

U.S. Patent No.: 11,961,422
Paper No. ____
Petition for Post-Grant Review

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Multi-Color Corporation

Petitioner

v.

Brook & Whittle Limited

Patent Owner

U.S. Patent No. 11,961,422
Issue Date: April 16, 2024
Title: RECYCLABLE HEAT SHRINK FILM FOR
RECYCLABLE CONTAINER

Post-Grant Review No.: Unassigned

PETITION FOR POST-GRANT REVIEW

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LISTING OF EXHIBITS

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
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Exhibit 1002:	The Prosecution History of the '422 Patent
Exhibit 1003:	Petitioner's Gatorade Label
Exhibit 1004:	Petitioner's Febreze Label
Exhibit 1005:	PET-CG-02 – Critical Guidance protocol for clear PET articles with labels and closures
Exhibit 1006:	PET Standard Laboratory Processing Practices
Exhibit 1007:	PET-S-04 – PET Package Materials Balance Test
Exhibit 1008:	PET-S-01 – Labels for PET - Wash Water Test
Exhibit 1009:	Shrink Sleeve Labels on PET Containers APR Resource Document
Exhibit 1010:	Evaluation of the Near Infrared (NIR) Sorting Potential of a Whole Plastic Article (SORT-B-01)
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Exhibit 1012:	RD-TM-210-4
Exhibit 1013:	Declaration of Mr. Craig Bushman
Exhibit 1014:	Declaration of Dr. Michael Deible
Exhibit 1015:	ASTM D2732
Exhibit 1016:	SKC inc. EL62 Product Description

Exhibit 1017:	Brook+Whittle webpage print, retrieved from https://brookandwhittle.com/recyclable-light-blocking-shrink-sleeves/
Exhibit 1018:	Association of Plastic Recyclers recognition correspondence
Exhibit 1019:	Watson Standard Technical Data Sheet

I. MANDATORY NOTICES

A. Real Party-In-Interest Pursuant to 37 C.F.R. § 42.8(b)(1)

Multi-Color Corporation (“Multi-Color” or “Petitioner”) having its principal place of business at 6111 N. River Road, Rosemont, Illinois 60018, is the real party-in-interest.

B. Related Matters Pursuant to 37 C.F.R. § 42.8(b)(2)

Records of the U.S. Patent and Trademark Office (“USPTO”) indicate that U.S. Patent No. 11,961,422 (“the ’422 patent”) (Exhibit 1001) is assigned to Brook & Whittle Limited (“B&W”), issued April 16, 2024, from U.S. Patent Application No. 18/103,234 (“the ’234 application”), filed January 30, 2023, which is a Continuation of Application No. PCT/US2022/029280, filed May 13, 2022. The face of the ’422 patent indicates that May 13, 2022 is the ’422 patent’s earliest possible effective filing date. The issues of validity, enforceability, or infringement of the ’422 patent may be involved in Civil Action *Brook + Whittle LTD v. Nestle USA, Inc. et al.*, Case No. 2:2024-cv-00735 pending in the United States District Court, Eastern District of Texas, and Civil Action *American Fuji Seal, Inc. v. Brook + Whittle LTD*, Case No. 1:24-cv-01215 pending in the United States District Court, District of Delaware.

C. Lead and Back-Up Counsel Pursuant to 37 C.F.R. § 42.8(b)(3)

Petitioner designates Brett A. Schatz (Reg. No. 59,764) as Lead Counsel and Louis Sitler (Reg. No. 81,818) as Backup Counsel. Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney accompanies this Petition.

D. Service Information Pursuant to 37 C.F.R. § 42.8(b)(4)

Petitioner consents to electronic service, and Lead counsel for Petitioner may be served by electronic mail at bschatz@whe-law.com and Back-Up counsel may be served at lsitler@whe-law.com.

These attorneys can be reached by mail at Wood, Herron & Evans LLP, 600 Vine Street, Suite 2800, Cincinnati, OH 45202.

E. Payment of Fees Under 37 C.F.R. §§ 42.15(b) and 42.203

The required fees are submitted herewith. If additional fees are owed during this proceeding, the PTO is authorized to charge Deposit Account No. 23-3000.

II. GROUNDS FOR STANDING

Pursuant to 37 C.F.R. § 42.204(a), Petitioner certifies that the '422 patent is available for post grant review and that Petitioner is not barred or estopped from requesting post grant review challenging the patent claims on the grounds set forth herein. Petitioner is not the owner or assignee of the '422 patent, nor has it filed a civil action challenging the validity of the '422 patent.

III. TIMING

The '422 patent issued April 16, 2024. Pursuant to 37 C.F.R. § 42.201-202, this Petition is being filed within nine months of the issue date of the '422 patent.

IV. STATEMENT OF PRECISE RELIEF REQUESTED

A. Identification of Claims Challenged and Relief Sought

Pursuant to 37 C.F.R. § 42.204(b), Petitioner respectfully requests post-grant review of all claims, *i.e.*, claims 1-19, of the '422 patent under 35 U.S.C. §§ 321-328 and 37 C.F.R. §§ 42.200-42.224 (“the challenged claims”), and the cancellation of those claims as being unpatentable under 35 USC §§ 102 and 103, and indefinite under 35 USC § 112.

B. Statutory Grounds and Prior Art Relied Upon for Each Ground

This Petition demonstrates that it is more likely than not that the challenged claims are unpatentable under 35 U.S.C. §§ 102, 103, and 112 based upon the following prior art and arguments. 37 C.F.R. § 42.208(c). Each sale set forth in the Listing of Exhibits and/or discussed herein constitutes prior art against the '422 patent under 35 U.S.C. § 102(a)(1) and is submitted under 35 U.S.C. § 322(a)(3).

V. SPECIFIC CLAIMS AND GROUNDS FOR RELIEF

Ground 1 Claims 1-3 and 5-19 of the '422 patent are invalid under 35 U.S.C. § 102 as anticipated by Multi-Color's Gatorade Label.

Ground 2 Claim 4 of the '422 patent is invalid under 35 U.S.C. § 103 as obvious in view of Multi-Color's Gatorade Label and the knowledge of one of ordinary skill in the art, including Mitchell et al. (US 2017/0223879).

Ground 3 Claim 4 of the '422 patent is invalid under 35 U.S.C. § 103 as obvious in view of Multi-Color's Gatorade Label and Multi-Color's Febreze Label.

Ground 4 Claims 1-19 are indefinite under 35 U.S.C. § 112, for failing to identify the manner of determining the conditions specifying "wherein the recyclable shrink label is recyclable."

VI. STATEMENT OF REASONS FOR THE RELIEF REQUESTED

A. Brief Summary of Reasons for Relief Requested

The three independent claims of the '422 patent, *i.e.*, claims 1, 14, and 19, recite a heat shrink label comprising a heat shrink film of polyethylene terephthalate (PET) that is recyclable with a PET container and that includes a light blocking layer.

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,” and provides an example of that known recyclable packaging as “...PET packaging,” which “provides a cost effective recyclable option.” Ex. 1001, at 1:14-23.

The '422 patent specification then identifies, again as Background, that the market requires light protective packaging, so as to block light waves that are harmful to ingredients. *Id.* For example, harmful light waves are known to impact the shelf life and performance of those products. *Id.* This market concern is, according to the '422 patent specification, “traditionally” addressed through “shrink films printed with...light blocking layers.” *Id.*

In sum, the '422 patent specification acknowledges as Background the known nature of recyclable packaging. The '422 patent specification also acknowledges as Background the known nature of light protective packaging, and the use of shrink films to provide light blocking. Thus, it was known to use heat shrink labels comprising PET that is recyclable, and to incorporate a light blocking layer.

Against this acknowledged Background knowledge and market forces aspiring to utilize recyclable packaging, including shrink sleeve labels with a light blocking layer, it should come as no surprise that Petitioner's own Gatorade Label (shown below) was manufactured and sold years before the earliest priority date of the '422 patent.



The Gatorade Label is a shrink sleeve label that is recyclable with a PET container. Ex. 1013, at ¶¶53-60. It is a PET film and a washable ink system designed to meet the requirements of recyclability per the Association of Plastic Recyclers (“APR”). *Id.* at ¶¶53, 56-57. It includes light blocking features, including ink layers of metal particulates, and including aluminum and titanium dioxide for the silver and white ink. *Id.* at ¶53. The Gatorade Label was produced and sold publicly in 2020, in substantial quantities. *Id.* at ¶54.

For similar reasons, it should come as no surprise that this acknowledged Background knowledge and market forces have led to other shrink

sleeve labels that include light blocking features. For example, Petitioner's Febreze Label (shown below) is a shrink sleeve label. Ex. 1013, at ¶¶61-66.



Like the Gatorade Label, the Febreze Label shrink sleeve label includes light blocking features, including ink layers of metal particulates. *Id.* at ¶61. The Febreze Label was produced and sold publicly in 2018, in substantial quantities. *Id.* at ¶62.

As explained below, the Gatorade Label anticipates and renders obvious all claims of the '422 patent. In addition, the combination of the Gatorade Label and the Febreze Label renders claim 4 of the '422 patent obvious. The

public sales of the Gatorade Label or the Febreze Label were not presented to the Examiner during prosecution of the application that issued as the '422 patent.

As explained in greater detail below, had the Examiner been made aware of Petitioner's Gatorade and Febreze Labels, the '422 patent would not have issued. Thus, Petitioner respectfully submits that the Patent & Trial Appeal Board institute Post Grant Review of claims 1-19 of the '422 patent.

B. The '422 Patent

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 as follows:

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,

wherein the light blocking component comprises a particulate having a particle size of 0.1 μm to 100 μm , wherein the particulate comprises metal, metal oxide, a reflective pigment, carbon black, mica, or a combination thereof, and

wherein the recyclable shrink label is recyclable with a PET container.

Ex. 1001, at 28:21-37

The '422 patent describes different embodiments of the recyclable shrink label, including with respect to the layers of the label.

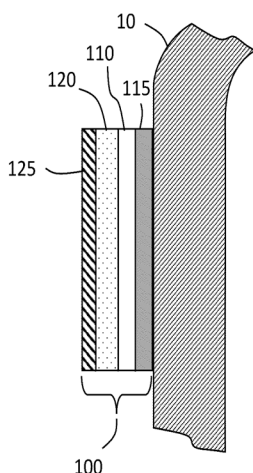


FIG. 1A

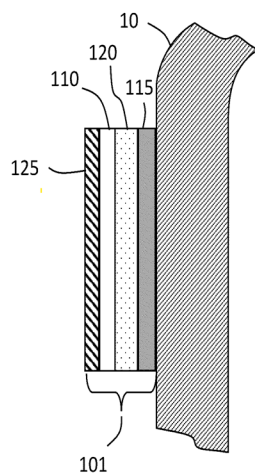


FIG. 1B

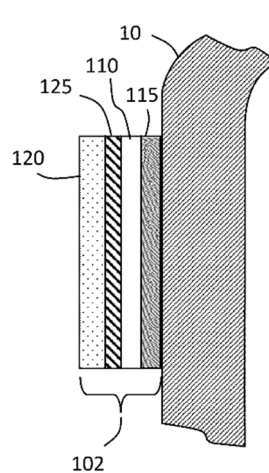


FIG. 1C

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.*

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.*

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.*

C. Prosecution History of the '422 Patent

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. Ex. 1001, at 1; Ex. 1003; Ex. 1013, at ¶¶54-55.

Petitioner's Gatorade Label is a recyclable shrink label, and includes a light blocking layer. Ex. 1013, at ¶53. And, as explained below, Petitioner's Gatorade Label meets all of the claim limitations of the claims of the '422 patent.

As another example, Petitioner's Febreze Label (Ex. 1004) was offered for sale and sold before the priority date. Ex. 1004; Ex. 1013, at ¶¶62-63.

Petitioner's Febreze Label was not presented for consideration by the Patent Examiner. Ex. 1001, at 1.

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. Ex. 1013, at ¶36. 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. *Id.* 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.

For similar reasons, 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. Ex. 1013, at ¶36. Shrink films printed with light blocking layers, such as Petitioner's Febreze Label, have been traditionally used. Ex. 1001, at 1:14-23.

D. One of Ordinary Skill in the Art at the Time of the Alleged Invention

At the effective filing date of the '422 patent, one of ordinary skill in the art would possess 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. Exhibit 1014, at ¶24.

E. Claim Interpretation of the '422 Patent

In accordance with USPTO procedures, the terms of claims 1-19 of the '422 patent are to be given their broadest reasonable interpretation in light of the specification, as understood by one of ordinary skill in the art. 37 C.F.R. § 42.200(b); *see also In re Cuozzo Speed Techs., LLC*, 2014-130, 778 F.3d 1271, 1274 (Fed. Cir. Feb. 4, 2015) (holding the PTO properly applied the broadest reasonable interpretation in *Inter Partes* Review proceedings).

All claim terms should be construed according to the *Phillips* standard. See 37 C.F.R. § 42.100. Given the noticeable similarity between the prior art reference and combinations in Grounds 1-3 (below) and the embodiments

disclosed in the '422 patent, no formal construction is necessary in this proceeding.

Wellman, Inc. v. Eastman Chem. Co., 642 F.3d 1355, 1361 (Fed. Cir. 2011).¹

VII. THE CHALLENGED CLAIMS ARE UNPATENTABLE

Petitioner requests PGR of the Challenged Claims on the grounds listed below. The Declaration of Dr. Michael Deible (Ex. 1014) and the Declaration of Mr. Craig Bushman (Ex. 1013) support this Petition.

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

A. References Appearing in the Grounds

Each reference relied on in the above grounds pre-dates the Critical Date of the '422 patent and qualifies as prior art based on its filing date and/or publication date according to the below table. The '422 patent was filed on January 30, 2023,

¹ Petitioner is not conceding that each claim satisfies all statutory requirements, nor waiving any arguments concerning claim scope or grounds that can only be raised in district court.

claiming priority to May 13, 2022 (“Critical Date”). Ex. 1001, 1. Petitioner does not concede the claimed priority date is correct, but each applied reference pre-dates the Critical Date

Reference	Public Date	Prior Art Under
Gatorade Label (Ex. 1003))	At least in 2020 (Ex. 1013, at ¶¶54-55)	§102(a)(1)
Febreze Label (Ex. 1004)	At least in 2018 (Ex. 1013, at ¶¶62-63)	§102(a)(1)
Mitchell et al. (US 2017/0223879)	Published August 3, 2017	§102(a)(2)

B. GROUND 1: THE GATORADE LABEL ANTICIPATES CLAIMS 1-3 AND 5-19

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

The Gatorade Label is a shrink sleeve label that is recyclable with a PET container. Ex. 1013, at ¶¶53-60. It is a PET film and a washable ink system designed to meet the requirements of recyclability per the APR. *Id.* at ¶¶53, 56-57. It includes light blocking features (including ink layers of metal particulates, and including aluminum and titanium dioxide for the silver and white ink). *Id.*

The Gatorade Label was produced and sold publicly in 2020, in substantial quantities. Ex. 1013, at ¶¶54-55.

2. Element-by-Element Analysis

[Claim 1] A recyclable shrink label comprising: a heat shrink film comprising polyethylene terephthalate (PET)....:

The Gatorade Label is a heat shrink label. Ex. 1013, at ¶¶53-60; Ex. 1014, at ¶¶57, 83. To confirm that each sample is composed of PET, clear portions of samples were sectioned and analyzed via Fourier Transform Infrared Spectroscopy (FTIR) using a Brucker Tensor 37 with a Hyperion microscope attachment. Ex. 1014, at ¶60.

As can be seen in Figures 2 and 3, reproduced below, each film is consistent with an internal PET standard measured on the same instrument as well as a PET standard from the Wiley KnowItAll Library. *Id.* at ¶61. As can be seen, all samples are consistent with PET.

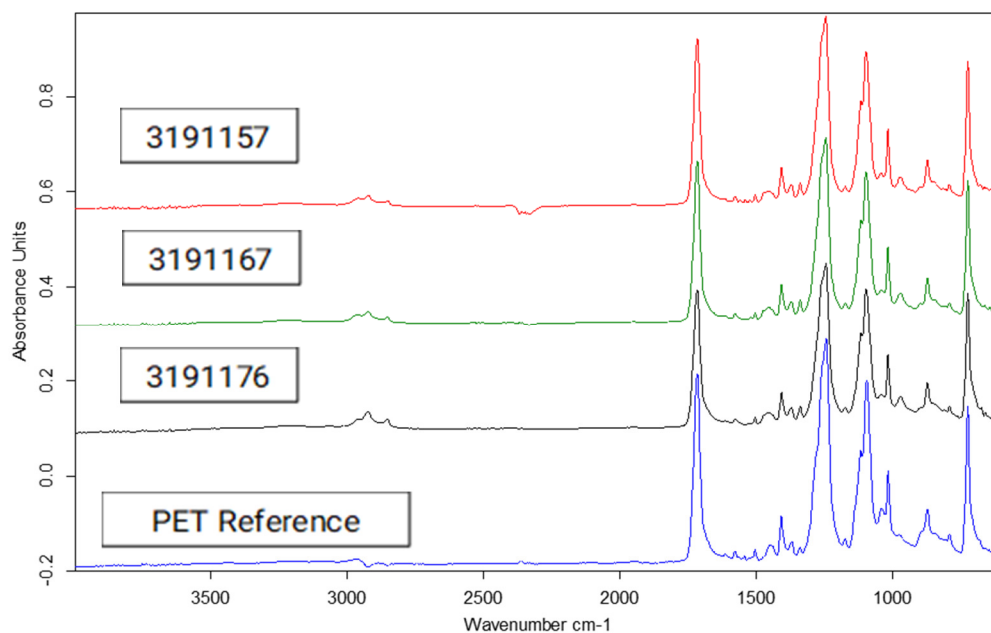


Figure 2. FTIR analysis of 3191157 (red spectra, top), 3191167 (green spectra), 3191176 (black spectra), and an internal PET standard (blue spectra, bottom).

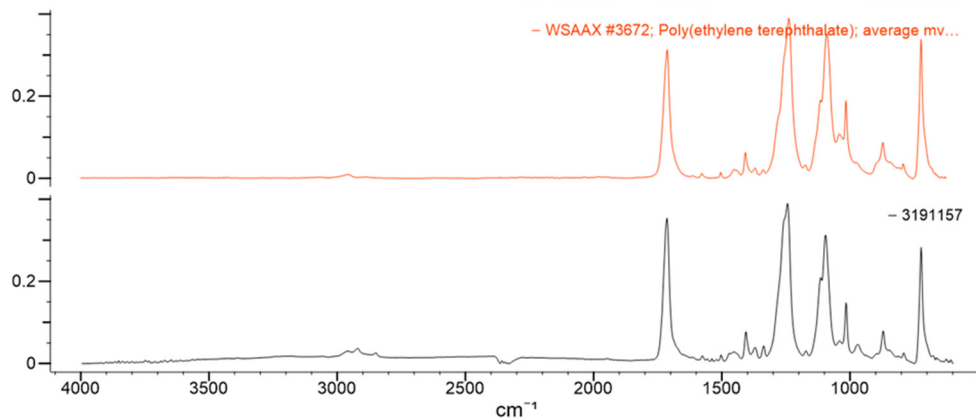


Figure 3. Comparison of representative FTIR analysis of 3191157 (black spectra) to a reference spectra matched to the Wiley KnowItAll library.

Ex. 1014, at ¶61.

[Claim 1 (cont.)] ...and 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 ;...

To show layer thickness, cross sections from samples were prepared from each label:

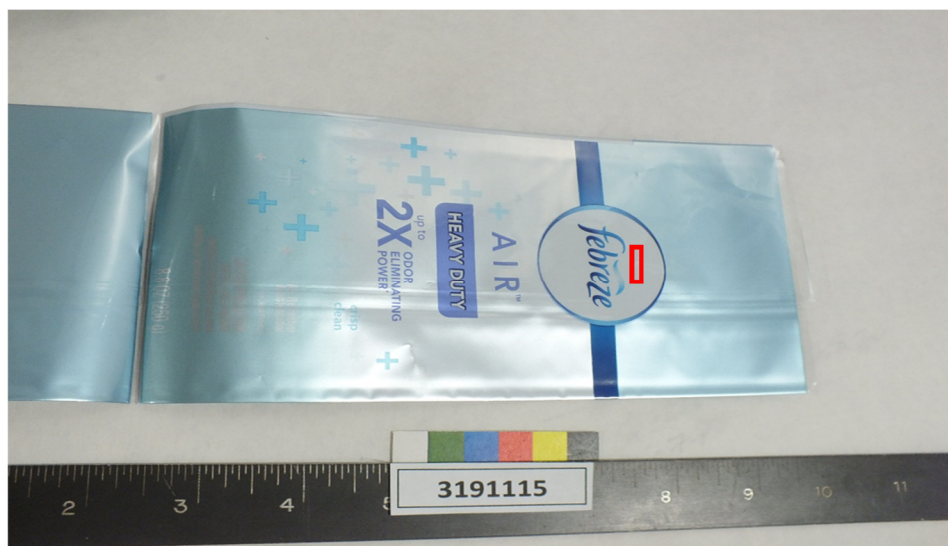


Figure 4. Location of each cross section taken from 3191115, 3191157, 3191167, and 3191176.



Figure 4 (cont). Location of each cross section taken from 3191115, 3191157, 3191167, and 3191176.

Ex. 1014, at ¶¶62-63.

As can be seen, all samples have a heat shrink PET film thickness of approximately 40-60 microns.

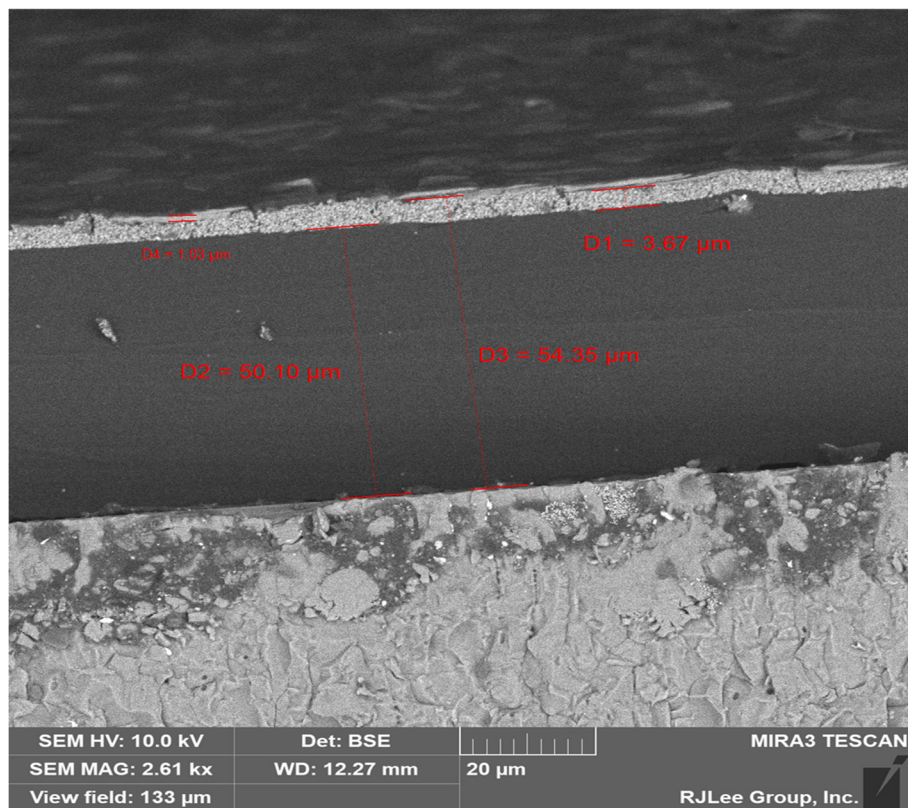


Figure 5a. SEM image of 3191115 cross section.

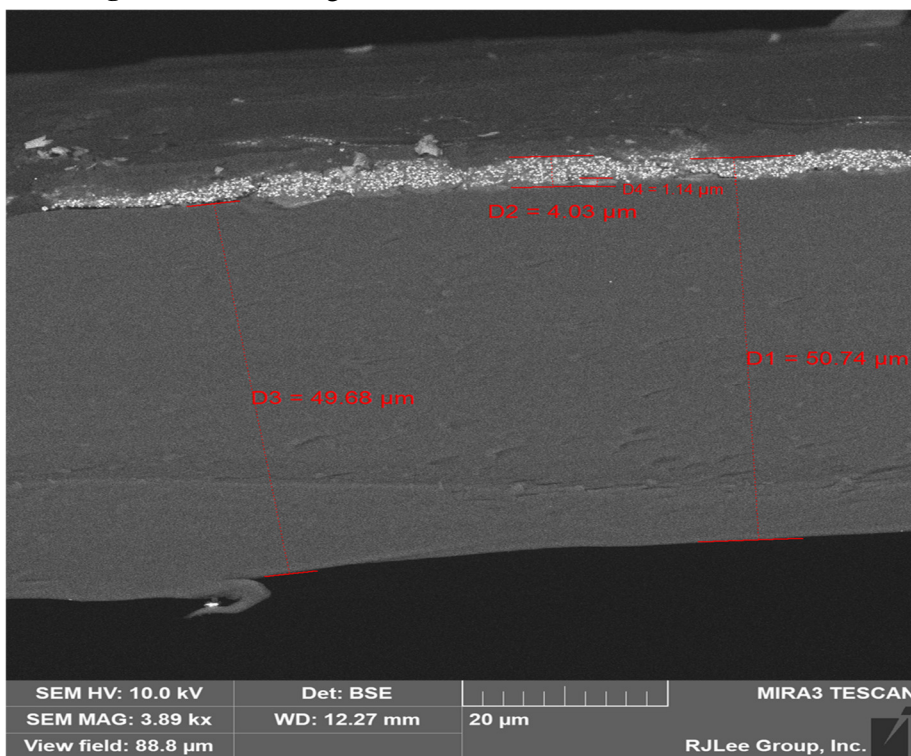


Figure 5b. SEM image of 3191157 cross section.

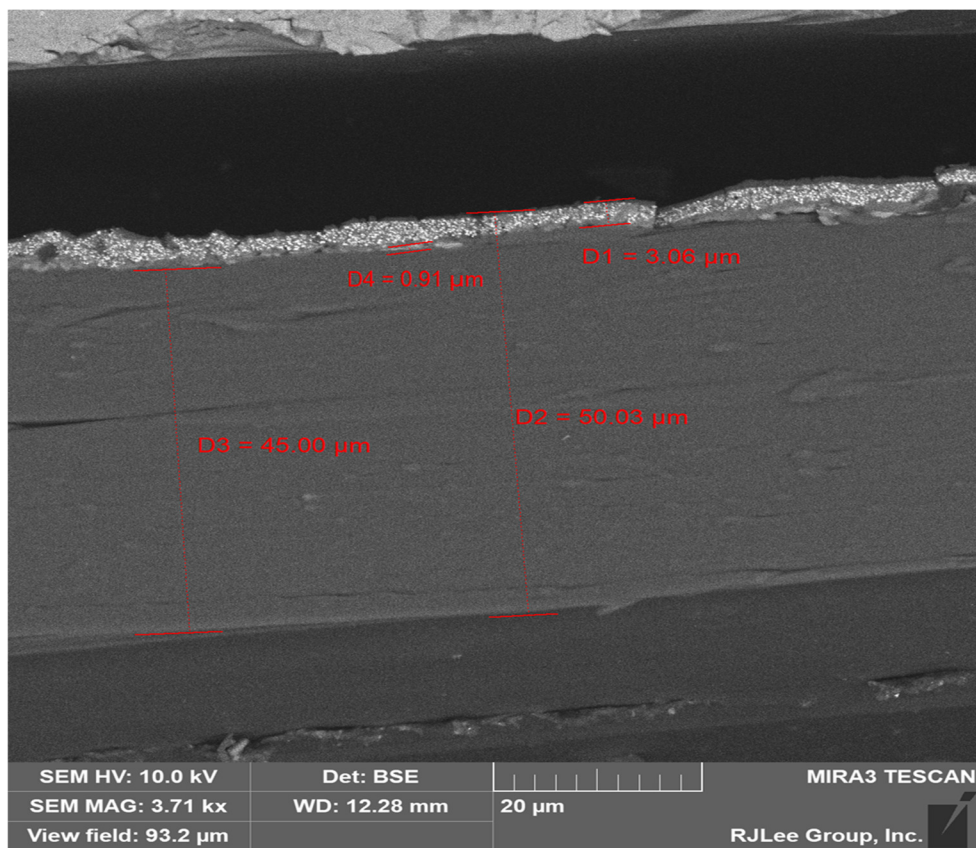


Figure 5c. SEM image of 3191167 cross section.

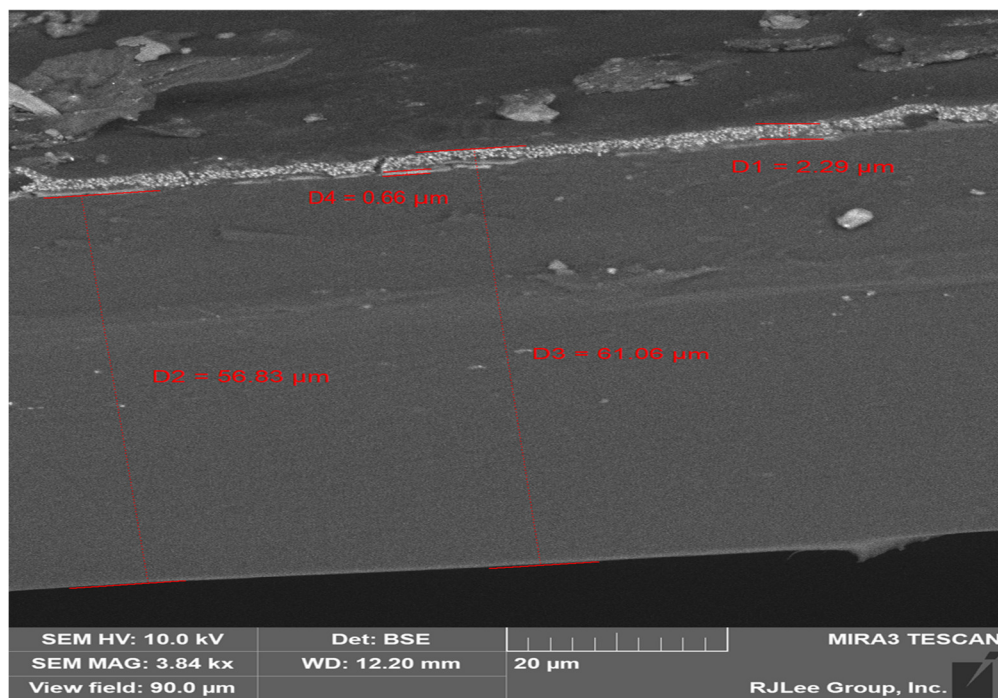


Figure 5d. SEM image of 3191176 cross section.

Ex. 1014, at ¶¶64; Images 5a-5d.

[Claim 1 (cont.)] ...and a light blocking layer disposed adjacent the first surface and comprising a light blocking component...

65. The light blocking component was determined using SEM-EDS analysis. Ex. 1014, at ¶¶65-66.

As can be seen below and in the Declaration of Dr. Deible, Figures 6a-6d, the light blocking component of each layer is consistent with aluminum.

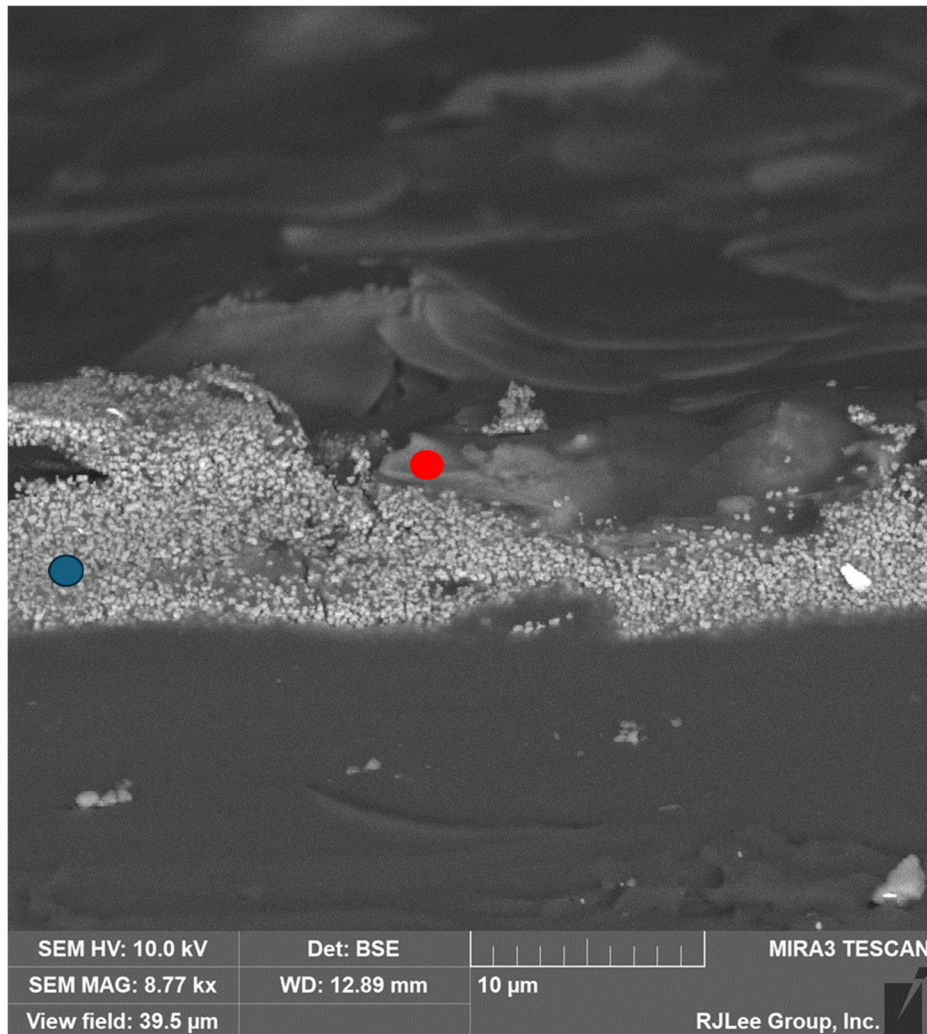


Figure 6a. SEM image of 3191115 cross section. Image is oriented such that the PET film is on the bottom of the image, and the surface at the top of the image is the surface that would contact the substrate.

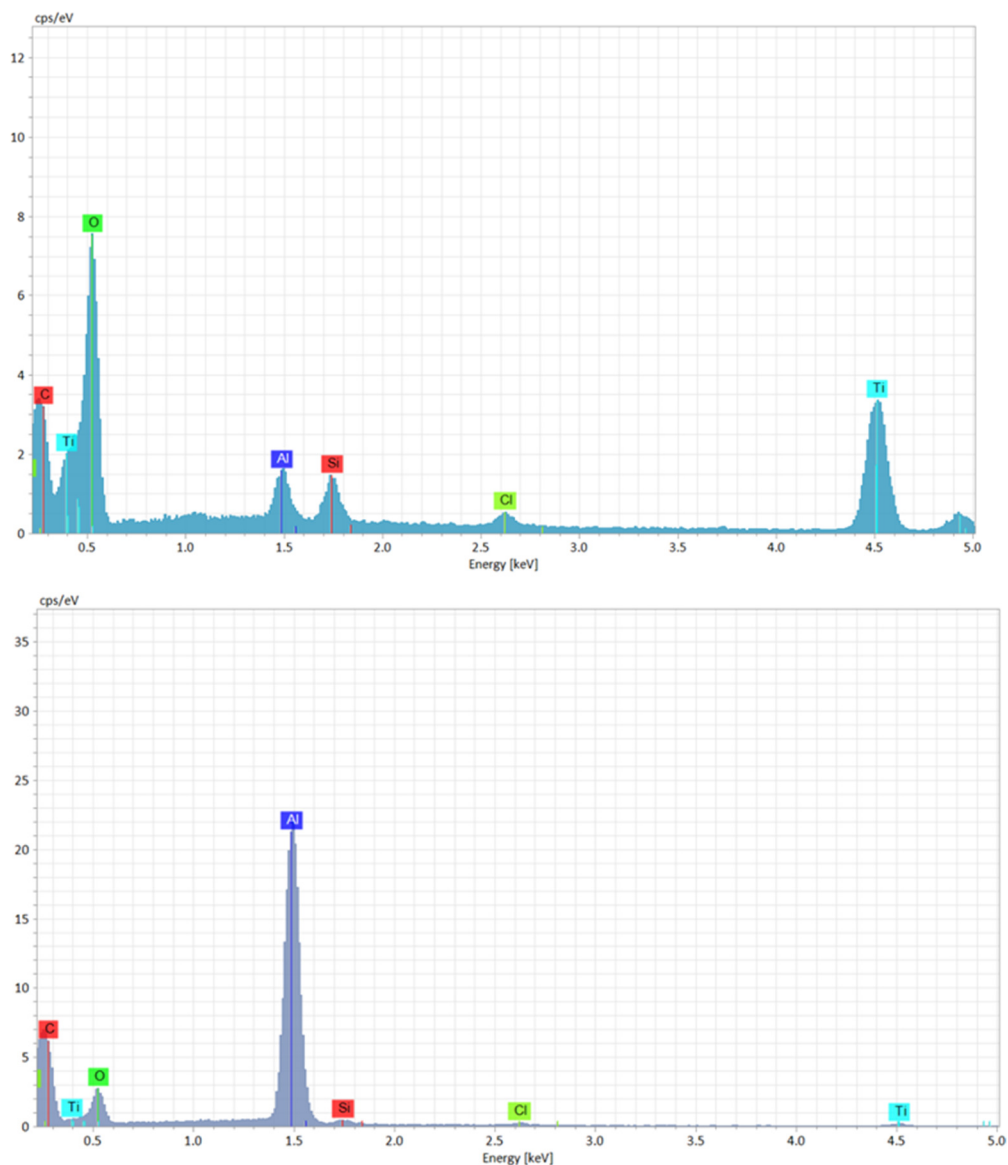


Figure 6a (cont). Top: EDS analysis of 3191115 collected from the area of the green circle, showing titanium dioxide high opacity layer. Bottom: EDS analysis of 3191115 collected from the area of the red circle, showing aluminum light blocking layer.

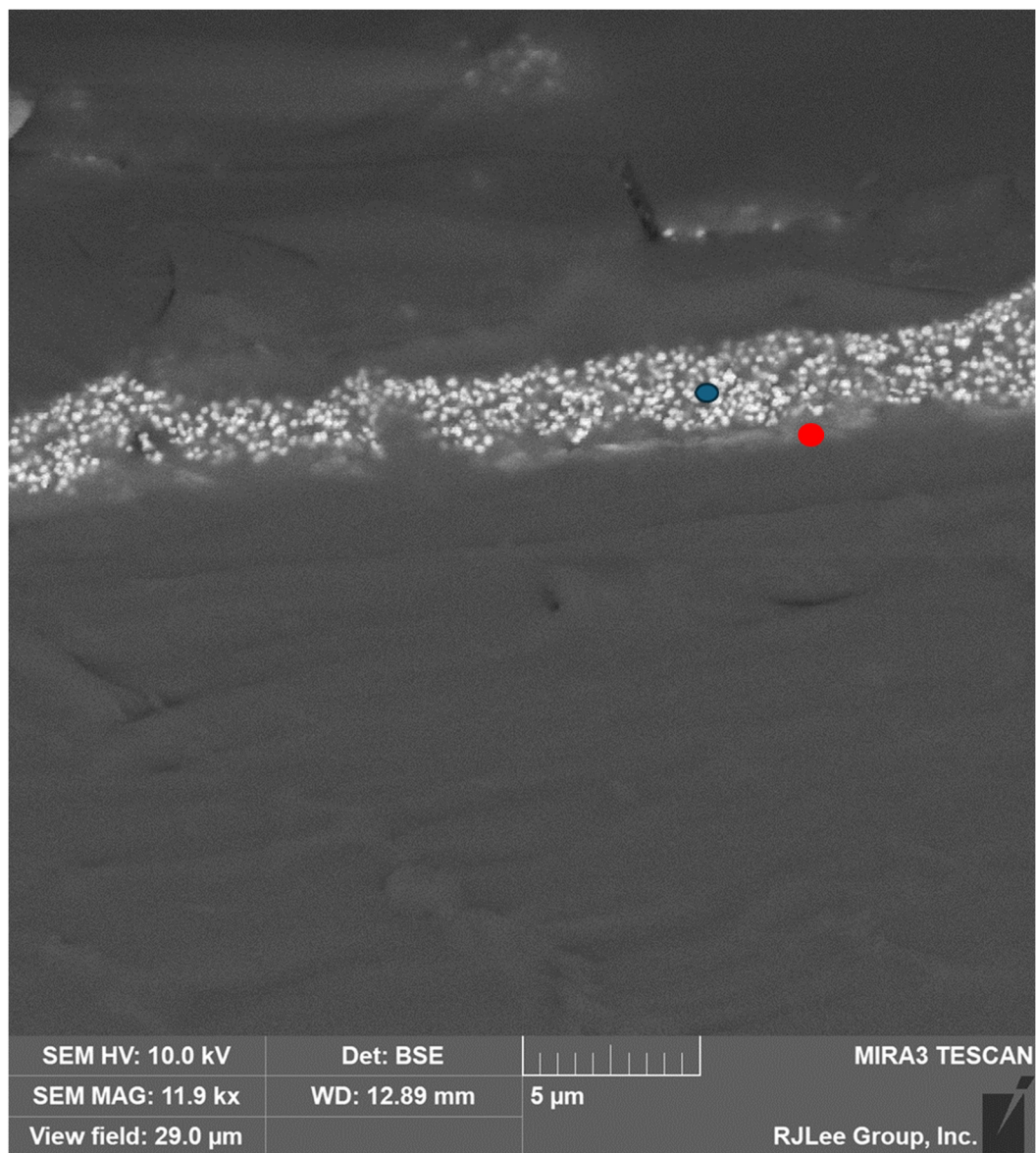


Figure 6b. SEM image of 3191157 cross section. Image is oriented such that the PET film is on the bottom of the image, and the surface at the top of the image is the surface that would contact the substrate.

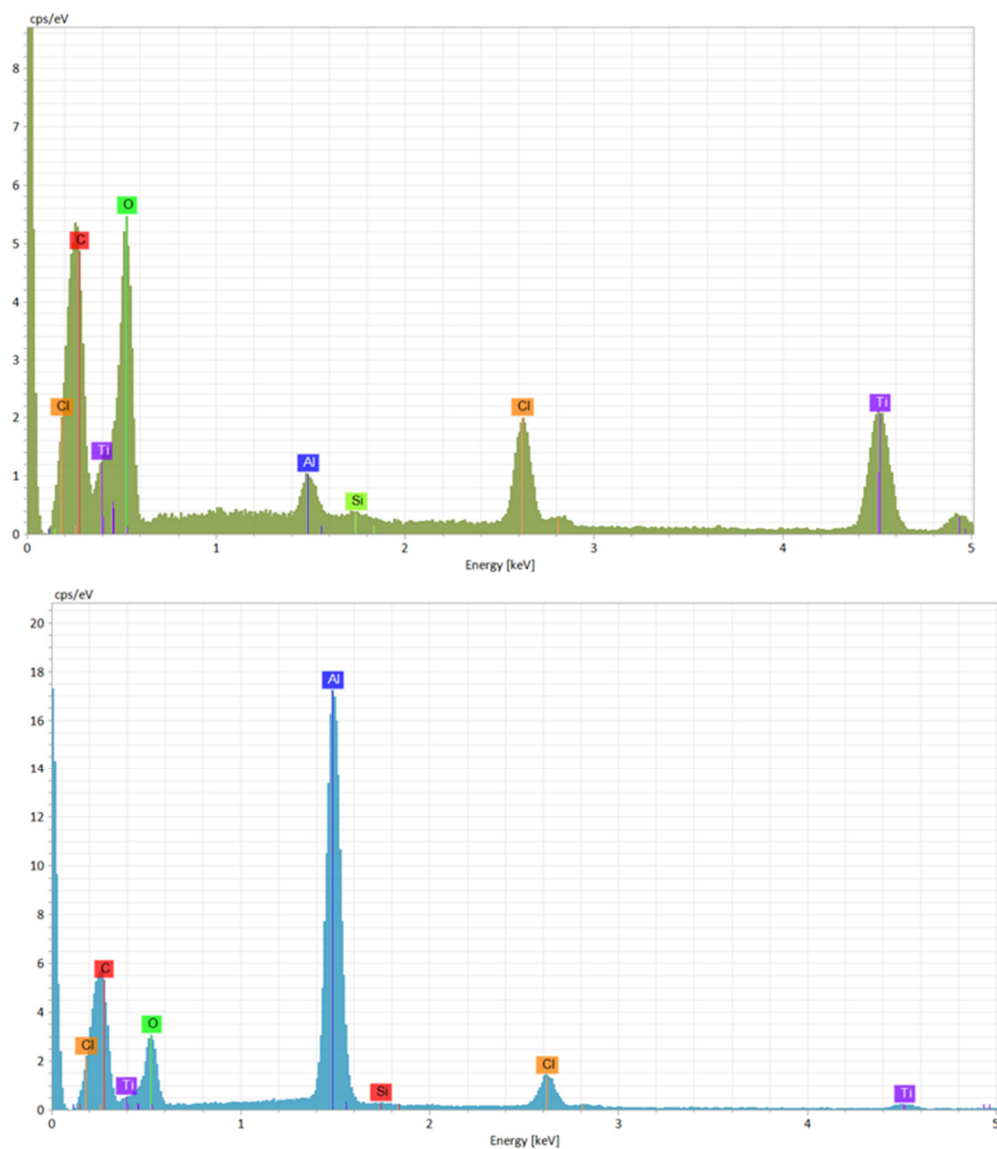


Figure 6b (cont). Top: EDS analysis of 3191157 collected from the area of the green circle, showing titanium dioxide high opacity layer. Bottom: EDS analysis of 3191115 collected from the area of the red circle, showing aluminum light blocking layer.

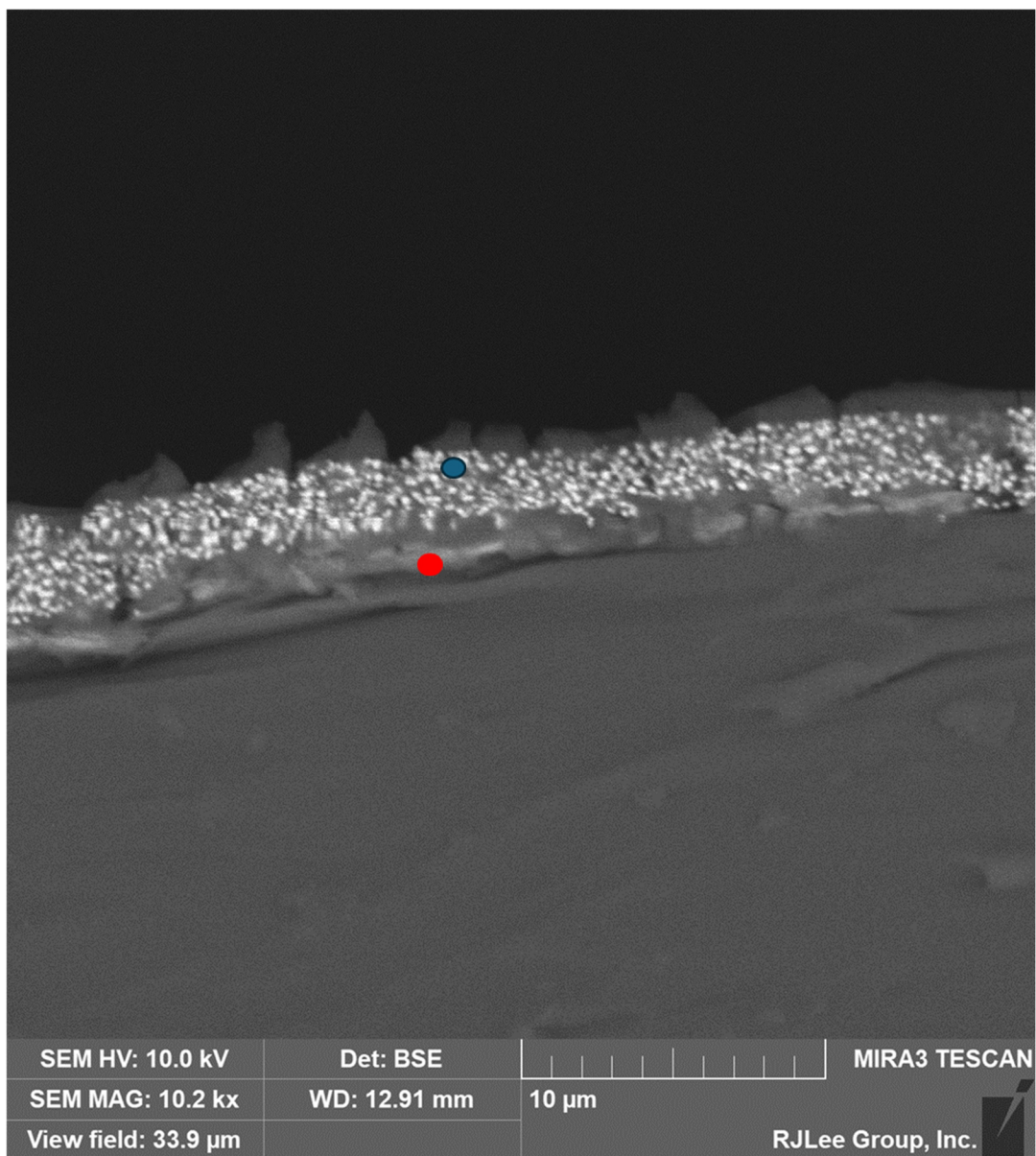


Figure 6c. SEM image of 3191167 cross section. Image is oriented such that the PET film is on the bottom of the image, and the surface at the top of the image is the surface that would contact the substrate.

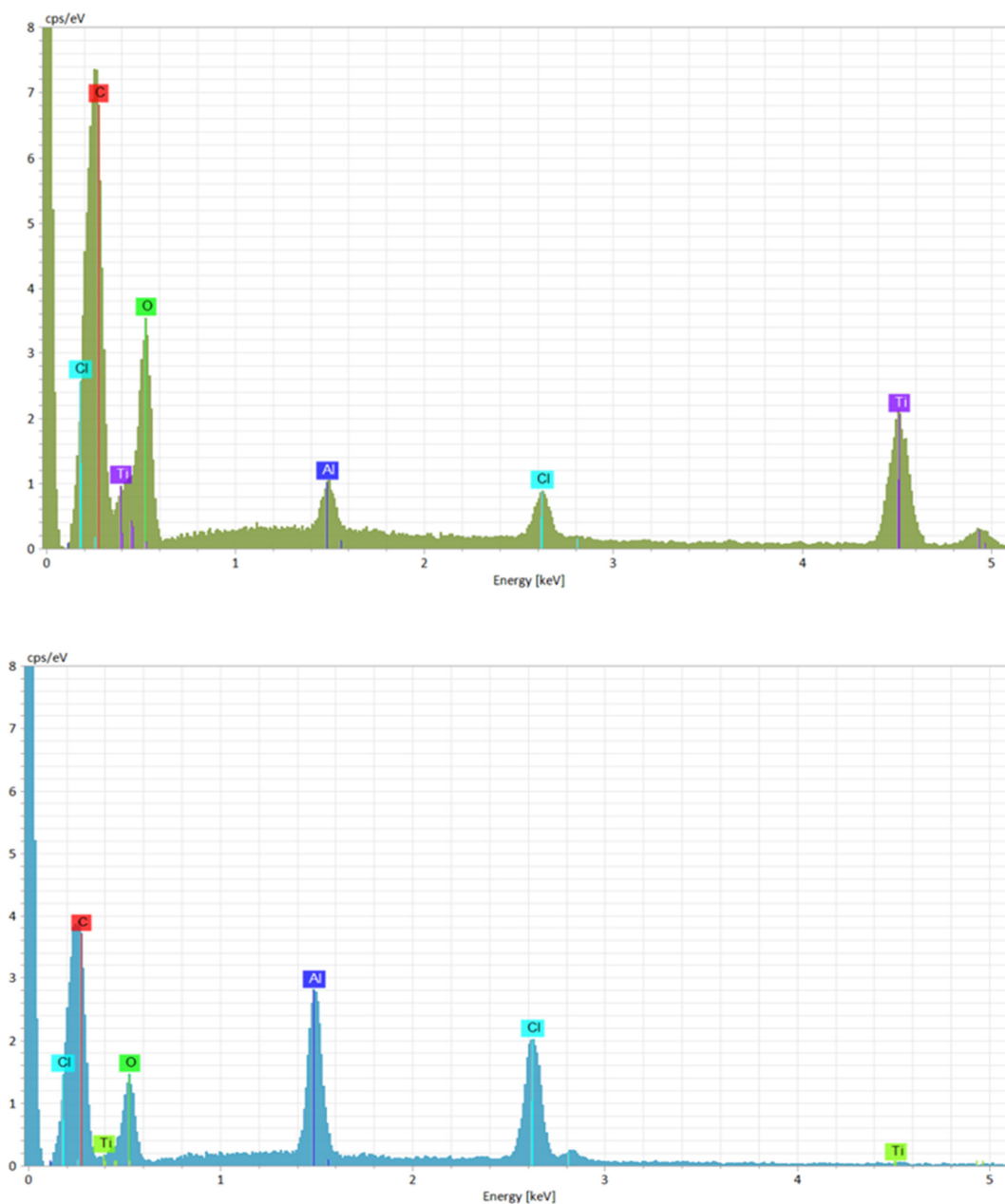


Figure 6c (cont). Top: EDS analysis of 3191167 collected from the area of the green circle, showing titanium dioxide high opacity layer. Bottom: EDS analysis of 3191115 collected from the area of the red circle, showing aluminum light blocking layer.

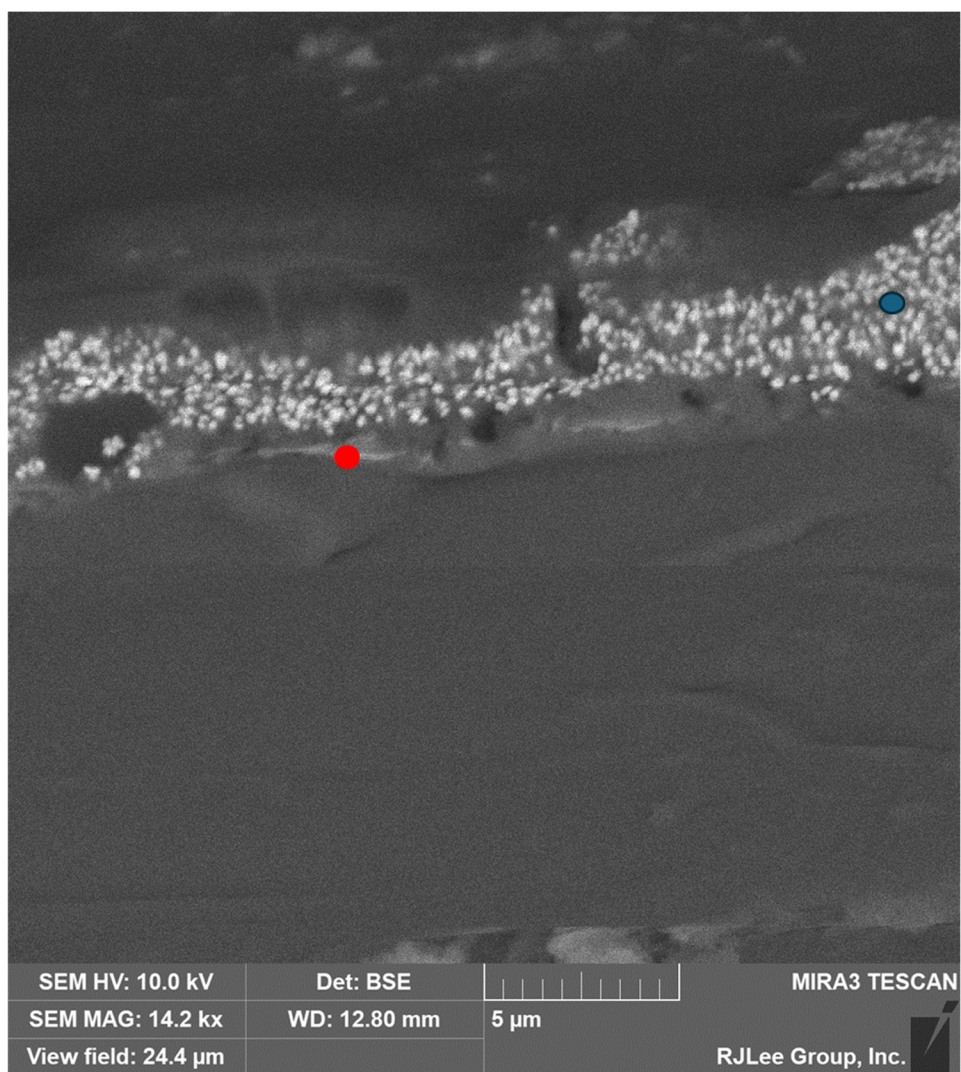


Figure 6d. SEM image of 3191176 cross section. Image is oriented such that the PET film is on the bottom of the image, and the surface at the top of the image is the surface that would contact the substrate.

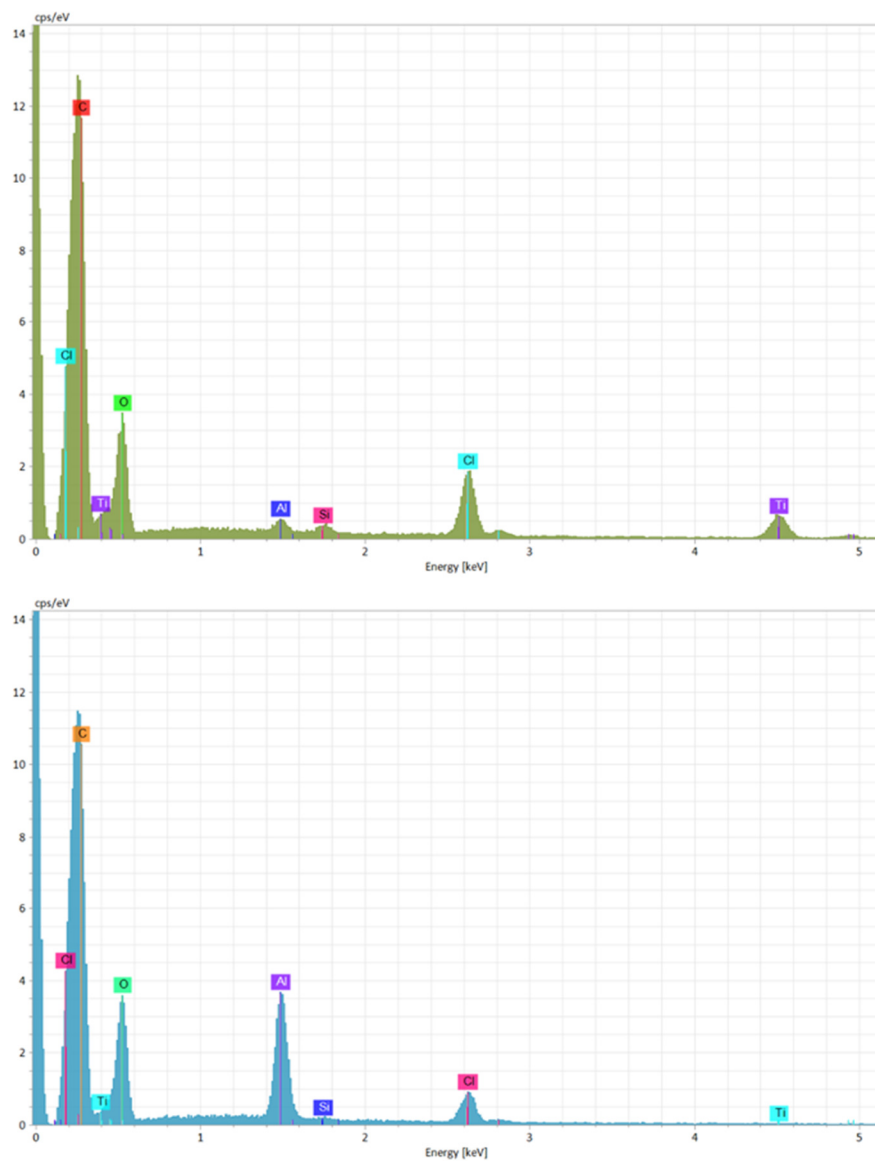


Figure 6d (cont). Top: EDS analysis of 3191176 collected from the area of the green circle, showing titanium dioxide high opacity layer. Bottom: EDS analysis of 3191115 collected from the area of the red circle, showing aluminum light blocking layer.

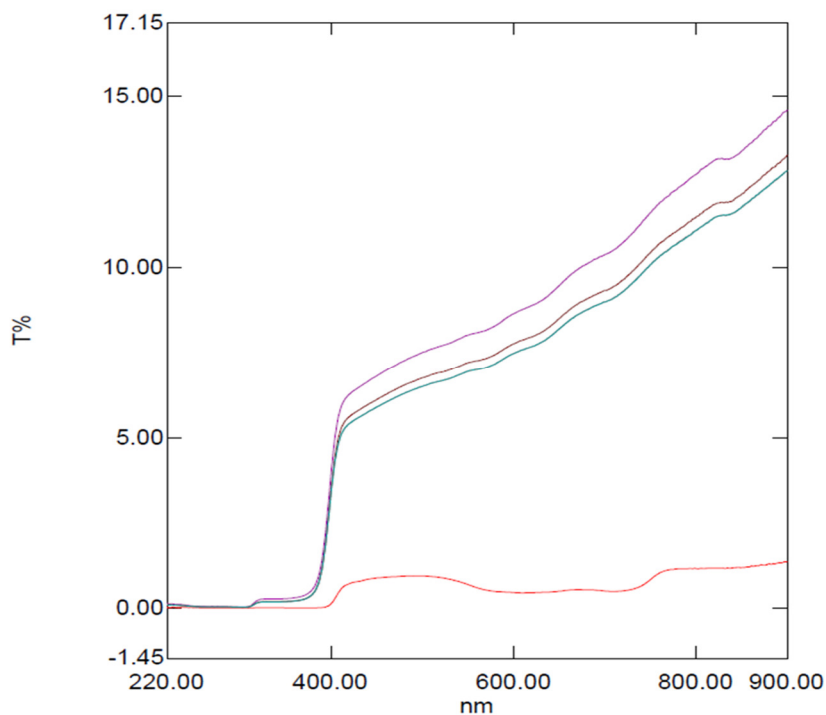


Figure 7. Transmission measurements of 3191115 (red spectra), 3191158 (purple spectra), 3191168 (maroon spectra), and 3191171 (green spectra).

[Claim 1 (cont.)] ...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...,

To measure light blocking of the light blocking layer, samples were analyzed using a Shimadzu 2600i with an integrating sphere. This is the same instrument used in the description of light blocking in column 13 line 47 of the ‘422 patent. Ex. 1014, at ¶¶67-68; Ex. 1001, at 13:47.

Percent Transmittance results can be seen in Figure 7 (see above). All samples block at least 80% of light in the 220 to 900 nm range. Ex. 1014, at ¶69.

[Claim 1 (cont.)] wherein the light blocking component comprises a particulate having a particle size of 0.1 μm to 100 μm , wherein the particulate comprises metal, metal oxide, a reflective pigment, carbon black, mica, or a combination thereof...

The primary light blocking component of the light blocking layer is aluminum, as seen in Figure 6. As can be seen in Figure 5, the aluminum flakes have a thickness larger than 0.1 μm and less than 100 μm . Ex. 1014, at ¶70; Images 5 and 6.

[Claim 1 (cont.)] ...and where in the recyclable shrink label is recyclable with a PET container.

To determine if a label is recyclable with a PET container, laboratory tests were conducted in reference to the disclosures in the '422 patent (Ex. 1001, at 6:61-64; 11:29-53) and RD-TM-210-4 (Ex. 1012). Ex. 1014, at ¶¶71-76. For example, the '422 patent states in column 6 line 61 that a label is "...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.

As can be seen in Figures 11 and 12 of the Declaration of Michael Deible, the ink is being removed during the caustic wash cycle. Ex. 1014, at ¶77; Images 11 and 12. Further, the ink is readily separated from the flake mixture during the

sieving process and is not staining or dying the PET flakes. *Id.* All flakes sink in the mixture as is demonstrated in Figure 16. Ex. 1014, at ¶77; Image 16.

In connection with this analysis, Petitioner notes that the Gatorade Label is an SKC Ecolabel™ sleeve label. Ex. 1013, at ¶47; 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. 1013, at ¶47; 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.*

In connection with this analysis, Petitioner also notes that the silver ink used in connection with the Gatorade Label is supplied by Watson Standard. Watson Standard confirms that the silver ink passes recyclability/bleed testing set forth in the protocol established by the Association of Postconsumer of Plastic Recyclers. Ex. 1013, at ¶48; Ex. 1019.

[Claim 2] The recyclable shrink label of claim 1 further comprising an indicia layer.

Each label contains an indicia layer as can be seen in Figure 1. Ex. 1014, at ¶80; Image 1.

[Claim 3] The recyclable shrink label of claim 1 further comprising a high opacity layer comprising a white pigment.

The labels all contain a high opacity layer comprised of rutile titanium dioxide. Ex. 1014, at ¶81. The composition of the high opacity layer was analyzed via SEM-EDS and Raman spectroscopy. *Id.* Raman analysis is conducted with a Horiba LabRAM HR Raman microscope with a 637 nm laser and 600 grooves per millimeter grating. As can be seen in Figures 6 and 13, the high opacity component of each layer is consistent with rutile titanium dioxide. Ex. 1014, at ¶81; Images 6 and 13.

[Claim 5] The heat shrink film is comprised of polyethylene terephthalate (PET) as can be seen in Figures 2 and 3.

The heat shrink film is comprised of polyethylene terephthalate (PET) as can be seen in Figures 2 and 3. Ex. 1014, at ¶82; Images 2 and 3.

[Claim 6] The recyclable shrink label according to claim 1, wherein the recyclable shrink label is in a form of a sleeve or tube.

All samples received are in the form of a sleeve or tube, with one seam, as is demonstrated in Figure 16 (below).



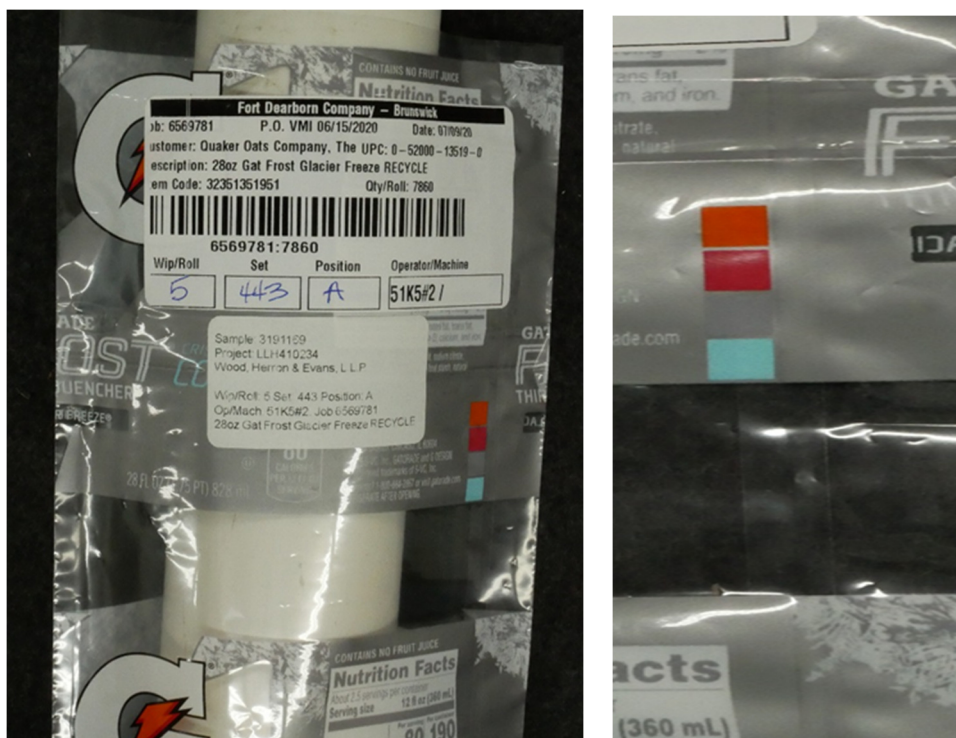


Figure 16. Representative As Received photographs of samples 3191115 and 3191169 representing that all received samples are a tube or sleeve. Close up images show the seam.

Ex. 1014, at ¶¶83; Image 16; Ex. 1013, at ¶¶58, 64.

[Claim 7] The recyclable shrink label according to claim 6, wherein the heat shrink film comprises a seam.

All samples received are in the form of a sleeve or tube, with a seam, as is demonstrated in Figure 16 (see above). Ex. 1014, at ¶¶84; Image 16; Ex. 1013, at ¶¶58, 64.

[Claim 8] Claim 8: The recyclable shrink label according to claim 1, wherein when heated to 100° C, the heat shrink film contracts or shrinks by about 1% to about 90%.

Samples were selected for heat shrink testing in general accordance with ASTM D2732. Ex. 1014, at ¶¶85-86; Ex. 1015. As can be seen in Figure 17 (below), approximately 100 mm by 100 mm square sections of each sample prepared. *Id.*



Figure 17. Photographs of cut sections of 3191115, 3191158, 3191168, and 3191171 before shrink testing.

As can be seen in Figure 19 (below), each sample shrunk perpendicular to the seam by approximately 70-80% when heated to 100° C. Ex. 1014, at ¶¶88.

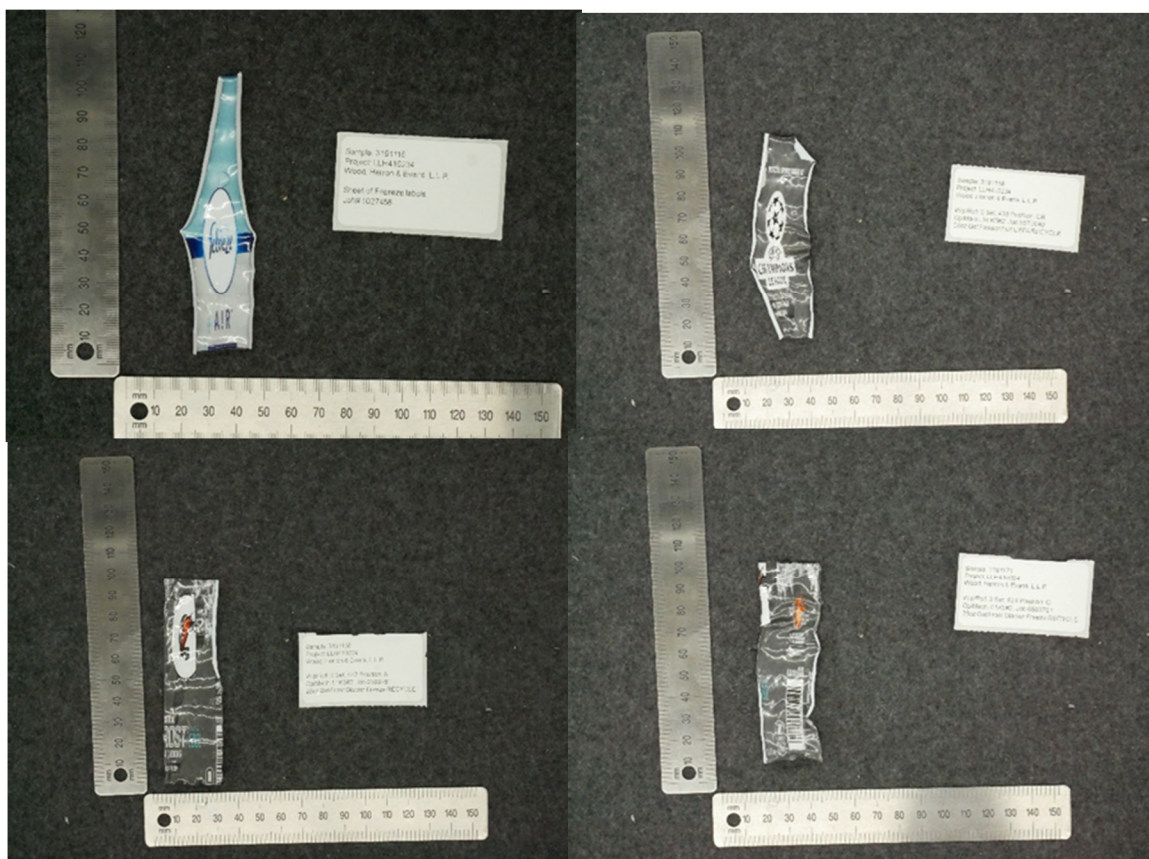


Figure 19. Photographs of cut sections of 3191115, 3191158, 3191168, and 3191171 after shrink testing.

[Claim 9] The recyclable shrink label according to claim 1, wherein when heated to 100° C., the entire recyclable shrink label contracts or shrinks by about 1% to about 90%.

As can be seen in Figure 18, the label shrinks upon submersion in the boiling water. Ex. 1014, at ¶¶89, Image 18. As can be seen in Figure 19 (above), the entire label shrinks when subjected to 100 °C water for 10 seconds. *Id.*

[Claim 10] The recyclable shrink label according to claim 3, wherein the high opacity layer comprises a pigment selected from titanium dioxide (TiO₂), precipitated calcium carbonate (PCC), aluminum silicate, aluminum oxide (alumina), mica-based pigments coated with thin layer(s) of white pigment, or a combination thereof.

The labels all have a high opacity layer that contains titanium dioxide, as can be seen in Figures 6 and 13. Ex. 1014, at ¶¶90, Images 6 and 13.

[Claim 11] The recyclable shrink label according to claim 1, wherein the light blocking component comprises zinc, aluminum, copper, silver, or an alloy thereof, titanium dioxide, carbon black, mica, a reflective pigment, a polymer capable of blocking light, a mineral capable of blocking light, or a combination thereof.

The labels all have a light blocking component that contains aluminum, as can be seen in Figure 6. Ex. 1014, at ¶¶91, Image 6.

[Claim 12] The recyclable shrink label according to claim 1, wherein the light blocking layer is present in an amount of 0.5 ppr to 25 ppr relative to the recyclable shrink label.

As defined in the '422 patent, "ppr" refers to pounds per ream. Ex. 1001, at 5:44; Ex. 1014, at ¶¶92. One ream is understood to mean 3000 square feet of substrate. *Id.*

Petitioner's expert, Dr. Deible, undertook the following calculations based on the light blocking layer covering the entire ream. Ex. 1014, at ¶¶93-96. In addition, to calculate the ppr of the light blocking layer, the weight percent of aluminum in a label sample was measured via Inductively Coupled Plasma (ICP). *Id.*

For every sample, the light blocking layer is present in an amount of 0.5 ppr to 25 ppr relative to the recyclable shrink label. Ex. 1014, at ¶¶93-96.

[Claim 13] The recyclable shrink label according to claim 1, wherein the light blocking layer comprises from 0.1 ppr to 10 ppr of the light blocking component.

The light blocking layer comprises the entire light blocking component, and the values calculated fall into this range. Ex. 1014, at ¶97.

[Claim 14] An article comprising: a container comprising polyethylene terephthalate (PET) and defining an external surface; and the recyclable shrink label of claim 1 disposed on the container.

The bottles to which the tested labels are affixed are recyclable PET bottles. Ex. 1013, at ¶49; Ex. 1014, at ¶98. The internal surface of the sleeve or tube is the surface that would face the container, as is therefore disposed thereon. *Id.*

[Claim 15] The article according to claim 14, wherein the first surface of the heat shrink film faces the external surface of the container.

The light blocking layer faces the external surface of the container. Ex. 1014, at ¶99. As can be seen in Figures 5 and 6, samples 3191157, 3191167, and 3191176 have the high opacity label facing the external surface of the container, followed by the light blocking layer, followed by the PET film. *Id.*

[Claim 16] The recyclable shrink label according to claim 2, wherein the indicia layer is disposed on the first surface.

The indicia layer is disposed on the first surface, as the indicia layer is located between the PET film and the high opacity layer. Ex. 1014, at ¶100.

[Claim 17] The recyclable shrink label according to claim 8, wherein the heat shrink film contracts or shrinks by about 1% to 90% in a transverse direction.

As can be seen in Figure 19 (below), each sample shrunk in the transverse direction by approximately 70-80% when heated to 100° C. Ex. 1014, at ¶101; Image 19.

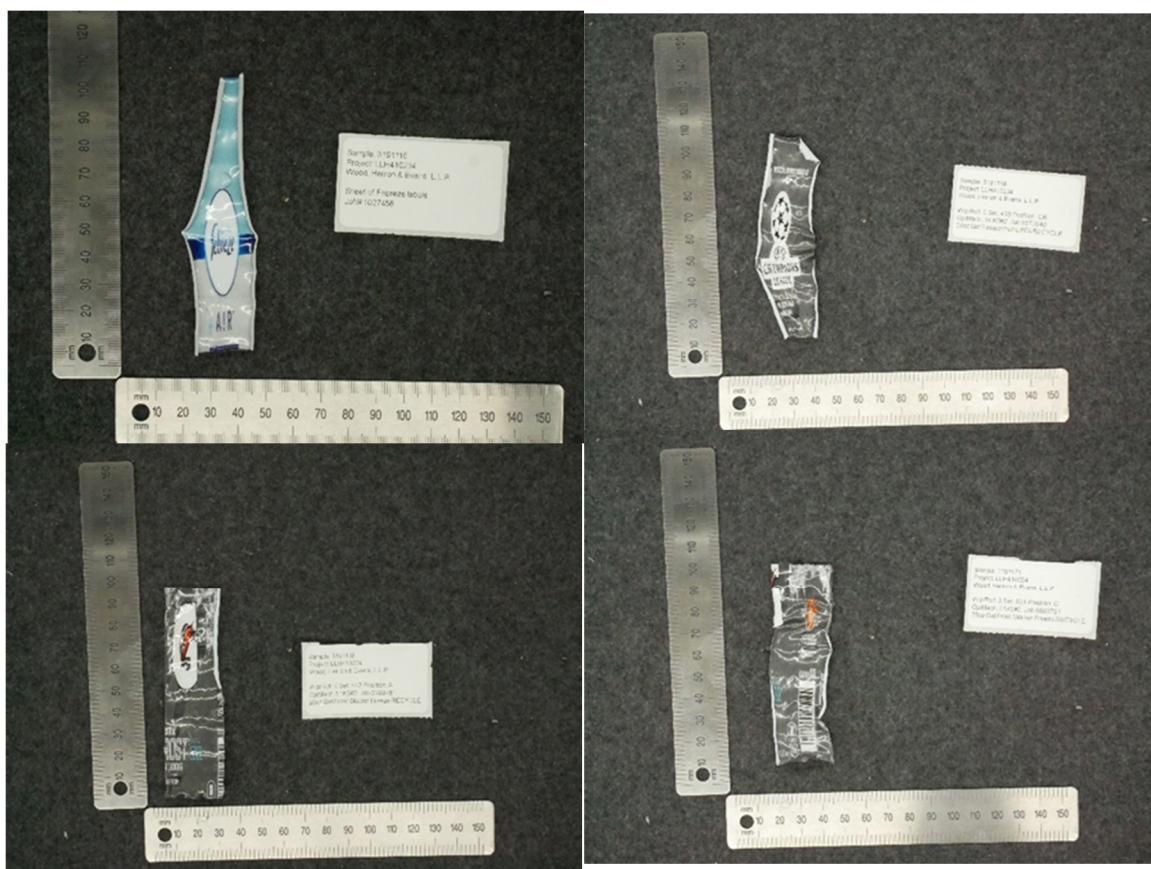


Figure 19. Photographs of cut sections of 3191115, 3191158, 3191168, and 3191171 after shrink testing.

[Claim 18] The recyclable shrink label according to claim 1, wherein the heat shrink film comprises crystallizable poly- ethylene terephthalate (PET).

As can be seen in Figures 2 and 3, each film is consistent with an internal PET standard measured on the same instrument as well as a PET standard matched to the Wiley KnowItAll Library. As can be seen, all samples are consistent with PET. Ex. 1014, at ¶102. In addition, the Declaration of Mr. Craig

Bushman demonstrates, with regard to PET, that is crystallizable. Ex. 1013, at ¶44; Ex. 1017.

[Claim 19] A recyclable shrink label comprising: a heat shrink film comprising polyethylene terephthalate (PET).

As can be seen in Figures 2 and 3, each film is consistent with an internal PET standard measured on the same instrument as well as a PET standard matched to the Wiley KnowItAll Library. As can be seen, all samples are consistent with PET. Ex. 1014, at ¶103.

[Claim 19 (cont.)] ...and 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 .

As can be seen in Figure 5, all samples have a heat shrink PET film thickness of approximately 40-50 microns. Ex. 1014, at ¶104; Image 5.

[Claim 19 (cont.)] 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...

Percent Transmittance results can be seen in Figure 7. All samples block at least 80% of light in the 220 to 900 nm range. Ex. 1014, at ¶105; Image 7.

[Claim 19 cont.)] ...a high opacity layer comprising a white pigment, wherein the recyclable shrink label is recyclable with a PET container.

The high opacity layer incorporates a white pigment, as can be seen in Figures 6 and 14. Ex. 1014, at ¶106; Images 6 and 14. In addition, as noted above

in connection with claim 1 and the claim term “wherein the recyclable shrink label is recyclable with a PET container,” this limitation is found in the Gatorade Label.

**C. GROUND 2: THE GATORADE LABEL, BASED ON
KNOWLEDGE OF A POSITA (INCLUDING MITCHELL ET AL.
(US 2017/0223879)), RENDERS CLAIM 4 OBVIOUS**

1. The Gatorade Label and POSITA knowledge

The Examiner cited Mitchell et al. (US 2017/0223879) during prosecution of the application that issued as the ‘422 patent. The Examiner noted 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 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.” Ex. 1002, at 239.

It would have been obvious to a skilled artisan in the field of labels to change the order of the layers, and it is well established that more than mere change of form or rearrangement of parts is necessary for patentability. See, e.g., MPEP 2144.04; *Stephenson v. Brooklyn Cross-Town Railroad*, 114 U.S. 149, 154, 5 S. Ct. 777, 779, 29 L. Ed. 58 (1885); *National Connector Corp. v. Malco Manufacturing Co.*, 392 F.2d 766, 770 (8th Cir.), cert. denied, 393 U.S. 923, 89 S. Ct. 254, 21 L. Ed. 2d 259 (1968). For example, changing the order of the layers

with regard to the Gatorade Label, 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. Ex. 1013, at ¶50. 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. *Id.*

In this regard, the scope and content of the prior art (Gatorade Label and Mitchell et al. (US 2017/0223879)) is extremely broad and close to the claims of the '422 patent, such that there is little difference between the prior art and the claims. In nearly identical manner to this prior art, claim 4 of the '422 patent provides a shrink label with an indicia layer “wherein the high opacity layer is disposed between the indicia layer and the light blocking layer

2. The Combination and how it would be implemented

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. Ex. 1013, at ¶59. In like manner, and as explained below and as found by the Examiner, Mitchell et al. (US 2017/0223879) is a shrink label that comprises an indicia layer, a high opacity layer, and a light blocking layer, in close proximity to each other. Ex. 1013, at ¶¶40-41, 47-48; Ex. 1014, at ¶¶42-43, 49-50. Thus, the Gatorade Label and Mitchell et al. (US 2017/0223879) are similar in purpose,

composition, and structure. *Id.* In addition, the layers of the Gatorade Label and Mitchell et al. (US 2017/0223879) are similar, including with their locations with respect to each other. *Id.*

During prosecution of the application that issued as the '422 patent, the Examiner cited Mitchell et al. (US 2017/0223879). Ex. 1002, at 239; Ex. 1013, at ¶41; Ex. 1014, at 43. The Examiner noted 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 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.*

As explained below, only a very minor modification of the Gatorade Label would be required to implement the change in layers taught by Mitchell et al. (US 2017/0223879). Notably, no additional structures need to be added or removed from the Gatorade Label.

3. Motivation for the Combination, and Reasonable Expectation of Success

Multiple reasons would have prompted a POSITA to implement the Gatorade Label with the knowledge of a POSITA, including in view of Mitchell

et al. (US 2017/0223879), such that the high opacity layer is disposed between the indicia layer and the light blocking layer.

First, recyclable packaging has been known for decades. 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.” Ex. 1001, at 1:14-23. The '422 patent provides an example of that known recyclable packaging as “...PET packaging,” which “provides a cost effective recyclable option.” *Id.* 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. *Id.* That is because harmful light waves are known to impact the shelf life and performance of those products. *Id.* The Gatorade Label is a recyclable shrink label that is light blocking (Ex. 1013, at ¶¶44, 50), and the knowledge of a POSITA, including Mitchell et al. (US 2017/0223879) includes a shrink label that is light blocking. Ex. 1013, at ¶¶40-41 and 47-48. Thus, a POSITA would be knowledgeable of both labels, and would know that they serve similar purposes. *Id.*

Second, the Gatorade Label and the knowledge of a POSITA, including Mitchell et al. (US 2017/0223879) includes a shrink label that is light blocking, and

labels relating to light blocking. *Id.* Thus, a POSITA would have knowledge of both labels, and would know that they serve similar purposes. *Id.*

Third, a POSITA would have recognized such construction as promoting light blocking and recyclability. Ex. 1014, at ¶118. That is, it was known to use recyclable labels, such as the Gatorade Label, and it was known to use light blocking labels, within such knowledge of a POSITA, including Mitchell et al. (US 2017/0223879). *Id.* In addition, for these reasons, a POSITA would have been motivated to rely upon the teaching of each, including the teaching of knowledge of a POSITA, including Mitchell et al. (US 2017/0223879), such that the high opacity layer is disposed between the indicia layer and the light blocking layer. *Id.*

Fourth, a POSITA would have recognized such construction as promoting visibility of the label. Ex. 1014, at ¶119. Indeed, the Examiner notes that such construction “ensure[s] the printing is visible and provide (sic) a metallic look to the label.” Ex. 1002 at 239.

Fifth, a POSITA would have understood that only a very minor modification of the Gatorade Label is required. Ex. 1013, at ¶60. Notably, no additional structures need to be added or removed from the Gatorade Label. *Id.*

Sixth, 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. Ex. 1013, at ¶59; Ex. 1014, at ¶121. In like manner, the knowledge of a POSITA, including Mitchell et al. (US 2017/0223879) includes a recyclable shrink label that comprises an indicia layer, a high opacity layer, and a light blocking layer, in close proximity to each other. Ex. 1002, at 239. Thus, the Gatorade Label and the knowledge of a POSITA, including Mitchell et al. (US 2017/0223879) are similar in purpose, composition, and structure. Ex. 1013, at ¶53; Ex. 1014, at ¶121. In addition, the layers of the Gatorade Label and the knowledge of a POSITA, including Mitchell et al. (US 2017/0223879) are similar, including with their locations with respect to each other. Ex. 1013, at ¶¶40-41, 47-48; Ex. 1014, at ¶¶42-43, 49-50.

Seventh, a POSITA would have been prompted to modify the Gatorade Label because doing so was the application of known techniques (e.g., label manufacturing and adjustment of label layers) to a known device (e.g., the Gatorade Label) for improvement to yield predictable results (e.g., a heat shrink label with light blocking capabilities and for a light blocking purpose, and ensuring the printing is visible and providing a metallic look to the label. Ex. 1013, at ¶59; Ex. 1014, at ¶122. Additionally, a POSITA would have had a reasonable expectation of success in making the proposed modification because no

additional layers are required and only a minor adjustment to label layers is required. Ex. 1013, at ¶60; Ex. 1014, at ¶122.

[Claim 4] The recyclable shrink label of claim 3, wherein the recyclable shrink label comprises an indicia layer and wherein the high opacity layer is disposed between the indicia layer and the light blocking layer.

As can be seen in Figures 5a and 6a, and demonstrated optically in 15a, the high opacity layer for sample 3191115 is located between the PET layer and the light blocking layer. An indicia layer on this sample would be located between the high opacity layer and the PET layer. As can be seen in Figures 5b-d and 6b-d (See APPENDIX B), and demonstrated optically in 15b-d, the light blocking layer for samples 3191157, 3191167, and 3191176 is located between the PET layer and the high opacity layer, and any indicia layer would be located between the PET layer and the high opacity layer. If the teachings and knowledge of a POSITA, including those disclosed in Mitchell et al. (US 2017/0223879), were combined with the Gatorade Label, the indicia layer, the high opacity layer, and the light blocking layer would be structured such that the high opacity layer is positioned between the indicia layer and the light blocking layer. Ex. 1014, at ¶123. Thus, this claim limitation would be disclosed by the combination. *Id.*

**D. GROUND 3: THE GATORADE LABEL-THE FEBREZE LABEL
RENDERS CLAIM 4 OBVIOUS**

1. The Gatorade Label and The Febreze Label

As explained above, the Gatorade Label is a shrink sleeve label that is recyclable with a PET container. Ex. 1013, at ¶44. It is a PET film and a washable ink system designed to meet the requirements of recyclability per the APR. *Id.* It includes light blocking features (including ink layers of metal particulates, and including aluminum and titanium dioxide for the silver and white ink). *Id.*

The Febreze Label is a shrink sleeve label. Ex. 1013, at ¶¶52-57. It includes light blocking features (including ink layers of metal particulates, and including aluminum and titanium dioxide for the silver and white ink). *Id.* at ¶52. The Febreze Label is structured such that the high opacity layer is disposed between the indicia layer and the light blocking layer. *Id.* at ¶56.

In this regard, the scope and content of the prior art (Gatorade Label and Febreze Label) is extremely broad and close to the claims of the '422 patent, such that there is little difference between the prior art and the claims. In nearly identical manner to this prior art, especially the Febreze Label, claim 4 of the '422 patent provides a shrink label with an indicia layer “wherein the high opacity layer is disposed between the indicia layer and the light blocking layer.”

2. The Combination and how it would be implemented

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. Ex. 1013, at ¶¶44, 50. In like manner, 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. *Id.* at ¶56. Thus, the Gatorade Label and the Febreze Label are similar in purpose, composition, and structure. In addition, the layers of the Gatorade Label and the Febreze Label are similar, including with their locations with respect to each other.

The Febreze Label is structured such that the high opacity layer is disposed between the indicia layer and the light blocking layer. *Id.* at ¶56. The only modification to the Gatorade Label required to achieve this combination is to adjust the relative location of the indicia layer, a high opacity layer, and a light blocking layer, such that the high opacity layer is disposed between the indicia layer and the light blocking layer. *Id.* ¶¶50-51.

As explained below, only a very minor modification of the Gatorade Label would be required to implement the change in layers taught by the Febreze Label. Notably, no additional structures need to be added or removed from the Gatorade Label.

3. Motivation for the Combination, and Reasonable Expectation of Success

Multiple reasons would have prompted a POSITA to implement the Gatorade Label with the disclosure of the Febreze Label, such that the high opacity layer is disposed between the indicia layer and the light blocking layer.

First, and as explained above and incorporated herein, recyclable packaging has been known for decades. The '422 patent specification acknowledges that “the consumer packaged-goods markets globally aspire to utilize recyclable packaging for most products” and the market has required light protective packaging, so as to block light waves that are harmful to ingredients. Ex. 1001, at 1:14-23. The Gatorade Label is a recyclable shrink label that is light blocking, and the Febreze Label is a shrink label that is light blocking. Thus, a POSITA would be knowledgeable of both labels, and would know that they serve similar purposes.

Second, the Gatorade Label and the Febreze Label were manufactured and sold publicly by the same entity, an entity well known with respect to labels, shrink sleeve labels, and labels relating to light blocking. Ex. 1013, at ¶¶53-66. Thus, a POSITA would be knowledge of both labels, and would know that they serve similar purposes. *Id.*

Third, a POSITA would have recognized such construction as promoting light blocking and recyclability. Ex. 1013, at ¶¶53, 61; Ex. 1014, at ¶136. That is,

it was known to use recyclable labels, such as the Gatorade Label, and it was known to use light blocking labels, such as the Febreze Label. *Id.* In addition, for these reasons, a POSITA would have been motivated to rely upon the teaching of each, including the teaching of the Febreze Label, such that the high opacity layer is disposed between the indicia layer and the light blocking layer. Ex. 1013, at ¶¶53, 61, 65-66; Ex. 1014, at ¶136.

Fourth, a POSITA would have been motivated to modify the Gatorade Label because the Febreze Label was a well-known, publicly sold, product. Ex. 1013, at ¶¶54-55, 62-63; Ex. 1014, at ¶137. Thus, a POSITA would have been motivated to rely upon the teachings of such a product, including the high opacity layer is disposed between the indicia layer and the light blocking layer. *Id.*

Fifth, a POSITA would have understood that only a very minor modification of the Gatorade Label is required. Ex. 1013, at ¶¶59-60; Ex. 1014, at ¶138. Notably, no additional structures need to be added or removed from the Gatorade Label. *Id.*

Sixth, 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. Ex. 1013, at ¶¶59-60; Ex. 1014, at ¶139. In like manner, 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. *Id.* Thus, the Gatorade Label and the Febreze Label are similar in purpose, composition, and structure. Ex. 1013, at ¶¶53, 61; Ex. 1014, at ¶139. In addition, the layers of the Gatorade Label and the Febreze Label are similar, including with their locations with respect to each other. Ex. 1013, at ¶¶59, 65; Ex. 1014, at ¶140.

Seventh, a POSITA would have been prompted to modify the Gatorade Label because doing so was the application of known techniques (e.g., label manufacturing and adjustment of label layers) to a known device (e.g., the Gatorade Label) for improvement to yield predictable results (e.g., a heat shrink label with light blocking capabilities and for a light blocking purpose. Ex. 1013, at ¶59; Ex. 1014, at ¶140. Additionally, a POSITA would have had a reasonable expectation of success in making the proposed modification because no additional layers are required and only a minor adjustment to label layers is required. *Id.*

[Claim 4] The recyclable shrink label of claim 3, wherein the recyclable shrink label comprises an indicia layer and wherein the high opacity layer is disposed between the indicia layer and the light blocking layer.

As can be seen in Figures 5a and 6a, and demonstrated optically in 15a, the high opacity layer for sample 3191115 is located between the PET layer and the light blocking layer. An indicia layer on this sample would be located between the high opacity layer and the PET layer. As can be seen in Figures 5b-d and 6b-d

(See APPENDIX B), and demonstrated optically in 15b-d, the light blocking layer for samples 3191157, 3191167, and 3191176 is located between the PET layer and the high opacity layer, and any indicia layer would be located between the PET layer and the high opacity layer. If the teachings of the Febreze Label was combined with the Gatorade Label, the indicia layer, the high opacity layer, and the light blocking layer would be structured such that the high opacity layer is disposed between the indicia layer and the light blocking layer. Ex. 1014, at ¶141. Thus, this claim limitation would be disclosed by the combination. *Id.*

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

As described above, 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. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901, 910 (2014) (a claim is indefinite if its language “might mean several different things and no informed and confident choice is available among the contending definitions.”).

Independent claim 1 and independent claim 19 (and therefore all dependent claims) each recite “wherein the recyclable shrink label is recyclable.” Ex. 1001, at Claims 1 and 19. 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 particular, the ‘422 patent defines what makes a shrink label recyclable, but does so in several disparate ways.

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.” *Id.*; Ex. 1013, at ¶72; Ex. 1014, at ¶145.

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; Ex. 1013, at ¶73; Ex. 1014, at ¶146.

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; Ex. 1013, at ¶74; Ex. 1014, at ¶147.

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.* Ex. 1013, at ¶75; Ex. 1014, at ¶148.

Sixth, the ‘422 patent provides “That is, according to an embodiment, the labels of the present disclosure are fully recyclable.” *Id.* Ex. 1013, at ¶76; Ex. 1014, at ¶149.

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.*; Ex. 1013, at ¶77; Ex. 1014, at ¶150.

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.*; Ex. 1013, at ¶78; Ex. 1014, at ¶151.

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.” *Id.*; Ex. 1013, at ¶79; Ex. 1014, at ¶152.

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; Ex. 1013, at ¶80; Ex. 1014, at ¶153.

The claim term “wherein the recyclable shrink label is recyclable” is therefore disclosed in multiple different alternate ways in the ‘422 patent. Ex. 1013, at ¶81; Ex. 1014, at ¶154. That is, a POSITA would understand that the ‘422 patent provides numerous different definitions regarding what constitutes a shrink label that is recyclable. *Id.* There is nothing in the ‘422 patent that provides clarification regarding which of the nine definitions is the appropriate manner in which to determine what falls within the scope of this claim term. *Id.*

As an example, it could be interpreted that, to fall within the scope of this claim term, no inks must remain 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. Ex. 1013, at ¶82; Ex. 1014, at ¶155.

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. Ex. 1013, at ¶83; Ex. 1014, at ¶156.

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. Ex. 1013, at ¶84; Ex. 1014, at ¶157.

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. Ex. 1013, at ¶85; Ex. 1014, at ¶158.

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. Thus, this claim term, present in all claims, is unclear as to what it encompasses, which violates the fundamental concept of notice. *See Nautilus*, 134 S. Ct. at 2129 (“a patent must be precise enough to afford clear notice of what is claimed, thereby ‘appris[ing] the public of what is still open to them.’” (*quoting Markman v. Westview Instruments*, 517 U.S. 370, 373 (U.S. 1996))). Accordingly, the scope of all of the claims of the '422 patent is unclear and the claims are unpatentable because they are indefinite.

VIII. CONCLUSION

In conclusion, it is more likely than not that at least one of the challenged claims of the '422 patent is unpatentable due to anticipation and/or obviousness, or invalid due to indefiniteness. The USPTO never considered any of the newly-cited prior art discussed in this Petition. Thus, the grounds for unpatentability of the challenged claims above were never considered during prosecution of the '422 patent, and Petitioner respectfully submits that the USPTO should institute Post Grant Review of claims 1-19.

Dated: January 16, 2025

Respectfully,

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CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing PETITION FOR POST GRANT REVIEW of U.S. PATENT NO. 11,961,422 totals 9,485 which is less than the 18,700 allowed under 37 CFR § 42.24(b)(1). This word count does not include the items excluded by 37 C.F.R § 42.24 as not counting towards the word limit.

Respectfully submitted,

Dated: January 16, 2025

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CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing PETITION FOR POST GRANT REVIEW of U.S. PATENT NO. 11,961,422 and supporting materials (Exhibits 1001-1019 and Power of Attorney) have been served in its entirety on January 16, 2025, by Federal Express on Patent Owner at the correspondence address for the attorney of record for the '422 patent shown in USPTO Patent Center:

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