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 DR. CRAIG BUSHMAN

I, Craig Bushman, declare that:

I. INTRODUCTION AND SCOPE OF WORK

1. On January 16, 2025, I submitted a Declaration in PGR2025-00025. See EX1013. I submit this Declaration for the purposes of responding to Patent Owner's Response to Petition (Paper 34, "POR") submitted on February 4, 2026, and the testimony of Dr. Reitman, and the testimony of Dr. Phillips. In response to the POR, I provide additional information regarding my background, qualifications, and the analysis in connection with the disclosures of the '422 patent, as discussed in my previous Declaration. I further explain that certain characterizations of my experience, testing, and analysis set forth in the POR are incomplete and do not accurately reflect the opinions expressed in my previous Declaration.

2. I was formerly the Vice President of Global Research and Development of Multi-Color Corporation ("Petitioner"). I held this position from 2018 - 2025. I have been asked by Petitioner's Counsel ("Counsel") to provide information relating to the 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: my previous Declarations in this matter, the '422 patent, the prosecution history of the '422 patent, 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 was formerly an employee of Petitioner, from 2008 – 2025. I am being compensated for my work on an hourly basis for all tasks involved with this Declaration. My compensation is not in any way contingent on the substance of my opinions or the outcome of this proceeding.

II. QUALIFICATIONS

5. My *curriculum vitae*, which includes a more detailed summary of my background, experience, and publications, was previously attached to EX1013.

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 (2018-2025); 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 materials listed and discussed in my previous Declarations in this matter and the materials discussed herein.

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 in my previous declaration, and I have done so.

IV. CLAIMS 1-19 ARE INDEFINITE UNDER 35 U.S.C. § 112

13. As I explained in my previous declaration, Ex. 1013, my understanding is that a claim is indefinite if it has several meanings and a POSITA would not be able to make a confident choice as to which meaning is appropriate. (See Section IV.E).

14. As I explained in my previous declaration, Ex. 1013, I am personally familiar, through my work experience, with the recycling process as it relates to shrink sleeve labels and containers to which shrink sleeve labels are affixed.

15. As I explained in my previous declaration, Ex. 1013, 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).

16. Independent claim 1 and independent claim 19 (and therefore all dependent claims) each recite "wherein the recyclable shrink label is recyclable." As I explained in my previous declaration, Ex. 1013, 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. In the

POR, Patent Owner asserts that these claims are not indefinite. Patent Owner relies on the Declaration of Dr. Scott Phillips, Ex. 2013, in support of its assertions. I submit this Declaration in Reply to Patent Owner's assertion that these claims are not indefinite and in Reply to the Phillips Declaration.

17. As I explained in my previous declaration, Ex. 1013, the '422 patent defines what renders a shrink label recyclable, but does so in several disparate ways.

18. First, as I explained in my previous declaration, Ex. 1013, the '422 patent provides "[g]enerally 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. A POSITA understands from this portion of the '422 patent 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." Specifically, a POSITA understands that "no inks" may be retained on the film to fall within the scope of the claim term "wherein the recyclable shrink label is recyclable." A POSITA understands that if no inks are retained, the label is recyclable.

19. However, according to Patent Owner's expert, Dr. Phillips, there is no objective test as to how much ink must be removed from the label for the label to be recyclable, as that term is used in the '422 patent. EX1048, 92:17-93:9. Despite the fact that the '422 patent provides that "[g]enerally 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), according to Dr. Phillips "that's not what the tests measure." EX1048, 92:17-93:9.

20. In addition, according to Dr. Phillips, "if the inks completely wash off the film," that is not sufficient for a label to meet the requirement "wherein the recyclable shrink label is recyclable with a PET container." EX1048, 80:17-82:13. According to Dr. Phillips, even if those inks completely wash off and those inks do not contaminate or discolor PET flake during a hot caustic wash, that is not sufficient for a label to meet the requirement "wherein the recyclable shrink label is recyclable with a PET container." EX1048, 80:17-82:13. That is, according to Dr. Phillips, if all of the ink is washed off, then there is only a chance that it passes the other tests. EX1048, 93:10-94:3. Such a label that has no inks remaining after a caustic wash sill might not be recyclable "[b]ecause there's a number of other tests that should be performed." EX1048, 121:22-122:17.

21. In my opinion, this demonstrates an example that the '422 patent does not disclose to a POSITA what the definition of "wherein the recyclable shrink label is recyclable with a PET container" is. To the contrary, there are numerous potential definitions. For example, a POSITA understands that no inks being retained after a caustic wash is a sufficient requirement to fall within the scope of the claim term "wherein the recyclable shrink label is recyclable," and a POSITA also understands that no inks being retained after a caustic wash is not a sufficient requirement to fall

within the scope of the claim term "wherein the recyclable shrink label is recyclable." Also, a POSITA understands that "there's a number of other tests that should be performed." EX1048, 121:22-122:17.

22. Patent Owner asserts the '422 patent informs a POSITA what the claims cover. (POR, 75). For example, Patent Owner asserts that "[a] POSITA would therefore understand the '422 patent explains that the scope of the claims covers a label capable of being recycled with the container (i.e., a label that contains inks that wash off such that the label can be reclaimed as reusable resin along with the container)." (POR, 75). Patent Owner also asserts that the excerpt from the '422 patent (Ex. 1001, at 6:61-65) "explains that the term 'recyclable' within the context of the '422 patent means a label with inks that wash off during a caustic wash cycle, leaving behind plastic resin [that] can be reclaimed at the end of the recycling process." (POR, 80).

23. However, this is not what a POSITA understands from the portion of the '422 patent recited above, Ex. 1001, at 6:61-65. Specifically, from Ex. 1001, at 6:61-65, a POSITA understands that "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. That is, a POSITA understands from this portion of the '422 patent that to fall within the scope of this claim term, no inks are retained on the film.

24. A POSITA's understanding from this portion of the '422 patent that to fall within the scope of this claim term, i.e., no inks are retained on the film, is vastly different than a POSITA understanding that the scope of the claims covers a label that contains inks that wash off such that the label can be reclaimed as reusable resin along with the container. The latter requires that the label be reclaimed as reusable resin, whereas the former requires that no inks be retained on the film, and does not require that the label "be reclaimed as reusable resin."

25. These two standards are not consistent with each other. A film that retains no inks because the inks have washed off may still not be reclaimed as a reusable resin. Whether a film that retains no inks because the inks have washed off may be reclaimed as a reusable resin is dictated by benchmarks set uniquely by manufacturers who create products from resin. Benchmarks dictated by the manufacturers are subjective and different for each manufacturer. And, I note that Dr. Phillips agrees that "[t]hose [benchmarks] are dictated by the manufacturers." EX1048, 42:7-45:6. And, according to Dr. Phillips, a label is recyclable as that term is used in the '422 patent if a manufacturer dictates a benchmark that is lower quality PET because their particular product does not require a higher PET purity. *Id.* That same label is not recyclable as that term is used in the '422 patent if a manufacturer dictates a different benchmark that is higher quality PET because their particular product does require a higher PET purity. *Id.* This testimony demonstrates the numerous and unclear criteria recited in the '422 patent for whether a label meets the

requirement "wherein the recyclable shrink label is recyclable." The benchmarks dictated by the manufacturers are subjective and different for each manufacturer, such that "no inks" being retained on the film is not consistent with a label that can "be reclaimed as reusable resin."

26. In any event, Dr. Phillips testified that "recyclable" could be where you reclaim all of the material and also "where you lost some of it in the process, but it is still recyclable." EX1048:133:3-134:3. When asked how much of the material can you lose for the label to still be deemed "recyclable" as that term is used in the '422 patent, Dr. Phillips testified that "[t]here's no number on that. That's not something I can answer." *Id.*

27. Dr. Phillips also testified that, at least when some ink remains on the label after a caustic wash, the label may still be recyclable but only if tests are performed to see whether those inks impact the quality of the material. EX1048, 144:8-15.

28. Dr. Reitman, another expert of Patent Owner, testified that in order to meet the claim limitation "wherein the recyclable shrink label is recyclable with a PET container," a certain amount of ink must be removed during a caustic wash. According to Dr. Reitman, "the threshold is linked to the recyclability, which is linked to having the recycled component not interfere with the rest of the recycling and resin downstream." EX1049, 31:5-32:2. In like manner, Dr. Reitman testified that "a person of ordinary skill would understand that the recyclability is associated

with getting to a resin that doesn't have contaminating inks in a way that interferes with the use of that resin downstream." EX1049, 36:2-21.

29. The above demonstrates that a POSITA has no objective standard by which a label can be deemed recyclable on the basis that it can be reclaimed as reusable resin, or the impact on the quality of the material by the ink, or whether there are contaminating inks in a way that interferes with the use of that resin downstream.

30. I also note that the above demonstrates to a POSITA that whether a label falls within the scope of the claim term "wherein the recyclable shrink label is recyclable," is dependent upon the use of the resin, which is different for each manufacturer. EX1048 (26:6-28:2) asserts that a POSITA would attempt to meet the requirements of the APR as a measure of purity for recycled PET that may be appropriate for downstream manufacturers. However, Dr. Phillips confirmed that this may still be insufficient for certain manufacturers. EX1048, 28:11-32:2. And, Dr. Phillips confirmed that the purity required, and dictated by each manufacturer, is different. EX1048, 42:7-45:6.

31. Next, as I explained in my previous declaration, Ex. 1013, the '422 patent provides "[a]ccording 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. A POSITA

understands from this portion of the '422 patent that when a label meets the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02), that "certif[ies]" that the film is fully recyclable with the container or bottle. Specifically, a POSITA understands that "wherein the recyclable shrink label is recyclable" requires meeting the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02), including based on the disclosure in the '422 patent.

32. This guideline, i.e., the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02), is not consistent with the understanding of a POSITA from the portion of the '422 patent that requires no inks retained on the film to fall within the scope of this claim term. The APR PET-CG-02 document is a "guideline" for evaluating materials and is not specifically a "standard." Furthermore, PET-CG-02 does allow for some inks to remain on the film after a caustic wash, as that guideline is focused on the plaque evaluation.

33. It is also unclear to a POSITA what portions of PET-CG-02 must be met to "certify[]" that the film is fully recyclable with the container or bottle. That is because PET-CG-02 refers to numerous other tests but it is not understood by a POSITA which of those other tests must be met for a label to be deemed "recyclable." According to Dr. Phillips, "a person of ordinary skill in the art would

refer to some of these procedures, but not necessarily all of them." EX1048, 163:17-164:13.

34. By way of example only, PET-CG-02 references a "Wash water evaluation report" via PET-S-01. EX1027, at 4. The Wash water evaluation report instructs "observe and report only, no guidance values" and "Required only for label and direct printing evaluations." A POSITA does not understand from this whether the "Wash water evaluation report" via PET-S-01 is required to meet PET-CG-02. Dr. Phillips agrees that a POSITA does not know whether the "Wash water evaluation report" via PET-S-01 is required to meet PET-CG-02. EX1048, 155:17-156:13. And, a POSITA does not know what level of contamination of the wash water would cause a POSITA to determine that a label is not recyclable, as that term is used in the '422 patent. EX1048, 157:2-10. That is because, according to Dr. Phillips, there is no criteria relating to how much of the inks and pigments are removed by washing. EX1048, 162:21-163:8. Indeed, "if some inks wash off," then "no person of ordinary skill in the art would have experience to be able to have a gauge of – not an absolute gauge…". EX1048, 181:19-182:15. When not enough ink is washed off "depends on the person and their experience." *Id.*

35. There are other examples demonstrating that it is unclear to a POSITA what portions of PET-CG-02 must be met to "certify[]" that the film is fully recyclable with the container or bottle. PET-CG-02 also references a "Clumping test with flake sample B" via PET-S-08. EX1027, at 4. The Clumping test is identified as

having a "Required value[]" of "< 1 wt% retention on screen." A POSITA does not understand from this whether the "Clumping test with flake sample B" via PET-S-08 is required to meet PET-CG-02. Dr. Phillips agrees that a POSITA does not know whether the "Clumping test with flake sample B" via PET-S-08 is required to meet PET-CG-02. EX1048, 159:1-8; 161:5-16. Dr. Phillips indicated that "what I would do as a person of ordinary skill in the art, which is that I would gather all of the information that I could gather." *Id.*

36. Despite the fact that the '422 patent states that meeting the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "certif[ies]" that the film is fully recyclable with the container or bottle, Patent Owner asserts the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) is merely "complementary" and informs the scope of the '422 patent claims. (POR, 85). As an example, Patent Owner asserts that the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "can be used to assess the compatibility of PET packaging design features such as labels." (POR, 87). Patent Owner also asserts that the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) provides a flow chart "to help identify the testing to perform in order to determine whether a label meets APR certification standards." (POR, 87).

37. In addition, Patent Owner's assertion that the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "can be used to assess the compatibility of PET packaging design features such as labels" and provides a flow chart "to help identify the testing to perform in order to determine whether a label meets APR certification standards" does not provide any clarity as to when a label is recyclable. (POR, 87-88). Rather, it merely suggests that other assessments and other testing can be undertaken, without any objective criteria.

38. Patent Owner appears to concede this point by asserting that the flow chart "provides several steps relevant to a POSITA's understanding of whether a label is recyclable." (POR, 88). By way of example only, Patent Owner identifies the Wash PET-P-04 evaluation as "relevant." But the Wash PET-P-04 evaluation does not provide any objective criteria for a label to "pass" that evaluation. By way of example, there is no criteria or requirement that "no inks" are retained. Patent Owner does not ever identify an objective standard.

39. Indeed, these assessments and testing cannot provide any objective standard because, as I testified during my deposition, meeting the Association for Plastic Recyclers guidelines is a subjective determination made by a panel of three members. EX2010, 238:12-242:16. I have personal knowledge regarding this subjective determination, as I have served as a member of such a panel. *Id.*, 239:3-24. And, the members of the panel change, and their respective backgrounds impact

whether APR guidance recognition is provided in a given situation. *Id.*, 240:10-241:3. Members may be a reclaimer, a label producer, a member of the APR, or a combination of any number of them, which impacts whether APR guidance recognition is provided in a given situation. *Id.*

40. Next, as I explained in my previous declaration, Ex. 1013, 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." EX1001, at 11:29-53. SORT-B-01 recites that "[g]ood results in this screening test indicate that a plastic article has the potential to be sorted well in production conditions." EX1010, 1. According to Dr. Phillips, a POSITA does not know what "good results" are. EX1048, 166:17-168:12. SORT-B-01 also describes "poor results," but a POSITA does not know what "poor results" are. *Id.* "Good" and "poor" results with respect to SORT-B-01, which the '422 patent recites that labels is "recyclable according to," are not associated with an objective standard, and a POSITA does not understand any objective criteria by which a label can be measured in order to determine if a label is recyclable as that term is used in the claims of the '422 patent. Rather, "good" and "poor" results with respect to SORT-B-01 are subjective.

41. Next, as I explained in my previous declaration, EX1013, the '422 patent provides "[t]hat is, according to an embodiment, the labels of the present disclosure are fully recyclable." *Id.* The '422 patent does not provide any criteria distinguishing between fully recyclable and recyclable. In its POR, Patent Owner provides no criteria distinguishing between fully recyclable and recyclable, and provides no insight regarding whether fully recyclable is required to fall within the scope of the claims or the claim term "wherein the recyclable shrink label is recyclable." The only explanation offered by Dr. Phillips is that "fully recyclable" and "recyclable" are interchangeable. EX1048, 135:3-136:10. When asked about the basis for this opinion, Dr. Phillips could only state that "[b]ecause they're used commonly within the field as 'fully recyclable' and 'recyclable' being similar concepts." *Id.*

42. The '422 patent does not identify the criteria required for a label to be "fully recyclable." For example, the '422 patent recites that "[i]n 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." That is, according to an embodiment, the labels of the present disclosure are fully recyclable. 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)." EX1001, at 11:29-53. This does not provide a POSITA any criteria regarding what is required

for a label to be "fully recyclable." It is simply unclear whether one or both of SORT-B-01 and SORT-B-03 must be satisfied, or whether the example recited after the term "fully recyclable" is used, i.e., whether "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)," is the criteria for determining whether a label is "fully recyclable."

43. I also disagree that these two terms are commonly used in the field of recycling or labels. I also disagree that these two terms are interchangeable or "similar concepts." As I explained above, I have approximately 16 years of experience in the field of labels and label construction, and have for many years been involved with the recyclability of labels, and that forms the basis for my disagreement with Dr. Phillips.

44. Next, as I explained in my previous declaration, EX1013, the '422 patent provides "[a]ccording to an embodiment, the labels are free or substantially free of inks that cannot be washed off in a caustic wash." *Id.* Patent Owner asserts that "[t]he '422 patent explicitly defines the term 'substantially' such that the term 'can be understood to modify the term that follows by at least 90%, at least about 95%, or at least about 98%.'" (POR, 81). Patent Owner concludes that this "provides clear guidance to a POSITA as to the extent of inks that can remain on the film."

45. As explained above, from EX1001, at 6:61-65, a POSITA understands that "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." EX1001, at 6:61-65. That is, a POSITA understands from this portion of the '422 patent that to fall within the scope of this claim term, no inks are retained on the film. This is inconsistent with the "guidance to a POSITA as to the extent of inks that can remain on the film"; *i.e.*, 90% free of inks.

46. And, Dr. Phillips testified that "substantially removing the ink" is only "guidance" to a POSITA. EX1048, 93:10-94:9. As a result, if a label does not have substantially all inks removed, the label could still be "recyclable." EX1048, 95:9-20. A POSITA would still refer to the other APR guidance tests and conduct the tests, and based on those tests would determine whether a label is "recyclable." *Id.*

47. Next, as I explained in my previous declaration, EX1013, the '422 patent provides "[a]ccording to an embodiment, the labels are free or substantially free of colored plastics (including white plastics) that cannot be recycled." EX1001, at 11:29-53.

48. Patent Owner asserts "this is consistent with the specification's explanation that colored plastics are generally lower value and often not recyclable." (POR, 81). Patent Owner concludes that "a POSITA would understand this statement to be consistent with the goal of claiming a label that enters a recycling stream with a container and remains in the recycling stream to be reclaimed as reusable resin."

49. In my opinion, this asserted understanding of a POSITA is inconsistent with several other disclosures in the '422 patent. As noted above, a POSITA

understands from EX1001, at 6:61-65, that "heat shrink films (e.g., PET shrink films) are considered recyclable if no inks are retained on the film after a caustic wash cycle, which is also inconsistent with the "guidance to a POSITA as to the extent of inks that can remain on the film"; i.e., 90% free of inks from. Both are also inconsistent with and are independent of criteria relating to colored plastics.

50. In addition, Patent Owner provides no clarity regarding the fact that colored plastics are "often not recyclable." A POSITA understands from this disclosure that colored plastics may be recyclable, albeit not often. No objective criteria regarding under what circumstances colored plastics are recyclable is offered. This, once again, is a subjective determination made by a panel of three members. EX2010, 238:12-242:16.

51. Next, as I explained in my previous declaration, EX1013, and as explained 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." EX1002, at 337. In support of this assertion regarding the Mitchell reference, Applicant cited to APR Document Number RES-LBL-2 Shrink Sleeve Labels on PET Containers APR Resource Document ("APR

Resource Document"). Specifically, Applicant cited to the portion of the APR Resource Document that "[a]n important consideration for inks on shrink sleeve labels is that the ink **not contaminate or discolor PET flake** when mixed in hot caustic wash water used in the recycling process." *Id.*

52. A POSITA understands from this excerpt from the prosecution history that for a label to meet the requirement "wherein the recyclable shrink label is recyclable with a PET container," a POSITA must consider whether the ink contaminates or discolors PET flake. In the case of the label disclosed in Mitchell, according to Applicant, the pigments would contaminate the flake during the recycling process and therefore does not meet the requirement "wherein the recyclable shrink label is recyclable with a PET container."

53. This guidance is not consistent with the others noted above. By way of example only, PET-CG-02 is focused on plaque evaluation, not simply contamination or discoloration of PET flake when mixed in hot caustic wash water used in the recycling process. In addition, as described above in connection with EX1001, at 6:61-65, a POSITA understands that "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." EX1001, at 6:61-65. That is, a POSITA understands from this portion of the '422 patent that to fall within the scope of this claim term, no inks are retained on the film, such that the criteria for determining whether a label is recyclable relates to an evaluation of the ink remaining on the film,

not contamination or discoloration of PET flake. By way of another example, this is inconsistent with the "guidance to a POSITA as to the extent of inks that can remain on the film"; *i.e.*, 90% free of inks, which also indicates to a POSITA that the criteria for determining whether a label is recyclable relates to an evaluation of the ink remaining on the film, not contamination or discoloration of PET flake.

54. In addition, according to Dr. Phillips, "if the inks completely wash off the film, and those inks do not contaminate or discolor PET flake during a hot caustic wash," that is not sufficient for a label to meet the requirement "wherein the recyclable shrink label is recyclable with a PET container." EX1048, 80:17-82:13. All of the other APR tests he identified would also have to be considered. *Id.* The tests that would also have to be considered, according to Dr. Phillips, include PET-CG-02, PET-B-02, RES-LBL-2, "a NIR IR test for separation," "other separation tests, magnetic separation tests," "tests associated with the shredding process," "caustic wash and tests associated with the material that comes from the caustic wash," tests associated with "the extrusion process," tests "on the pellets" that are made from the extrusion process, and tests on samples of "plaques" resulting from an injection molding process. EX1048, 17:17-20:5. The evaluation of these tests is a subjective determination based on a three member panel and would lead a POSITA to different conclusions regarding whether a label is "recyclable," including based on their subjective evaluation.

55. Next, as I explained in my previous declaration, EX1013, and above, the '422 patent provides "[a]ccording 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. A POSITA understands from this portion of the '422 patent that a label meets the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02), that "certif[ies]" that the film is fully recyclable with the container or bottle. Specifically, a POSITA understands that "wherein the recyclable shrink label is recyclable" requires meeting the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02).

56. Despite the fact that the '422 patent explicitly states that a label that meets the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "certif[ies]" that the film is fully recyclable with the container or bottle, Dr. Phillips opined that a label can still be deemed recyclable even if that test is not met. EX1048, at 28:11-30:3; 97:7-11. Thus, a POSITA does not know whether the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-

CG-02) must be met for a label to meet the requirement "wherein the recyclable shrink label is recyclable."

57. In addition, despite the fact that the '422 patent explicitly states that a label that meets the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "certif[ies]" that the film is fully recyclable with the container or bottle, Dr. Phillips opined that if a label meets PET-CG-02, that is not sufficient by itself to recyclable as that term is used in the '422 patent. EX1048, 99:15-20; 103:10-16. Thus, a POSITA does not know whether the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) must be met for a label to meet the requirement "wherein the recyclable shrink label is recyclable."

58. In my opinion, additional testimony of Dr. Phillips demonstrates that whether a label meets the requirement "wherein the recyclable shrink label is recyclable" is unclear and subjective. Dr. Phillips testified that while "the APR methods are one benchmark…there are other benchmarks that people can look at and do look at for a lower quality recyclable material." EX1048, 42:7-45:6. "Those [benchmarks] are dictated by the manufacturers." *Id.* And, according to Dr. Phillips, a label is recyclable as that term is used in the '422 patent if a manufacturer dictates a benchmark that is lower quality PET because their particular product does not require a higher PET purity. *Id.* That same label is not recyclable as that term is used in the '422 patent if a manufacturer dictates a different benchmark that is higher quality PET

because their particular product does require a higher PET purity. *Id.* This testimony demonstrates that the numerous and unclear criteria recited in the '422 patent for whether a label meets the requirement "wherein the recyclable shrink label is recyclable" are not known to be the only criteria. And, the benchmarks dictated by the manufacturers are subjective and different for each manufacturer.

59. As another example of additional testimony of Dr. Phillips, and again despite the fact that the '422 patent explicitly states that a label that meets the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "certif[ies]" that the film is fully recyclable with the container or bottle, Dr. Phillips opined that a label can still be deemed recyclable by benchmarks set by the FDA. *Id.* at 45:8-46:11. This testimony demonstrates that the numerous and unclear criteria recited in the '422 patent for whether a label meets the requirement "wherein the recyclable shrink label is recyclable" are not known to be the only criteria.

60. As another example of additional testimony of Dr. Phillips, and again despite the fact that the '422 patent explicitly states that a label that meets the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "certif[ies]" that the film is fully recyclable with the container or bottle, Dr. Phillips opines that meeting the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) does not certify that the film is

recyclable and is not sufficient to determine whether a label satisfies the claim term "wherein the recyclable shrink label is recyclable." EX1048, 14:7-16:16. According to Dr. Phillips, a POSITA would also "typically look to" APR document PET-B-02 and RES-LBL-2 to determine if a label is recyclable as that term is used in the claims of the '422 patent. *Id.* Thus, a POSITA does not know whether the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) "certif[ies]" that the film is fully recyclable with the container or bottle, or whether other guidance documents such as PET-B-02 and RES-LBL-2 should be considered to determine if a label is recyclable as that term is used in the claims of the '422 patent.

61. With regard to RES-LBL-2, Dr. Phillips acknowledged that the Applicant referred to that document in connection with an Amendment overcoming the Mitchell reference. According to Dr. Phillips, "there's, of course, many takeaways that a [POSITA] could have from looking at this document and its inclusion. At the very highest level, I would say that – I would speculate, I guess is the better phrase, that the applicant is indicating that the APR methods are important criteria for whether the label is recyclable with the container." EX1048, 54:18-55:12. More specifically, Dr. Phillips testified that by reference to RES-LBL-2 in the prosecution history, a POSITA should refer to it when evaluating whether a label can be recycled. *Id.* at 61:10-62:3; 63:1-64:10. Dr. Phillips was not able to answer whether RES-LBL-2 had to be complied with for a label to be determined recyclable as that term is used in the

claims of the ‘422 patent. *Id.* Thus, a POSITA does not know whether the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) “certif[ies]” that the film is fully recyclable with the container or bottle, or whether other guidance documents such as RES-LBL-2 should be considered to determine if a label is recyclable as that term is used in the claims of the ‘422 patent.

62. With further regard to RES-LBL-2, Dr. Phillips acknowledged that it references a “Model Specification – Shrink Sleeve Labels on PET Containers.” EX1048:103:17-104:22. According to Dr. Phillips, with respect to whether a label is recyclable as that term is used in the ‘422 patent, the Model Specification “is a guidance document, a guidance table, with decision trees based on how the label performs in the recycling process, and so it helps to guide a person of ordinary skill in the art.” EX1048, 104:13-22. Thus, a POSITA does not know whether the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) “certif[ies]” that the film is fully recyclable with the container or bottle, or whether other guidance documents such as RES-LBL-2 and the Model Specification it references should be considered to determine if a label is recyclable as that term is used in the claims of the ‘422 patent.

63. With further regard to RES-LBL-2, Dr. Phillips acknowledged that the Model Specification includes a “guidance table describing the most important characteristics that must be demonstrated for the labeled container to provide a

preferred level of performance with negligible impact on the quality and productivity of PET recycling." EX1048, 104:13-106:11. *Id.* Dr. Phillips testified that, at least when some ink remains on the label after a caustic wash, the label may still be recyclable but only if tests are performed to see whether those inks impact the quality of the material. EX1048, 144:8-15. Dr. Phillips admitted that what constitutes "a negligible impact to a person of skill in the art is "pretty subjective." EX1048, 105:22-106:11. Dr. Phillips attempted to withdraw his "subjective" admission, without providing any objective criteria. *Id.* at 139-140. Thus, whether a label is recyclable as that term is used in the claims of the '422 patent and whether a label results in a negligible impact on the quality and productivity of PET recycling is subjective.

64. With further regard to RES-LBL-2, Dr. Phillips acknowledged that the Model Specification includes "alternate next best steps that can be taken should the preferred level not yet be possible." Dr. Phillips admitted that the "next best steps" to a POSITA are to be undertaken on "a case-by-case basis.". EX1048, 106:13-107:18. "A person of ordinary skill in the art isn't going to know just simply the next best steps." *Id.* Indeed, Dr. Phillips admitted that a person of skill in the art is not going to know next best steps unless they are looking at a particular label, or a particular document and procedure that outlines what the next best steps are. *Id.* at 108:2-6.

65. Dr. Phillips then testified that those three guidance documents, PET-CG-02, PET-B-02, and RES-LBL-2, are only examples of guidance documents that would need to be considered by a POSITA when determining whether a label is recyclable as

that term is used in the claims of the ‘422 patent. Dr. Phillips testified that there are other tests and protocols with the APR that would be undertaken to determine whether a label is recyclable as that term is used in the ‘422 patent. EX1048, 17:17-20:5. According to Dr. Phillips, when determining whether a label is recyclable as that term is used in the ‘422 patent, a POSITA would undertake “a NIR IR test for separation,” “other separation tests, magnetic separation tests,” “tests associated with the shredding process,” “caustic wash and tests associated with the material that comes from the caustic wash,” tests associated with “the extrusion process,” tests “on the pellets” that are made from the extrusion process, and tests on samples of “plaques” resulting from an injection molding process. *Id.* Thus, a POSITA does not know whether the Association for Plastic Recyclers (APR) Critical Guidance Protocol for Clear PET Articles with Labels and Closures (PET-CG-02) “certif[ies]” that the film is fully recyclable with the container or bottle, or whether other tests such as the numerous tests recited by Dr. Phillips are required to determine if a label is recyclable as that term is used in the claims of the ‘422 patent.

66. As I testified during my deposition, meeting the Association for Plastic Recyclers guidelines is a subjective determination made by a panel of three members. EX2010, 238:12-242:16. I have personal knowledge regarding this subjective determination, as I have served as a member of such a panel. *Id.*, 239:3-24. And, the members of the panel change, and their respective backgrounds impact whether APR guidance recognition is provided in a given situation. *Id.*, 240:10-241:3. That

subjective determination demonstrates that an evaluation of an "NIR IR test for separation," "other separation tests, magnetic separation tests," "tests associated with the shredding process," "caustic wash and tests associated with the material that comes from the caustic wash," tests associated with "the extrusion process," tests "on the pellets" that are made from the extrusion process, and tests on samples of "plaques" resulting from an injection molding process, would lead a POSITA to different conclusions regarding whether a label is "recyclable," including based on their subjective evaluation.

67. When asked whether all of these tests have to be passed for a label to be determined recyclable as that term is used in the claims of the '422 patent, Dr. Phillips testified that "[w]ell, it's really dependent. The answer is that it will depend on the results of each test." EX1048, 19:11-20:5. Thus, a POSITA does not know what tests must be undertaken, or passed, to determine if a label is recyclable as that term is used in the claims of the '422 patent. It is also subjective in that it is dependent upon the results of each test identified by Dr. Phillips, none of which recite any objective criteria.

68. Not only are the results of each test subjective, Dr. Phillips testified that a POSITA does not know the most important results of these tests when determining whether a label is recyclable as that term is used in the '422 patent. EX1048, 82:14-83:19. Rather, according to Dr. Phillips, what is most important is dependent upon the particular person evaluating the test results. *Id.* In part, that is because the test

results that determine whether a label is recyclable as that term is used in the '422 patent is dependent upon "what somebody wanted to do with the material." *Id.* Thus, the results of the test are not only subjective, but whether a label is recyclable as that term is used in the '422 patent is dependent upon the use a particular person has for the material.

69. Dr. Phillips then offered testimony regarding guidelines disclosed by the APR that further demonstrate, in my opinion, that whether a label satisfies the claim term "wherein the recyclable shrink label is recyclable" is indefinite. Dr. Phillips testified that while "the highest level of recycled material is when the material meets the specifications defined by the APR," "the material can still be considered recyclable resin if it does not meet that highest standard." EX1048, 20:21-22:5. That is because, according to Dr. Phillips, "[t]he APR method is – accepts a certain level of impurity." *Id.* The level of impurities allowed for by the APR specifications "comes back to the experimental results." *Id.* A POSITA evaluates whether a label is recyclable "based on those results." *Id.* Thus, a POSITA does not know whether the APR specifications must be met, or whether some level of impurity is allowed, to determine if a label is recyclable as that term is used in the claims of the '422 patent. The level of impurity purportedly allowed is not defined, and is also subjective in that it is dependent upon the results of each.

70. Dr. Phillips then testified that in certain circumstances, some objective criteria of some of the tests are met but others are not. EX1048, 22:6-13. Dr. Phillips

testimony about this situation further demonstrates that whether a label satisfies the claim term "wherein the recyclable shrink label is recyclable" is indefinite. Dr. Phillips testified that in those situations, a label would be considered recyclable "depending on other industry standards." *Id.* Those standards are "dictated by downstream manufacturers of what material they would be willing to use." EX1048, 22:15-23:22. These downstream manufacturers are "the people who would use the recycled – recycled PET in this case." *Id.* According to Dr. Phillips, those downstream manufacturers have different criteria for what they are willing to use and not use. EX1048, 24:17-25:15. *Id.* That is because "the level of purity required by that downstream manufacturer would be different for a downstream manufacturer using the PET for a different purpose." EX1048, 26:6-27:9. Thus, a POSITA does not know whether the APR specifications must be met, or whether some level of impurity is allowed, to determine if a label is recyclable as that term is used in the claims of the '422 patent. Indeed, according to Dr. Phillips, "that downstream manufacturer would dictate how pure the PET must be." EX1048, 22:21-23:5. This is not an objective standard, because it is dependent upon the subjective discretion of each downstream manufacturer and its unique criteria.

71. Dr. Phillips also testified that the APR tests are "useful guidance." EX1048, 115:4-116:4. However, if the APR tests are not run, other tests can be run to determine whether a label is recyclable as that term is used in the '422 patent. *Id.* For example, according to Dr. Phillips, "companies have their own internal procedures for

certain portions of the APR tests." EX1048:118:5-119:12. These tests of other companies would be evaluated by a POSITA in order to determine whether or not a label is recyclable, as that term is used in the '422 patent claims. *Id.* This is not an objective standard, because it is dependent upon the subjective discretion of each company and its unique criteria.

72. When asked "[s]o ultimately, then, who determines whether the label material is recyclable as that term is used in the '422 patent?", Dr. Phillips testified that "[w]ell, I would have to speculate here. In this case it's – the test results would be available, and then if people determine that those test results are acceptable for additional use, then they are using it." EX1048, 34:18-35:3. In like manner, Dr. Phillips testified that "I can't say hard and fast that it has to meet the APR guidelines, right? Instead, the '422 patent is saying these are methods that one would look at and tests that one would look at to see if it's recyclable." EX1048:114-18. According to Dr. Phillips, all of tests are merely considerations. *Id.* In my opinion, this is not an objective standard, because it is dependent upon the subjective analysis of test results.

73. I also note that Patent Owner claims that the Gatorade Label is not "recyclable" as that term is used in the claims of the '422 patent. However, as explained in my previous declaration, EX1013, the Gatorade Label is an SKC EcolabelTM sleeve label. EX1016. 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.

EX1018. The SKC EcolabelTM 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.* In addition, the Watson Standard Technical Data Sheet, EX1019, demonstrates that that the silver ink used in connection with the Gatorade Label passes recyclability/bleed testing set forth in the protocol established by the Association of Postconsumer of Plastic Recycler.

74. In my opinion, the fact that the SKC EcolabelTM has received APR Critical Guidance recognition, and that the silver ink used in connection with the Gatorade Label passes recyclability/bleed testing set forth in the protocol established by the Association of Postconsumer of Plastic Recycler, and yet Patent Owner claims the Gatorade Label is not "recyclable" demonstrates that the claim term "recyclable" is indefinite and not understandable by a POSITA.

75. In summary, 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. And, there is a pervasive subjective nature to each evaluation.

76. 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 substantially washed 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. Each of these evaluations is subjective.

77. 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. Each of these evaluations are subjective.

78. 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. Each of these evaluations are subjective.

79. 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.

80. 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.

81. As I explained in my previous declaration, EX1013, in connection with the above-referenced Amendment overcoming the Mitchell reference, 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.’” EX1002, at 336.

82. As noted above, according to Dr. Phillips, a POSITA would also “typically look to” APR document RES-LBL-2 to determine if a label is recyclable as that term is used in the claims of the ‘422 patent. When asked about the requirement

that “PET based films that crystallize and can be recovered with the PET stream,” Dr. Phillips confirmed that Applicant argued to the Patent Office that PET-based films that crystalized and can be recovered with the PET stream are compatible with PET recycling. EX1048, 48:18-50:10. Dr. Phillips also testified that “the ‘422 patent actually defines or lists a variety of polymers that fall within the scope for the film.” *Id.* However, when asked in more detail, including “[w]hat does a POSITA understand from this comment in the prosecution history regarding PET-based films,” Dr. Phillips conceded that “[i]t’s vague on that notion.” *Id.* Dr. Phillips could only suggest that “the film would be primarily the polymer PET,” but was unable to define the amount of PET that is required. EX1048:50:12-51:10. Dr. Phillip conceded that he “couldn’t put a number on it.” *Id.*

83. However, I understand that Patent Owner argues that a label should be PET-based to meet the requirement “wherein the recyclable shrink label is recyclable.” Because it is unclear to a POSITA when a label is PET-based, the scope of this claim term is indefinite.

84. I note that the specification of the ‘422 patent expressly states that "[a]pplication of the light blocking coating composition onto the shrink film or onto a layer on the shrink film forms a light blocking layer" and that "[t]he light blocking layer need not be constant, continuous or complete across the entirety of the shrink film." EX1001, 15:43-50. The specification further explains that, "[i]n some embodiments, the high opacity layer forms a pattern of discrete dots of light blocking

component." *Id.* The specification includes parallel statements for the other printed layers: "[t]he high opacity layer need not be constant, continuous, or complete across the entirety of the shrink film," and "[t]he indicia layer need not be constant, continuous, or complete across the entirety of the shrink film." EX1001, 13:8-12. Thus, the '422 patent expressly contemplates embodiments in which the light blocking layer is not present across the entirety of the shrink film, and a POSITA therefore would not understand claim 1 to require that every portion of the shrink label independently block at least 80% of incident light – much less that regions of the label bearing no light blocking layer be averaged against the performance of the light blocking layer itself.

85. The '422 patent also explains that "[t]he amount of light blocked by the label may be measured using a UV-Vis spectrophotometer, such as the Shimadzu model UV-2600i." EX1001, 13:45-47; 23:24-26; 24:33-36; 25:56-59. The specification does not describe testing the entirety of a shrink label, averaging measurements across the entirety of the shrink label, or otherwise requiring that the entire shrink label be evaluated as Patent Owner suggests. Nor does the specification describe placing an entire shrink sleeve label into the instrument and measuring the transmittance of the entirety of the shrink label. Rather, the specification contemplates evaluating small samples placed in the spectrophotometer to determine whether the claimed transmittance characteristics are achieved where the light blocking layer is present. Indeed, every working Example in the '422 patent proceeds

exactly this way: Examples 1-5 report percent-light-blocked values measured by UV-Vis through printed sample constructions containing the light blocking layer. EX1001, Examples 1-5. Nowhere does the ‘422 patent measure, calculate, or report an area-weighted average across an entire commercial label, and nowhere does the ‘422 patent discount measured light blocking by the fraction of label area the light blocking layer covers. Consistent with the specification of the ‘422 patent, a POSITA would understand that representative portions of the shrink label containing the light blocking layer may be evaluated to determine whether the recited light-blocking performance is achieved.

86. Patent Owner's interpretation of this claim limitation would exclude embodiments expressly disclosed in the specification of the ‘422 patent. Specifically, if claim 1 required that the entirety of the shrink label block at least 80% of incident light, as Patent Owner suggests, embodiments in which the light blocking layer is not "constant, continuous or complete across the entirety of the shrink film," including embodiments utilizing discrete dots of light blocking component, would fall outside the scope of the claims despite being expressly described in the specification. Likewise, every shrink sleeve label necessarily includes a seam region, and commercial shrink sleeve labels routinely include registration zones and other regions of reduced or no ink coverage; under Patent Owner's area-weighted reading, such labels – including the embodiments of the ‘422 patent itself – could fail the limitation based on regions that bear no light blocking layer. In my opinion, a POSITA would

not adopt Patent Owner's interpretation because it would exclude embodiments expressly disclosed in the patent, and nothing in the claim language requires such an exclusion.

87. As noted above – I am experienced with recycling guidance evaluations. I am also familiar with RES-LBL-2 and have applied it to shrink labels. RES-LBL-2 does not define "generic" or "intended" labels. However, PET-P-00 (EX1028) provides guidance. "Generic" labels are those being evaluated with containers that are not those sold in the market. EX1028, 5-6. "Intended" labels are those being evaluated with containers that will be sold in the market. Id. Thus, it is proper for Dr. Deible to analyze the Gatorade Label as a "Generic label," with 0.15 g of preshrunk label flake with 5 g of PET control flake, pursuant to the ratios identified in APR and MCC guidance documents. In addition, PET-P-00 (EX1028) instructs that either evaluation, i.e., "generic" or "intended," may be employed. *Id.* at 6. In this regard, the analysis undertaken by Dr. Deible is consistent with my experience that the "generic" testing protocol is widely applied, including when presenting data for APR recognition.

VIII. CONCLUSION

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

DATE: June 17, 2026

NAME: Mr. Craig Bushman

SIGNATURE: A. Craig Bushman