certain industry standards, including for example the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02), which can be considered as certifying that the film is fully recyclable with the container or bottle.” Ex. 1001, at 11:29-53.

75. Fourth and Fifth, the ‘422 patent provides “In some embodiments, the labels of the present disclosure are recyclable according to Evaluation of the Near Infrared (NIR) Sorting Potential of a Whole Plastic Article (SORT-B-01), Evaluation

of Sorting Potential for Plastic Articles Utilizing Metal, Metalized or Metallic Printed Components (SORT-B-03), or both." *Id.*

76. Sixth, the '422 patent provides "That is, according to an embodiment, the labels of the present disclosure are fully recyclable." *Id.*

77. Seventh, the '422 patent provides "For example, the labels may include inks that can be washed off in a typical PET recycling wash (caustic wash) and the polymers used in the labels are preferably clear (preferably clear PET)." *Id.*

78. Eighth, the '422 patent provides "According to an embodiment, the labels are free or substantially free of inks that cannot be washed off in a caustic wash." *Id.*

79. Ninth, the '422 patent provides "According to an embodiment, the labels are free or substantially free of colored plastics (including white plastics) that cannot be recycled." Ex. 1001, at 11:29-53. *Id.*

80. Tenth, as explained above in connection with the prosecution of the application that issued as the '422 patent, Applicant argued over the prior art that "[e]ven if the label in Mitchell '879 was otherwise capable of being recycled, the pigments being incorporated into the core layer polymer would contaminate the polymer flake during the recycling process…[i]n contrast, the present application teaches that the inks and pigments used in the recyclable shrink label may be removed

by washing, leaving behind a label that can be recycled with the article." Ex. 1002, at 337.

81. The claim term "wherein the recyclable shrink label is recyclable" is therefore disclosed in multiple different alternate ways in the '422 patent. That is, a POSITA would understand that the '422 patent provides numerous different definitions regarding what constitutes a shrink label that is recyclable. There is nothing in the '422 patent that provides clarification regarding which of the definitions is the appropriate manner in which to determine what falls within the scope of this claim term.

82. As an example, it could be that to fall within the scope of this claim term that no inks are retained on the film after a caustic wash cycle typically used in PET reclaiming processes, or it could be that to fall within the scope of this claim term, inks only need to be designed to wash off the film during a reclaiming process allowing the labels and containers they cover to be recycled, or it could be that to fall within the scope of this claim term, the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) must be complied with.

83. As another example, it could be that to fall within the scope of this claim term the labels must be recyclable according to Evaluation of the Near Infrared (NIR) Sorting Potential of a Whole Plastic Article (SORT-B-01), or must be recyclable according to Evaluation of Sorting Potential for Plastic Articles Utilizing Metal,

Metalized or Metallic Printed Components (SORT-B-03), "or both" must be recyclable according to SORT-B-01 and SORT-B-03.

84. As another example, it could be that to fall within the scope of this claim term the labels are free of inks, are substantially free of inks, or if no inks are retained on the film.

85. As another example, it is undeterminable whether to fall within the scope of this claim term the labels need be recyclable or fully recyclable, or whether there is a difference between the two.

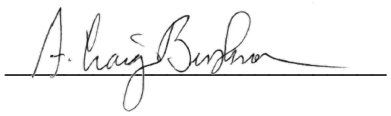
86. The '422 patent does not provide details that make clear the intended meaning of "wherein the recyclable shrink label is recyclable" as all of the claims recite.

VIII. CONCLUSION

87. My analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

DATE: 1/16/2025

NAME: Mr. Craig Bushman

SIGNATURE: 

APPENDIX-A

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SUMMARY

30 years experience in the printing and packaging industry with a special focus to develop and implement innovative solutions that provide sustainability, premiumization, and/or functionality. Driven to deliver customer centric innovation that provides differentiation and meaningful uniqueness.

PROFESSIONAL EXPERIENCE

MULTI-COLOR CORPORATION **2008-Present**

- VP, Global R&D (2018 – Present)
- Director Research & Development (2010 – 2018)
  - Manage NA Product Leadership team. Focus on innovation, product development, and resolution of technically challenging problems related to the label industry.
- Research Manager (2009 – 2010)
  - Drive, execute, sustain, and support research and innovation at Multi-Color.
- Leader Product Development (2008 – 2009)

INTERNATIONAL PAPER COMPANY **1995-2008**
and EVERGREEN PACKAGING INCORPORATED

- Product Development Manager and Manager of Intellectual Property (2004 – Present)
  - Direct global product development and technical support for Evergreen Packaging, Inc (and previously International Paper Beverage Packaging division); provide strategic direction to the commercial teams.
- Materials Development Manager (2000 – 2004)
  - Performed new product development, polymer evaluation, and resin cost reductions for the business. Coordinated the materials related patent and intellectual property strategy.
- Research Engineer (1998 – 2000)
  - Provided key customer interface role for technical problem solving.
- Senior Research Associate (1995 – 1998)
  - Project management for all aspects of product and process development, including: conceptualization, feasibility, development, and follow through to implementation and commercialization.

EDUCATION

Ph.D. University of Illinois, Chemical Engineering, 1995
M.S. University of Illinois, Chemical Engineering, 1993
B.S.E. University of Michigan, Chemical Engineering, 1990

PATENTS AND PUBLICATIONS

8 U.S. Patents (six pending) and 2 publications