

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Liqwd, Inc.

Inventors: Eric D. Pressly and Craig J. Hawker

Continuation of U.S.S.N. 15/087,415

Filed: October 11, 2016, 2016

For: *Keratin Treatment Formulations and Methods*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**REQUEST FOR FILING A CONTINUATION APPLICATION
UNDER 37 C.F.R. § 1.53(b)**

Sir:

Applicant encloses for filing the attached patent application entitled "*Keratin Treatment Formulations and Methods*". This application is a continuation of U.S. Application No. 15/087,415, filed March 31, 2016, which is a continuation of U.S. Application No. 14/713,885, filed May 15, 2015, now U.S. Patent No. 9,326,926, issued May 3, 2016, which claims priority to U.S. Provisional Application No. 61/994,709, filed May 16, 2014. The application contains a total of 49 pages, which includes 1 page of abstract, 41 pages of specification and 7 pages of claims. An executed Power of Attorney will be submitted shortly.

Pursuant to 37 C.F.R. § 1.63(d), the copies of the executed Declarations for Patent Application included in the new application are copies of the executed Declarations filed in parent Application No. 15/087,415, to which the new application claims benefit.

Title: "Keratin Treatment Formulations and Methods"
Filed: October 11, 2016
Request for Filing a Continuation Application Under 37 C.F.R. § 1.53(b)

The inventorship for the claims in the new application is the same as in parent
Application No. 15/087,415.

Also enclosed is an Application Data Sheet.

This application is entitled to claim small entity status under 37 C.F.R. § 1.27.

This application is being electronically filed on October 11, 2016

All correspondence concerning this application should be mailed to:

Customer No. 23579
PABST PATENT GROUP LLP
1545 Peachtree Street
Suite 320
Atlanta, Georgia 30309
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Respectfully submitted,

/Rivka D. Monheit /
Rivka D. Monheit
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Date: October 11, 2016

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CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is
being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: October 11, 2016
/Cindy Phillips/
Cindy Phillips

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	Keratin Treatment Formulations and Methods
As the below named inventor, I hereby declare that: This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number <u>14/713,885</u> filed on <u>May 15, 2015</u> The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.	
LEGAL NAME OF INVENTOR	
Inventor:	Eric D. Pressly
Signature:	<i>Eric D. Pressly</i>
Date (Optional):	<u>2/16/2015</u>
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	Keratin Treatment Formulations and Methods
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As the below named inventor, I hereby declare that:

This declaration is directed to:

☐

The attached application, or

☒

United States application or PCT international application number 14/713,885

filed on May 15, 2015

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

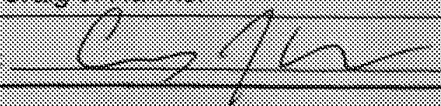
WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Craig J. Hawker

Date (Optional): Dec 7 2015

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UTILITY APPLICATION
FOR
UNITED STATES LETTERS PATENT

BY

ERIC D. PRESSLY

AND

CRAIG J. HAWKER

FOR

KERATIN TREATMENT FORMULATIONS AND METHODS

KERATIN TREATMENT FORMULATIONS AND METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

5 This application claims priority to U.S. Provisional Application Serial
No. 61/994,709, filed May 16, 2014, the disclosure of which is incorporated
herein by reference in its entirety.

FIELD OF THE INVENTION

10 The present invention generally relates to formulations and methods for
treating keratin in hair, skin, or nails, and in particular for strengthening and/or
repairing hair during or after a coloring or permanent wave treatment.

BACKGROUND OF THE INVENTION

15 Hair coloring is currently a globally accepted fashion phenomenon.
Color treatments include hair coloring, highlighting, and bleaching. The coloring
products can be categorized in several types, which include permanent, demi-
permanent, semi-permanent, and temporary coloring formulations. Permanent
hair coloring products make up the majority of the market worldwide.

20 Significant effort has been directed towards developing various
approaches to hair dyeing; these include, oxidative dyes, direct action dyes,
natural dyes, metallic dyes and reactive dyes. Many hair coloring formulations,
in particular permanent coloring formulations, use reducing agents to break the
disulfide bonds in the hair allowing deeper penetration of the hair coloring dyes
and bleaching agents into the hair.

25 Disulfide bond linkages in hair are also broken by application of
reducing agents, such as during permanent wave and hair straightening process.
After the disulfide bonds are broken, the hair is placed in stress to establish the
final style (e.g., straight, wavy, or curly), and the disulfide bonds are re-
established.

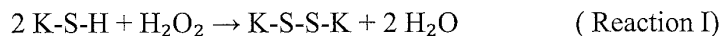
30 Thioglycolic acid, particularly as the ammonium salt, is often used to
cleave the cysteine disulfide bonds present in hair. Sodium bisulfite is another

example of a known reducing agent commonly used in various dyes and bleaching agents in color treatments.

Typically, oxidation to restore the reduced bond is partially obtained when an oxidizing agent, such as hydrogen peroxide is present in a coloring
5 formulation and/or by exposing the hair to atmospheric oxygen. However, this oxidation step can be very slow and can leave the hair frizzy and damaged.

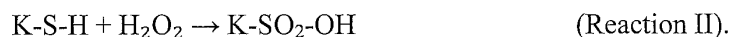
Similarly, hair undergoing a permanent wave treatment is typically treated with a reducing agent followed by an oxidizing agent. Hydrogen peroxide is optionally added in a second step to restore the hair to its prior state.
10 The newly formed disulfide bonds of the treated hair are under stress to maintain the hair's new shape; thus, they break easily resulting in a reversion of the hair style over time.

The use of peroxides in the hair styling process can result in damaged hair, removal of non-natural color from the hair, and/or leave the hair frizzy.
15 Furthermore, some latent reduced thiols may remain in the hair even after oxidative treatment. Hair styling treatments with peroxides involve the following reaction with thiol groups:



where K represents keratin in the hair.

20 In the case where two K-S-H groups are not present for Reaction I to take place, it is believed that the following reaction takes place, which results in damaged hair:



In addition to being a major component in hair, keratin is also a major
25 component in skin and nails. There are a number of different types of keratin and they are generally grouped as soft or hard keratins. Soft keratins are more prevalent in skin, while hard keratins predominate in hair and nails. Nails, in particular, are made of a modified keratin similar to that found hair. The disulfide bonds of the keratin in nails contribute to their impermeability.
30 Therefore, damage to the disulfide bridges of keratin present in skin or nails can result in unhealthy and/or flaky skin or nails. Maintaining the disulfide bridges

of keratin therefore helps to keep skin healthy and prevents cracking and splitting in nails.

Substantial improvement is needed in the areas of color saturation, color development, precise initial color consistency, improved wash fastness, and
5 improved hair conditioning when applying color treatments. For example, the attainment of precise initial colors that are retained by the hair for a desirable time period has remained an elusive goal. The coloring formulations also cause severe hair damage, especially when coloring treatments are repeated. Moreover, various standard daily actions to the hair, for example hair
10 brushing, hair blow-drying, and sun light exposure can cause even more damage to the hair.

Similar damage to the hair can also result from permanent wave treatments. In both coloring and permanent wave processes, improvements are also needed to repair damage and/or to strengthen the hair during or after such
15 styling treatments. Additionally, improved treatments and methods are needed which can be applied to skin and nails to repair damaged keratin.

There is a need for hair formulations and treatments that repair and/or strengthen keratin in hair damaged from coloring and/or permanent wave treatments using reducing treatments.

20 There is also a need for hair formulations and treatments that can repair latent reduced thiols present in hair.

There is also a need for formulations and treatments that can repair damage to keratin present in skin and hair.

Therefore, it is an object of this invention to provide improved
25 formulations and methods for repairing and/or strengthening damaged hair.

It is also an object of this invention to provide methods for using formulations that repair and/or strengthen hair after and/or during coloring or permanent wavetreatments.

It is also an object of this invention to provide formulations and methods
30 for using these formulations to repair and/or strengthen hair after a reducing treatment.

It is also an object of this invention to provide formulations and methods for using these formulations that repair and/or strengthen keratin in hair, skin or nails due to natural wear and tear or due to natural aging.

SUMMARY OF THE INVENTION

Formulations, kits, and methods for restoring hair that has been broken during a hair coloring or permanent wave treatment are disclosed. The formulations have similar benefits when used with different color chemical processes, such as bleaching, highlights, lowlights, semi-permanent, demi-permanent, and permanent color. Improved methods of styling hair, for example permanent hair waving and hair curling are also provided. The formulations can be applied each time the hair is washed or daily, once-weekly, twice-weekly, biweekly, once-monthly, every other month, or at less frequent intervals. Preferably, the formulations are applied once-monthly to achieve the desired results.

Traditional methods of permanent hair waving, hair curling, or straightening use hydrogen peroxide after a reducing treatment. The process generally takes about three days to complete. The methods disclosed herein use active agents to repair the hair; these active agents are washed from the individual's hair on the same day that they are applied to the hair. Under the same conditions, such as temperature and moisture, hair treated with the formulations disclosed herein takes a longer time to revert to its prior state as compared to the same hair that is treated with hydrogen peroxide.

The formulations disclosed herein contain one or more polyfunctional compounds. The polyfunctional compound contains at least one ionizable functional group capable of forming ionic bonds, and the polyfunctional compound also contains at least one functional group capable of forming a covalent bond with a thiol group. In some embodiments, the polyfunctional compounds contains at least two ionizable groups. Optionally, the formulation is applied at the same time as the hair coloring or permanent wave treatment. Alternatively, the formulation may be applied after the hair coloring or

permanent wave treatment or to damaged hair. For example, the formulations can be applied within one week of the hair being treated and/or damaged, preferably within three days, more preferably within two days, most preferably immediately after application of the coloring or permanent wave treatment.

5

DETAILED DESCRIPTION OF THE INVENTION

I. Definitions

The term "hair" refers to one or more than one strand of hair, as well as the natural components of hair, such as oil from a body. Hair also refers to virgin hair or processed hair, for example hair that has been exposed to hair waving or hair straightening formulations.

"Pharmaceutically acceptable" and "cosmetically acceptable" are used interchangeably and refer to those compounds, materials, and/or formulations, which are, within the scope of sound medical judgment, suitable for use in contact with the tissues of human beings and animals without excessive toxicity, irritation, allergic response, or other problems or complications commensurate with a reasonable benefit/risk ratio. More specifically, pharmaceutically acceptable refers to a material, compound, or formulation that is suitable for use in contact with the skin, scalp, or hair. Pharmaceutically acceptable materials are known to those of ordinary skill in the art.

"Shampoo", as used herein, generally refers to a liquid or semi-solid formulation applied to hair that contains detergent or soap for washing the hair.

"Conditioner", as used herein, generally refers to a formulation (*e.g.*, liquid, cream, lotion, gel, semi-solid) applied to hair to soften the hair, smooth the hair, and/or change the sheen of the hair.

"Analog" and "derivative" are used herein interchangeably, and refer to a compound that possesses the same core as the parent compound, but differs from the parent compound in bond order, the absence or presence of one or more atoms and/or groups of atoms, or a combination thereof. The derivative can differ from the parent compound, for example, in one or more substituents present on the core, which may include one or more atoms, functional groups, or

substructures. In general, a derivative can be formed, at least theoretically, from the parent compound via chemical and/or physical processes.

“Electrophilic group” or “electrophilic moiety” are used interchangeably and refer to one or more functional groups or moieties that have an affinity for or attract electrons.

“Nucleophilic group” or “nucleophilic moiety” are used interchangeably and refer to one or more functional groups or moieties that are electron rich and are capable of reacting with electrophilic groups.

“Michael acceptor”, as used herein, is a species of electrophilic groups or moieties that participates in nucleophilic addition reactions. The Michael acceptor can be or can contain an α,β -unsaturated carbonyl-containing group or moiety, such as a ketone. Other Michael acceptors include pi-bonds, such as double or triple bonds conjugated to other pi-bond containing electron withdrawing groups, such as nitro groups, nitrile groups, and carboxylic acid groups.

“Carboxylic acid,” as used in here refers to the group $-\text{COOH}$. Unless specified otherwise the term carboxylic acid embraces both the free acid and carboxylate salt.

“Alkyl”, as used herein, refers to the radical of saturated or unsaturated aliphatic groups, including straight-chain alkyl, alkenyl, or alkynyl groups, branched-chain alkyl, alkenyl, or alkynyl groups, cycloalkyl, cycloalkenyl, or cycloalkynyl (alicyclic) groups, alkyl substituted cycloalkyl, cycloalkenyl, or cycloalkynyl groups, and cycloalkyl substituted alkyl, alkenyl, or alkynyl groups. Unless otherwise indicated, a straight chain or branched chain alkyl has 30 or fewer carbon atoms in its backbone (e.g., $\text{C}_1\text{-C}_{30}$ for straight chain, $\text{C}_3\text{-C}_{30}$ for branched chain), more preferably 20 or fewer carbon atoms, more preferably 12 or fewer carbon atoms, and most preferably 8 or fewer carbon atoms. In some embodiments, the chain has 1-6 carbons. Likewise, preferred cycloalkyls have from 3-10 carbon atoms in their ring structure, and more preferably have 5, 6 or 7 carbons in the ring structure. The ranges provided above are inclusive of all values between the minimum value and the maximum value.

The term “alkyl” includes both “unsubstituted alkyls” and “substituted alkyls”, the latter of which refers to alkyl moieties having one or more substituents replacing a hydrogen on one or more carbons of the hydrocarbon backbone. Such substituents include, but are not limited to, halogen, hydroxyl, carbonyl (such as a carboxyl, alkoxy carbonyl, formyl, or an acyl), thiocarbonyl (such as a thioester, a thioacetate, or a thioformate), alkoxy, phosphoryl, phosphate, phosphonate, a phosphinate, amino, amido, amidine, imine, cyano, nitro, azido, sulfhydryl, alkylthio, sulfate, sulfonate, sulfamoyl, sulfonamido, sulfonyl, heterocyclyl, aralkyl, or an aromatic or heteroaromatic moiety.

Unless the number of carbons is otherwise specified, “lower alkyl” as used herein means an alkyl group, as defined above, but having from one to ten carbons, more preferably from one to six carbon atoms, in its backbone structure. Likewise, “lower alkenyl” and “lower alkynyl” have similar chain lengths. Preferred alkyl groups are lower alkyls.

The alkyl groups may also contain one or more heteroatoms within the carbon backbone. Examples include oxygen, nitrogen, sulfur, and combinations thereof. In certain embodiments, the alkyl group contains between one and four heteroatoms.

“Alkenyl” and “Alkynyl”, as used herein, refer to unsaturated aliphatic groups containing one or more double or triple bonds analogous in length (e.g., C₂-C₃₀) and possible substitution to the alkyl groups described above.

“Aryl”, as used herein, refers to 5-, 6- and 7-membered aromatic rings. The ring may be a carbocyclic, heterocyclic, fused carbocyclic, fused heterocyclic, bicarbocyclic, or biheterocyclic ring system, optionally substituted as described above for alkyl. Broadly defined, “Ar”, as used herein, includes 5-, 6- and 7-membered single-ring aromatic groups that may include from zero to four heteroatoms. Examples include, but are not limited to, benzene, pyrrole, furan, thiophene, imidazole, oxazole, thiazole, triazole, pyrazole, pyridine, pyrazine, pyridazine and pyrimidine. Those aryl groups having heteroatoms in the ring structure may also be referred to as “heteroaryl”, “aryl heterocycles”, or “heteroaromatics”. The aromatic ring can be substituted at one or more ring

positions with such substituents as described above, for example, halogen, azide, alkyl, aralkyl, alkenyl, alkynyl, cycloalkyl, hydroxyl, alkoxy, amino, nitro, sulfhydryl, imino, amido, phosphonate, phosphinate, carbonyl, carboxyl, silyl, ether, alkylthio, sulfonyl, sulfonamido, ketone, aldehyde, ester, heterocyclyl, aromatic or heteroaromatic moieties, --CF₃, and --CN. The term "Ar" also includes polycyclic ring systems having two or more cyclic rings in which two or more carbons are common to two adjoining rings (the rings are "fused rings") wherein at least one of the rings is aromatic, e.g., the other cyclic rings can be cycloalkyls, cycloalkenyls, cycloalkynyls, aryls and/or heterocycles, or both rings are aromatic.

"Alkylaryl", as used herein, refers to an alkyl group substituted with an aryl group (e.g., an aromatic or hetero aromatic group).

"Heterocycle" or "heterocyclic", as used herein, refers to a cyclic radical attached via a ring carbon or nitrogen of a monocyclic or bicyclic ring containing 3-10 ring atoms, and preferably from 5-6 ring atoms, containing carbon and one to four heteroatoms each selected from non-peroxide oxygen, sulfur, and N(Y) wherein Y is absent or is H, O, (C₁₋₄) alkyl, phenyl or benzyl, and optionally containing one or more double or triple bonds, and optionally substituted with one or more substituents. The term "heterocycle" also encompasses substituted and unsubstituted heteroaryl rings. Examples of heterocyclic ring include, but are not limited to, benzimidazolyl, benzofuranyl, benzothiofuranyl, benzothiophenyl, benzoxazolyl, benzoxazoliny, benzthiazolyl, benztriazolyl, benztetrazolyl, benzisoxazolyl, benzisothiazolyl, benzimidazoliny, carbazolyl, 4aH-carbazolyl, carboliny, chromanyl, chromenyl, cinnoliny, decahydroquinoliny, 2H,6H-1,5,2-dithiaziny, dihydrofuro[2,3-b]tetrahydrofuran, furanyl, furazanyl, imidazolidiny, imidazoliny, imidazolyl, 1H-indazolyl, indolenyl, indoliny, indoliziny, indolyl, 3H-indolyl, isatinoyl, isobenzofuranyl, isochromanyl, isoindazolyl, isoindoliny, isoindolyl, isoquinoliny, isothiazolyl, isoxazolyl, methylenedioxyphenyl, morpholiny, naphthyridiny, octahydroisoquinoliny, oxadiazolyl, 1,2,3-oxadiazolyl, 1,2,4-oxadiazolyl, 1,2,5-oxadiazolyl, 1,3,4-

oxadiazolyl, oxazolidinyl, oxazolyl, oxindolyl, pyrimidinyl, phenanthridinyl,
phenanthrolinyl, phenazinyl, phenothiazinyl, phenoxathinyl, phenoxazinyl,
phthalazinyl, piperazinyl, piperidinyl, piperidonyl, 4-piperidonyl, piperonyl,
pteridinyl, purinyl, pyranyl, pyrazinyl, pyrazolidinyl, pyrazolinyl, pyrazolyl,
5 pyridazinyl, pyridooxazole, pyridoimidazole, pyridothiazole, pyridinyl, pyridyl,
pyrimidinyl, pyrrolidinyl, pyrrolinyl, 2H-pyrrolyl, pyrrolyl, quinazolinyl,
quinolinyl, 4*H*-quinoliziny, quinoxaliny, quinuclidinyl, tetrahydrofuranyl,
tetrahydroisoquinolinyl, tetrahydroquinolinyl, tetrazolyl, 6*H*-1,2,5-thiadiazinyl,
1,2,3-thiadiazolyl, 1,2,4-thiadiazolyl, 1,2,5-thiadiazolyl, 1,3,4-thiadiazolyl,
10 thianthrenyl, thiazolyl, thienyl, thienothiazolyl, thienooxazolyl,
thienoimidazolyl, thiophenyl and xanthenyl.

“Heteroaryl”, as used herein, refers to a monocyclic aromatic ring
containing five or six ring atoms containing carbon and 1, 2, 3, or 4 heteroatoms
each selected from non-peroxide oxygen, sulfur, and N(Y) where Y is absent or
15 is H, O, (C₁-C₈) alkyl, phenyl or benzyl. Non-limiting examples of heteroaryl
groups include furyl, imidazolyl, triazolyl, triazinyl, oxazolyl, isoxazolyl,
thiazolyl, isothiazolyl, pyrazolyl, pyrrolyl, pyrazinyl, tetrazolyl, pyridyl, (or its
N-oxide), thienyl, pyrimidinyl (or its N-oxide), indolyl, isoquinolyl (or its N-
oxide), quinolyl (or its N-oxide) and the like. The term "heteroaryl" can include
20 radicals of an ortho-fused bicyclic heterocycle of about eight to ten ring atoms
derived therefrom, particularly a benz-derivative or one derived by fusing a
propylene, trimethylene, or tetramethylene diradical thereto. Examples of
heteroaryl include, but are not limited to, furyl, imidazolyl, triazolyl, triazinyl,
oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, pyrazolyl, pyrrolyl, pyrazinyl,
25 tetrazolyl, pyridyl (or its N-oxide), thientyl, pyrimidinyl (or its N-oxide),
indolyl, isoquinolyl (or its N-oxide), quinolyl (or its N-oxide), and the like.

“Halogen”, as used herein, refers to fluorine, chlorine, bromine, or
iodine.

The term “substituted,” as used herein, refers to all permissible
30 substituents of the compounds described herein. In the broadest sense, the
permissible substituents include acyclic and cyclic, branched and unbranched,

carbocyclic and heterocyclic, aromatic and nonaromatic substituents of organic compounds. Illustrative substituents include, but are not limited to, halogens, hydroxyl groups, or any other organic groupings containing any number of carbon atoms, preferably 1-14 carbon atoms, and optionally include one or more heteroatoms such as oxygen, sulfur, or nitrogen grouping in linear, branched, or cyclic structural formats. Representative substituents include alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, phenyl, substituted phenyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, halo, hydroxyl, alkoxy, substituted alkoxy, phenoxy, substituted phenoxy, aroxy, substituted aroxy, alkylthio, substituted alkylthio, phenylthio, substituted phenylthio, arylthio, substituted arylthio, cyano, isocyano, substituted isocyano, carbonyl, substituted carbonyl, carboxyl, substituted carboxyl, amino, substituted amino, amido, substituted amido, sulfonyl, substituted sulfonyl, sulfonic acid, phosphoryl, substituted phosphoryl, phosphonyl, substituted phosphonyl, polyaryl, substituted polyaryl, C₃-C₂₀ cyclic, substituted C₃-C₂₀ cyclic, heterocyclic, substituted heterocyclic, aminoacid, peptide, and polypeptide groups.

Heteroatoms, such as nitrogen, may have hydrogen substituents and/or any permissible substituents of organic compounds described herein that satisfy the valences of the heteroatoms. It is understood that “substitution” or “substituted” includes the implicit proviso that such substitution is in accordance with permitted valence of the substituted atom and the substituent, and that the substitution results in a stable compound, *i.e.* a compound that does not spontaneously undergo transformation such as by rearrangement, cyclization, elimination, etc.

“Polymer”, as used herein, refers to a molecule containing more than 10 monomer units.

“Water-soluble”, as used herein, generally means at least 50, 75, 100, 125, 150, 200, 225, or 250 g is soluble in 1L of water at 25°C.

II. Formulations

The formulations and methods disclosed herein are concerned with treating keratin in hair, skin, or nails. In one embodiment, the methods relate to strengthening and/or repairing hair after it has undergone a coloring treatment or after or during a permanent wave treatment. Additionally, the formulations may reduce or prevent hair damage due to hair coloring and/or bleaching processes.

A. Formulations

The formulations contain one or more polyfunctional compounds (also referred to herein as “active agents”).

The active agents can be combined with one or more pharmaceutically acceptable carriers and/or excipients that are considered safe and effective to human hair and/or human scalp, and may be administered to an individual’s hair without causing undesirable biological side effects, such as burning, itching, and/or redness, or similar adverse reactions. The formulations may further contain an excipient that renders the formulations neutral pH, or a pH ranging from about pH 3 to about pH 12, preferably from pH 5 to pH 8.

The active agent is typically present in an amount ranging from about 0.01 wt% to about 50 wt% of the formulation, preferably from about 1 wt% to about 25 wt% of the formulation, more preferably from about 1 wt% to about 15 wt%, most preferably from about 1 wt% to about 10 wt%. Typically, the active agent may be present in an amount ranging from about 0.5 to about 3 wt% of the formulation, or from about 1 to about 3 wt% of the formulation.

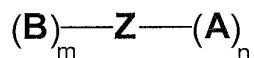
The active agent is stable in aqueous solution for a period of at least 2, 3, 4, 5, 6, 8, 9, 10, 11, or 12 months or longer at pH of 6 to 8 and a temperature of about 25-30°C, preferably about 25°C. “Stable” as used herein with respect to shelf-life means that at least 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, or 95% of the compound is unchanged over the specified period.

a. Active Agents

The active agent is a polyfunctional compound that may contain ionizable functional groups capable of forming ionic bonds and functional groups capable of forming a covalent bond with a thiol. Suitable ionizable

functional groups include, but are not limited to, acidic groups such as carboxylic acids, sulfonic acids, phosphonic acids, and basic groups, such as amines. Suitable functional groups capable of forming a covalent bond with a thiol include, but are not limited to, Michael acceptors, alkyl halides or sulfonate esters.

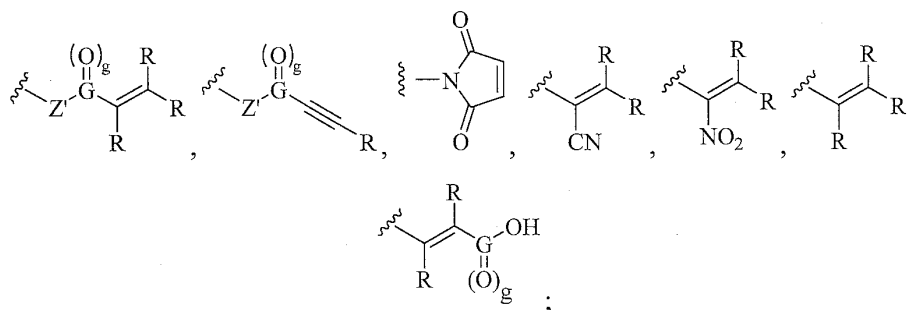
The active agent may have the following Formula I:



Formula I

wherein Z is a linker or is absent, m and n are each an integer independently selected from 0-6, provided that m+n is at least 2, B is a functional group capable of forming a covalent bond with a thiol, and A is an ionizable functional group. In some embodiments, ionizable group A can be independently selected from the group consisting of: -COOH, -SO₃H, -PO₃H₂, and -N(R¹)₂; wherein R¹ is independently selected from the group consisting of a hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and heteroaryl groups; wherein each R¹ is independently unsubstituted or substituted with one or more substituents. In some other embodiments, ionizable group A can be an ionic group, such as -N⁺(R¹)₃. In some preferred embodiments, each R¹ is independently selected from a methyl, ethyl, or isopropyl group.

Exemplary active agents according to Formula I may contain thiol reactive functional groups, as group B, for example, such as those shown in the following moieties:



wherein R is independently selected from hydrogen, C₁₋₆ alkyl, aryl, or an ionizable functional group; Z' is oxygen (O), NH, or is absent; and G is carbon (C) and g is 1, or G is sulfur (S) and g is 2.

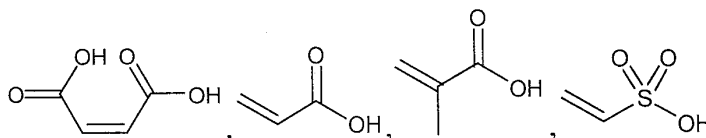
The linker Z, when present, can be or can contain an alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl or heteroaryl group. One or more of the carbon atoms in the alkyl, alkenyl, cycloalkyl, cycloalkenyl, and aryl groups can be substituted with a heteroatom, yielding, for instance, an ether or alkylamine-containing linker.

The linker Z may optionally be substituted with one or more substituents, which may be the same or different, including hydrogen, halogen, cyano, alkoxy, alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, heteroaryl, amine, hydroxy, oxo, formyl, acyl, carboxylic acid (-COOH), -C(O)R¹, -C(O)OR¹, carboxylate (-COO-), primary amide (*e.g.*, -CONH₂), secondary amide (*e.g.*, -CONHR₁₁), -C(O)NR¹R², -NR¹R², -NR¹S(O)₂R², -NR¹C(O)R², -S(O)₂R², -SR¹, and -S(O)₂NR¹R², sulfinyl group (*e.g.*, -SOR₁), and sulfonyl group (*e.g.*, -SOOR₁); wherein R¹ and R² may each independently be hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and heteroaryl; wherein each of R¹ and R² is optionally independently substituted with one or more substituents selected from the group consisting of halogen, hydroxyl, oxo, cyano, nitro, amino, alkylamino, dialkylamino, alkyl optionally substituted with one or more halogen or alkoxy or aryloxy, aryl optionally substituted with one or more halogen or alkoxy or alkyl or trihaloalkyl, heterocycloalkyl optionally substituted with aryl or heteroaryl or oxo or alkyl optionally substituted with hydroxyl, cycloalkyl optionally substituted with hydroxyl, heteroaryl optionally substituted with one or more halogen or alkoxy or alkyl or trihaloalkyl, haloalkyl, hydroxyalkyl, carboxy, alkoxy, aryloxy, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl and dialkylaminocarbonyl.

In certain preferred embodiments, the linker Z is a C₁₋₁₀ alkyl group which may be unsubstituted or substituted one or more times by oxo, hydroxyl, carboxyl, amido or amino. Preferably, the linker Z is a C₁₋₄ alkyl group. The alkyl group may be linear or branched. The alkyl group may also be interrupted

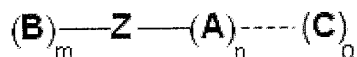
one or more times by a heteroatom selected from oxygen, sulfur and nitrogen. An example of such a di-carboxylic acids having a heteroatom interruption is thiodipropionic acid. In other embodiments, the alkyl group may contain one or more double or triple bonds.

- 5 In some embodiments, the active agent of Formula I has one of the following structures:



or is a simple salt of these structures.

- 10 In certain other embodiments, the active agent may have the following Formula II:

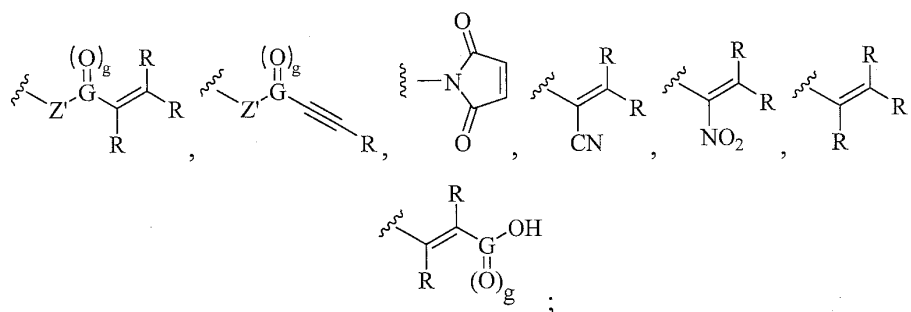


Formula II

- wherein Z is a linker or is absent, m and n are each an integer independently selected from 0-6, provided that m+n is at least 2, B is a functional group capable of forming a covalent bond with a nucleophile, such as but not limited to a thiol or amine group, A is an ionizable functional group as defined above, and C contains an ionic group and a functional group which is also capable of forming a covalent bond with a nucleophile, such as but not limited to a thiol or amine group, and which has a charge opposite to that of ionizable group A. Group C is ionically bonded (denoted by dashed line) to group A. For ionic group C, o is an integer value independently selected from 0-6, such that the sum of charges of group C and ionizable group A is zero. In some embodiments, ionizable group A can be independently selected from the group consisting of: -COOH, -SO₃H, -PO₃H₂, and -N(R¹)₂; wherein R¹ is independently selected from the group consisting of a hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and heteroaryl groups; wherein each R¹ is independently unsubstituted or substituted with one or more substituents. In some other embodiments, ionizable group A can be an ionic group such as –

$N^+(R^1)_3$. In some preferred embodiments, each R^1 is independently selected from a methyl, ethyl, or isopropyl group.

The active agents according to Formula II may contain thiol reactive functional groups as group B, for example, such as those shown in the following
5 moieties:



wherein R is independently selected from hydrogen, C_{1-6} alkyl, aryl, or an ionizable functional group; Z' is oxygen (O), NH, or is absent; and G is carbon
10 (C) and g is 1, or G is sulfur (S) and g is 2.

The linker Z, when present, can be or can contain an alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl or heteroaryl group. One or more of the carbon atoms in the alkyl, alkenyl, cycloalkyl, cycloalkenyl, and aryl groups can be substituted with a heteroatom, yielding, for instance, an ether
15 or alkylamine-containing linker.

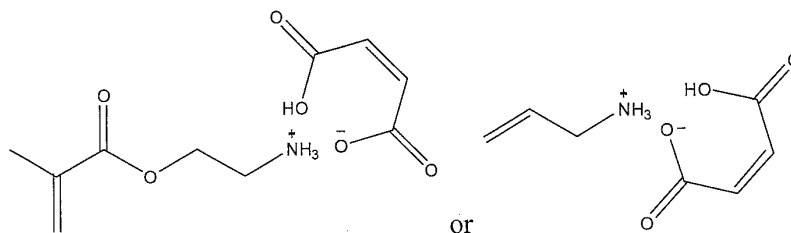
The linker Z may optionally be substituted with one or more substituents, which may be the same or different, including hydrogen, halogen, cyano, alkoxy, alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, heteroaryl, amine, hydroxy, oxo, formyl, acyl, carboxylic acid ($-COOH$), $-C(O)R^1$, $-C(O)OR^1$, carboxylate ($-COO^-$), primary amide (*e.g.*, $-CONH_2$),
20 secondary amide (*e.g.*, $-CONHR^1$), $-C(O)NR^1R^2$, $-NR^1R^2$, $-NR^1S(O)_2R^2$, $-NR^1C(O)R^2$, $-S(O)_2R^2$, $-SR^1$, and $-S(O)_2NR^1R^2$, sulfinyl group (*e.g.*, $-SOR^1$), and sulfonyl group (*e.g.*, $-SOOR^1$); wherein R^1 and R^2 may each independently be hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and
25 heteroaryl; wherein each of R^1 and R^2 is optionally independently substituted with one or more substituents selected from the group consisting of halogen, hydroxyl, oxo, cyano, nitro, amino, alkylamino, dialkylamino, alkyl optionally

substituted with one or more halogen or alkoxy or aryloxy, aryl optionally substituted with one or more halogen or alkoxy or alkyl or trihaloalkyl, heterocycloalkyl optionally substituted with aryl or heteroaryl or oxo or alkyl optionally substituted with hydroxyl, cycloalkyl optionally substituted with hydroxyl, heteroaryl optionally substituted with one or more halogen or alkoxy or alkyl or trihaloalkyl, haloalkyl, hydroxyalkyl, carboxy, alkoxy, aryloxy, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl and dialkylaminocarbonyl.

In certain preferred embodiments, the linker Z is a C₁₋₁₀ alkyl group which may be unsubstituted or substituted one or more times by oxo, hydroxyl, carboxyl, amido or amino. Preferably, the linker Z is a C₁₋₄ alkyl group. The alkyl group may be linear or branched. The alkyl group may also be interrupted one or more times by a heteroatom selected from oxygen, sulfur and nitrogen. An example of such a di-carboxylic acids having a heteroatom interruption is thiodipropionic acid. In other embodiments, the alkyl group may contain one or more double or triple bonds.

Group C is an ionic group ionically bonded to ionizable group A and contains at least one thiol reactive selected from a Michael acceptor, a succinimidyl-containing group, a maleimido-containing group, azlactone, a benzoxazinone derivative, vinyl sulfone, vinyl sulfoximine, vinyl sulfonate, vinyl phosphonate, benzoxazinone, isocyanate, epoxide, an electrophilic moiety containing a leaving group, an electrophilic thiol acceptor, acrylic or acrylate group, a methacrylic or methacrylate group, a styrene group, an acryl amide group, a methacryl amide group, a maleate group, a fumarate group, an itaconate group, a vinyl ether group, an allyl ether group, an allyl ester group, a vinyl ester group, a sulfonate group, a phosphonate group, a sulfoxide group, a sulfonamide group, a sulfinimide group, a sulfinamide group, a sulfonimidate group, or a sulfonimidamide group.

In some embodiments, the active agent of Formula II has one of the following structures:



5 **b. Excipients**

The formulations typically contain one or more cosmetically acceptable excipients. Cosmetically acceptable excipients include, but are not limited to preservatives, antioxidants, chelating agents, sunscreen agents, vitamins, dyes, hair coloring agents, proteins, amino acids, natural extracts such as plant
10 extracts, humectants, fragrances, perfumes, oils, emollients, lubricants, butters, penetrants, thickeners, viscosity modifiers, polymers, resins, hair fixatives, film formers, surfactants, detergents, emulsifiers, opacifying agents, volatiles, propellants, liquid vehicles, carriers, salts, pH adjusting agents (e.g., citric acid), neutralizing agents, buffers, hair conditioning agents, anti-static agents, anti-
15 frizz agents, anti-dandruff agents, absorbents, and combinations thereof.

The formulations typically contain at least two cosmetically acceptable excipients. In some forms, the formulations contain the active agent, water, and optionally a preservative and/or fragrance.

The formulation for treating hair may be in any suitable physical form.
20 Suitable forms include, but are not limited to low to moderate viscosity liquids, lotions, milks, mousses, sprays, gels, creams, shampoos, conditioners, and the like. Suitable excipients, such as those listed above, are included or excluded from the hair care formulation depending on the form of use of the formulation (e.g., hair spray, cream, conditioner, or shampoo).

25 The pharmaceutical excipient is typically present in an amount ranging from about 10 wt% to about 99.99 wt% of the formulation, preferably about 40

wt% to about 99 wt%, more preferably from about 80 wt% to about to about 99 wt%.

i. Surfactants

Surfactants are surface-active agents that are able to reduce the surface
5 tension of water and cause the hair formulation to slip across or onto the skin or
hair. Surfactants also include detergents and soap. The surfactants may be
amphoteric, anionic, or cationic. Suitable surfactants that may be used in the
formulation include, but are not limited to, 3-aminopropane sulfonic acid,
almond amide, almond amidopropyl betaine, almond amidopropylamine oxide,
10 aluminum hydrogenated tallow glutamate, aluminum lanolate, aminoethyl
sulfate, aminopropyl lauryl glutamine, ammonium C₁₂₋₁₅ alkyl sulfate,
ammonium C₁₂₋₁₅ pareth sulfate, ammonium C₁₂₋₁₆ alkyl sulfate, ammonium C₉₋₁₀
perfluoroalkylsulfonate, ammonium capryleth sulfate, ammonium capryleth-3
sulfate, ammonium monoglyceride sulfate, ammonium sulfate, ammonium
15 isothionate, ammonium cocoyl sarcosinate, ammonium cumene sulfonate,
ammonium dimethicone copolyol sulfate, ammonium dodecylbenzenesulfonate,
ammonium isostearate, ammonium laureth sulfate, ammonium laureth-12
sulfate, ammonium laureth-5 sulfate, ammonium laureth-6 carboxylate,
ammonium laureth-7 sulfate, ammonium laureth-8 carboxylate, ammonium
20 laureth-9 sulfate, ammonium lauroyl sarcosinate, ammonium lauryl sulfate,
ammonium lauryl sulfosuccinate, ammonium myreth sulfate, ammonium
myristyl sulfate, ammonium nonoxynol-30 sulfate, ammonium nonoxynol-4
sulfate, ammonium oleate, ammonium palm kernel sulfate, ammonium
polyacrylate, ammonium stearate, ammonium tallate, ammonium xylene
25 sulfonate, ammonium xylene sulfonate, amp-isostearoyl gelatin/keratin amino
acids/lysine hydroxypropyltrimonium chloride, amp-isostearoyl hydrolyzed
collagen, apricot kernel oil PEG-6 esters, apricot amide, apricot amidopropyl
betaine, arachideth-20, avocadamide, avocamidopropyl betaine,
babassuamide, babassuamidopropyl betaine, babassuamidopropylamine oxide,
30 behenalkonium chloride, behenamide, behenamide, behenamidopropyl betaine,

behenamine oxide, sodium laureth sulfate, sodium lauryl sulfate, a polyoxyether of lauryl alcohol or ceteareth-20, or combinations thereof.

Suitable anionic surfactants include, but are not limited to, those containing carboxylate, sulfonate and sulfate ions. Examples of anionic surfactants include sodium, potassium, ammonium of long chain alkyl sulfonates and alkyl aryl sulfonates such as sodium dodecylbenzene sulfonate; dialkyl sodium sulfosuccinates, such as sodium dodecylbenzene sulfonate; dialkyl sodium sulfosuccinates, such as sodium bis-(2-ethylthioxyl)-sulfosuccinate; and alkyl sulfates such as sodium lauryl sulfate. Cationic surfactants include, but are not limited to, quaternary ammonium compounds such as benzalkonium chloride, benzethonium chloride, cetrimonium bromide, stearyl dimethylbenzyl ammonium chloride, polyoxyethylene and coconut amine. Examples of nonionic surfactants include ethylene glycol monostearate, propylene glycol myristate, glyceryl monostearate, glyceryl stearate, polyglyceryl-4-oleate, sorbitan acylate, sucrose acylate, PEG-150 laurate, PEG-400 monolaurate, polyoxyethylene monolaurate, polysorbates, polyoxyethylene octylphenylether, PEG-1000 cetyl ether, polyoxyethylene tridecyl ether, polypropylene glycol butyl ether, Poloxamer[®] 401, stearyl monoisopropanolamide, and polyoxyethylene hydrogenated tallow amide. Examples of amphoteric surfactants include sodium N-dodecyl-.beta.-alanine, sodium N-lauryl- β -iminodipropionate, myristoamphoacetate, lauryl betaine and lauryl sulfobetaine.

More than one surfactant may be included in the formulation.

The surfactants are optionally included in an amount ranging from about 0.1% to about 15% by weight of the formulation, preferably about 1% to about 10% by weight of the formulation.

ii. Emollients

Emollient refers to a material that protects against wetness or irritation, softens, soothes, coats, lubricates, moisturizes, protects, and/or cleanses the skin.

Suitable emollients for use in the formulations include, but are not limited to, a silicone compound (*e.g.*, dimethicone, cyclomethicone, dimethicone copolyol or

a mixture of cyclopentasiloxane and dimethicone/vinyldimethicone cross polymer, cyclopentasiloxane polysilicone), polyols such as sorbitol, glycerin, propylene glycol, ethylene glycol, polyethylene glycol, caprylyl glycol, polypropylene glycol, 1,3-butane diol, hexylene glycol, isoprene glycol, xylitol; ethylhexyl palmitate; a triglyceride such as caprylic/capric triglyceride and fatty acid ester such as cetearyl isononanoate or cetyl palmitate. In a specific embodiment, the emollient is dimethicone, amidodimethicone, dimethiconol, cyclopentasiloxane, potassium dimethicone PEG-7 panthenyl phosphate, or combinations thereof. More than one emollient may be included in the formulation.

The emollient is optionally included in an amount ranging from about 0.5% to about 15% by weight of the formulation, preferably from about 1% to about 10% by weight of the formulation.

iii. Emulsifiers

The formulation may also contain one or more emulsifiers. Suitable emulsifiers include, but are not limited to, copolymers of an unsaturated ester and styrene sulfonate monomer, cetearyl alcohol, glyceryl ester, polyoxyethylene glycol ether of cetearyl alcohol, stearic acid, polysorbate-20, ceteareth-20, lecithin, glycol stearate, polysorbate-60, polysorbate-80, or combinations thereof. More than one emulsifier may be included in the formulation.

The emulsifier is optionally included in an amount ranging from about 0.05%-15% by weight of the formulation, preferably from about 0.1%-10% by weight of the formulation.

iv. Preservatives

One or more preservatives may be included in the formulation. Suitable preservatives include, but are not limited to, glycerin containing compounds (*e.g.*, glycerin or ethylhexylglycerin or phenoxyethanol), benzyl alcohol, parabens (methylparaben, ethylparaben, propylparaben, butylparaben, isobutylparaben, etc.), sodium benzoate, ethylenediamine-tetraacetic acid (EDTA), potassium sorbate, and/or grapefruit seed extract, or combinations

thereof. More than one preservative may be included in the formulation. Other preservatives are known in the cosmetics industries and include salicylic acid, DMDM Hydantoin, Formaldehyde, Chlorphenism, Triclosan, Imidazolidinyl Urea, Diazolidinyl Urea, Sorbic Acid, Methylisothiazolinone, Sodium Dehydroacetate, Dehydroacetic Acid, Quaternium – 15, Stearalkonium Chloride, Zinc Pyrithione, Sodium Metabisulfite, 2-Bromo-2-Nitropropane, Chlorhexidine Digluconate, Polyaminopropyl biguanide, Benzalkonium Chloride, Sodium Sulfite, Sodium Salicylate, Citric Acid, Neem Oil, Essential Oils (various), Lactic Acid, and Vitamin E (tocopherol).

10 The preservative is optionally included in an amount ranging from about 0.1% to about 5% by weight of the formulation, preferably from about 0.3% to about 3% by weight of the formulation. Preferably, the formulations are paraben free.

v. Conditioning Agents

15 One or more conditioning agents may be included in the formulation. Suitable conditioning agents include, but are not limited to, silicone-based agents (e.g., silicone quaternium-8), panthenol, hydrolyzed wheat and/or soy protein, amino acids (e.g. wheat amino acids), rice bran wax, meadowfoam seed oil, mango seed oil, grape seed oil, jojoba seed oil, sweet almond oil, hydroxyethyl behenamidopropyl dimonium chloride, aloe leaf extract, aloe barbadensis leaf juice, phytantriol, panthenol, retinyl palmitate, behentrimonium methosulfate, cyclopentasiloxane, quaternium-91, stearamidopropyl dimethylamine, and combinations thereof.

20 The conditioning agent(s) is optionally included in an amount ranging from about 0.1% to about 5% by weight of the formulation, preferably from about 0.3% to about 3% by weight of the formulation.

vi. Diluents

25 Diluent, as used herein, refers to a substance(s) that dilutes the active agent. Water is the preferred diluent. The formulation typically contains greater than one percent (by wt) water, preferably greater than five percent (by wt) water, more preferably greater than 50% (by wt) water, and most preferably

greater than 80% (by wt) water. Alcohols, such as ethyl alcohol and isopropyl alcohol, may be used at low concentrations (about 0.5% by weight of the formulation) to enhance hair penetration and/or reduce odor.

vii. Viscosity modifying agents

5 The formulations may contain one or more viscosity modifying agents, such as viscosity increasing agents. Classes of such agents include, but are not limited to, viscous liquids, such as polyethylene glycol, semisynthetic polymers, such as semisynthetic cellulose derivatives, synthetic polymers, such as carbomers, poloxamers, and polyethyleneimines (e.g., PEI-10), naturally
10 occurring polymers, such as acacia, tragacanth, alginates (e.g., sodium alginate), carrageenan, vegetable gums, such as xanthan gum, petroleum jelly, waxes, particulate associate colloids, such as bentonite, colloidal silicon dioxide, and microcrystalline cellulose, surfactants, such as PPG-2 hydroxyethyl coco/isostearamide, emulsifiers, such as disteareth-75 IPDI, and salts, such as
15 sodium chloride, and combinations thereof.

viii. Antioxidants

The formulation may contain one or more antioxidants. Examples include, but are not limited to, tocopheryls, BHT, ascorbic acid, camellia sinensis leaf extract, ascorbyl palmitate, magnesium ascorbyl phosphate,
20 carotenoids, resveratrol, triethyl citrate, arbutin, kojic acid, tetrahexydecyl ascorbate, superoxide dismutase, zinc, sodium metabisulfite, lycopene, ubiquinone, and combinations thereof.

ix. Opacifying agents

The formulation may contain one or more opacifying agents. Opacifying
25 agents are added to the formulations to make it opaque. Suitable opacifying agents include, but are not limited to, glycol distearate and ethoxylated fatty alcohols.

c. Forms of the Formulation

i. Sprays

30 The formulation may be in the form of a spray. The spray typically includes the active agent and a cosmetically acceptable carrier. In some

embodiments, the carrier is water or a water and alcohol mixture. The spray formulation optionally includes an antioxidant, sunscreen agent, vitamin, protein, peptide, plant extract, humectant, oil, emollient, lubricant, thickener, hair conditioning agent, polymer, and/or surfactant. Preferably, the spray formulation includes a preservative. In some embodiments, the formulation includes a fragrance. In some embodiments, the formulation includes a surfactant. In some embodiments, the formulation contains water, fragrance, a preservative, and an active agent. In some embodiments, the formulation contains water, fragrance, a preservative, and an active agent. In some embodiments, the formulation contains water, a preservative, fragrance, an active agent, and an anti-static agent. In some embodiments, the formulation contains water, a preservative, fragrance, an active agent, and a hair conditioning agent. In some embodiments, the formulation contains water, a preservative, fragrance, an active agent, and a surfactant.

15 The hair spray formulations may be dispensed from containers that include aerosol dispensers or pump spray dispensers. Such dispensers are known in the art and are commercially available from a variety of manufacturers.

Propellant

20 When the hair spray formulation is dispensed from a pressurized aerosol container, a propellant may be used to force the formulation out of the container. Suitable propellants include, but are not limited to, a liquefiable gas or a halogenated propellant. Examples of suitable propellants include dimethyl ether and hydrocarbon propellants such as propane, n-butane, iso-butane, CFCs, and CFC-replacement propellants. The propellants may be used singly or admixed.

25 The amount of propellant may range from about 10% to about 60% by weight of the formulation. The propellant may be separated from the hair repair formulation as in a two compartment container. Other suitable aerosol dispensers are those characterized by the propellant being compressed air, which can be filled into the dispenser using a pump or equivalent device prior to use.

30 Conventional non-aerosol pump spray dispensers, *i.e.*, atomizers, may also be used to apply the formulation to the hair.

ii. Conditioners

The formulation may be in the form of a conditioner. The conditioner typically includes the active agent in a suitable carrier. Additionally, the conditioner may include cationic polymers derived from polysaccharides, for example cationic cellulose derivatives, cationic starch derivatives, cationic guar derivatives and cationic locust bean gum derivatives, synthetic cationic polymers, mixtures or combinations of these agents. The formulation may comprise other synthetic or natural polymers or polymers derived from biological preparation processes, which are functionalized, where appropriate, for example with cationic or neutral groups. These polymers may have a stabilizing or strengthening action on the formulation, and/or a conditioning action (deposition on the surface of the skin or the hair).

The active agent may be included in any suitable concentration. Typical concentrations of active agent in the conditioner range from small amounts such as approximately 0.01% (by wt), preferably at least 0.1% (by wt), to large amounts, such as up to 50% (by wt). Preferably the conditioner contains the active agent in a concentration ranging from 0.1% (by wt) to 5% (by wt), more preferably from 0.1% wt to 3% (by wt). While greater concentrations of active agent could be present in the conditioner, they are generally not needed to achieve the desired results.

iii. Shampoos

The hair repair formulation may be in the form of a shampoo. The shampoo typically includes the active agent in a suitable carrier. The active agent may be included in any suitable concentration. Typical concentrations of the active agent in the shampoo range from small amounts such as approximately 0.01% (by wt), preferably at least 0.1% (by wt), to large amounts, such as up to 50% (by wt). Preferably the shampoo contains the active agent in a concentration ranging from 0.1% (by wt) to 5% (by wt), more preferably from 0.1% (by wt) to 3% (wt). While greater concentrations of active agent could be present in the shampoo, they are generally not needed to achieve the desired results.

Additionally, the shampoo may include from about 0.5% to about 20% by weight of a surfactant material. Surfactants utilized in shampoo compositions are well-known in the art and are disclosed, for example, in U.S. Patent No. 6,706,258 to Gallagher *et al.* and U.S. Patent No. 7,598,213 to Geary *et al.*

iv. Creams, Lotions, Gels, and Polish

The hair, skin, or nail repair formulation may be in the form of a cream, lotion, gel, or polish. The cream, lotion, gel, or polish typically includes the active agent in a suitable carrier. The active agent may be included in any suitable concentration. Typical concentrations of the active agent in the cream, lotion, gel, or polish range from small amounts such as approximately 0.01% (by wt), preferably at least 0.1% (by wt), to large amounts, such as up to 50% (by wt). Preferably the cream or lotion contains the active agent in a concentration ranging from 0.1% (by wt) to 5% (by wt), more preferably from 0.1% (by wt) to 3% (by wt). While greater concentrations of active agent could be present in the cream or lotion, they are generally not needed to achieve the desired results.

Additionally, the formulation, depending on use, may include an oil, a hair conditioning agent, and/or a thickening agent. The cream, lotion, gel, or polish may also include a fragrance, a plant extract, and/or a surfactant. The cream, lotion, gel, or polish may be packaged in a tube, tub, bottle, or other suitable container.

v. Liquid Active Agent Formulations

In some embodiments, a liquid active agent formulation is provided, which is mixed at the time of use with a second formulation, such as a coloring or highlighting formulation. In these embodiments, the liquid active agent formulation may contain any suitable concentration of active agent in a suitable carrier, typically a diluent, such as described above. The concentration of the active agent is suitable to provide a mixture with the appropriate final volume and final concentration of active agent.

30 For example, a liquid active agent formulation can contain a concentration of active agent ranging from about 5% (by wt) to about 50% (by

wt) or greater. In a preferred embodiment, the liquid active agent formulation contains about 20% (by wt) active agent.

For highlighting applications, prior to use, a sufficient volume of a liquid active agent formulation is mixed with a sufficient volume of a highlighting formulation to form a highlighting mixture having the desired concentration of active agent. Typical concentrations of the active agent in the highlighting mixture range from small amounts, such as approximately at least 0.01% (by wt), preferably at least 0.1% (by wt), to large amounts, such as up to 50% (by wt). Preferably the highlighting mixture contains the active agent in a concentration ranging from 0.1% (by wt) to 5% (by wt), more preferably from 0.1% (by wt) to 3% (wt). While greater concentrations of active agent could be present in the highlighting mixture, they are generally not needed to achieve the desired results.

III. Methods of Use

A. Treatment of hair with coloring agents

a. Apply the coloring formulation to the hair

The coloring formulation is generally applied to an individual's hair following normal hair coloring procedures that are known to those skilled in the art. Typically, hair color treatments include two complementary processes: applying a bleaching formulation to bleach the hair's natural pigment and/or other artificial pigments present in the hair, and diffusion of dye precursors into the hair, followed by coupling reactions that result in the formation of chromophores within the hair shaft, which are too large to diffuse out of the hair. The bleaching formulation typically contains a bleaching agent to lighten the hair and produce free thiol groups. The hair coloring formulation may be a highlighting formulation, such as formed by mixing bleach powder and developer. More complex colors may contain several precursors and many couplers, and may involve multiple reactions.

The dye precursors may contain several ingredients, each with different functions. The first ingredient is usually an alkalizing agent (usually ammonia and/or an ammonia substitute, such as monoethanolamine [MEA]). The

alkalizing agent serves a number of roles in the hair colorant process including swelling the hair fiber to aid in diffusion of the dye precursors. The dye precursors generally include *p*-diamines and *p*-aminophenols. Precursors are oxidized to active intermediates once they have penetrated the hair shaft.

5 Intermediates then react with color couplers to create wash resistant dyes. More specifically, the intermediates, in the presence of an oxidant, couple with another oxidation dye intermediate molecule to form a large fused ring color compound within the hair shaft. The precursor intermediate should penetrate the hair shaft prior to the coupling reaction since the fused ring product is too large
10 to penetrate the hair shaft. Couplers modify the color produced by the oxidation of precursor compounds. The primary difference between demi-permanent and permanent products is the alkalizing agent and the concentration of peroxide. The cuticle does not swell as greatly with demi-permanent dyes, making dye penetration less efficient compared to permanent coloring products.

15 Several coloring formulations use a reducing agent, such as sodium bisulfate, to break disulfide bonds in the hair, allowing deeper penetration of the hair coloring dyes into the hair. Specifically, the method includes reducing some of the disulfide linkages of the cystine in the hair shafts to thiol groups while breaking hydrogen bonds. The reducing process changes the chemical
20 and cosmetic characteristics of the hair, which are undesirable.

The hair dyeing process may be followed by a shampoo and conditioning treatment, a neutralizing rinse or an acid balanced shampoo containing in addition to cationic or amphoteric surfactants, cation-active emollients and quaternary polymers. Alternately, the hair dying process may be followed by
25 application of the active agent formulations described herein, before a shampoo and/or conditioning treatment.

b. Apply the active agent formulation to the hair

The active agent formulation may be applied simultaneously with the hair coloring formulation or subsequently to the application of the hair coloring
30 formulation. For example, the active agent formulation may be mixed with the

hair coloring treatment and the mixture, containing both the active agent and the hair coloring treatment, may be applied to the hair.

Alternatively, subsequent to coloring the hair, the active agent formulation, or a formulation thereof is applied to the hair. Although the active agent is typically applied on the same day as the coloring treatment, it may be applied later such as within 1 to 2 weeks following treatment with the reducing agent. Typically, the amount of active agent formulation (or a mixture of the active agent formulation and the hair coloring formulation) applied is sufficient to saturate the hair. The active agent may be applied to the hair as a single application, or application of the active agent may be repeated one or more times. Typically, the amount of active agent formulation applied in each application is sufficient to saturate the hair. The volume of active agent formulation applied to the hair in each application may be about 1 to about 100 mL per person depending on their length and volume of hair. In some embodiments, application of the active agent could be repeated immediately (e.g. within 10 to 15 seconds) or approximately 1, 5, 7.5, 10, 12.5, 15, 17.5, or 20 minutes after the first application.

The active agent can be rinsed and shampooed from the hair immediately following application, for example within 10, 15, 25, 30, 45, or 60 seconds, or two, three, four, or five minutes after application. Alternatively, the active agent may be rinsed from the hair within about 30 minutes following application, preferably between about 5 minutes and about 20 minutes, more preferably about 10 minutes after application of the active agent to the hair, depending on hair type.

If the active agent formulation is combined with the hair coloring treatment and applied as a mixture to the hair, then the mixture remains on the hair as long as needed for the hair coloring treatment. Typically the mixture is applied for approximately 10 minutes. The mixture is removed from the hair in accordance with standard methods for hair coloring treatments, *e.g.*, rinse and shampoo, approximately 10 minutes after applying the mixture.

The active agent formulation is rinsed from the hair after its application. The hair may be rinsed and subsequently washed immediately (*e.g.* within 10 to 15 seconds following application) after the final application of the active agent. Preferably, the hair is rinsed and/or washed about 10 minutes or later after the
5 final application of the active agent, such as about 15 minutes to about 30 minutes, optionally about 20 minutes after repeated application of the active agent to the hair.

The active agents are generally washed from the individual's hair on the same day as they are applied. In contrast, traditional perms which use only
10 hydrogen peroxide (and do not involve the addition of the active agent) are generally not washed for at least 48 hours following application (washing the hair prior to 48 hours following a traditional permanent treatment may result in significant loss in the amount of curl in the hair and/or cause damage to the hair).

15 The formulation described herein improves hair quality, such as appearance (*e.g.*, sheen) and feel, and decreases hair breakage when the hair is subjected to treatments, such as coloring or permanent waving.

In some embodiments, hair breakage decreases by 5, 10, 15, 20, 25, 30, 35, 40, 45, or 50% or higher after treatment with the active agent compared to
20 untreated hair from the same individual. Hair breakage is a significant problem encountered during coloring and other treatments.

B. Chemical treatment of hair with a reducing agent

In one embodiment, prior to treatment with the active agent, the hair has been subjected to a reducing agent used for waving (also referred to herein as
25 hair perming or permanent waves), and/or curling of the hair.

a. Apply a reducing agent to the hair

The first step in waving or curling hair is breaking the cysteine disulfide bonds to form free thiol moieties. The process for breaking the cysteine disulfide bonds is via application of a reducing agent. The process for applying
30 the reducing agent involves following normal perming or hair straightening procedures that are known to those skilled in the art. For example, to perm hair,

the hair is first washed and set on perm rods of various sizes. Second, a reducing agent, such as thioglycolate reducing solution or lotion is applied to the hair. The hair is allowed to set for a specified period of time, and then the thioglycolate solution is rinsed from the hair.

- 5 The application of hydrogen peroxide in this process is optional. In some processes, such as when treating previously chemically treated hair, hydrogen peroxide is generally not used. In other processes, such as when perming virgin hair, hydrogen peroxide may be added. In these embodiments, hydrogen peroxide is typically added after the reducing agent is rinsed out.
- 10 Then the hydrogen peroxide is rinsed from the hair prior to adding the active agent.

b. Apply the active agent

- Subsequent to the reducing treatment, one or more of the active agent, or a formulation thereof is applied to the hair. Although the agent is typically
- 15 applied on the same day as treatment with the reducing agent, it may be applied later such as within 1 to 2 weeks following treatment with the reducing agent.

- Typically, the amount of active agent formulation applied is sufficient to saturate the hair. The agent is generally rinsed and shampooed from the hair after the desired level of hair waving or curling is achieved. In some
- 20 embodiments, the active agent is rinsed from the hair immediately (*e.g.* within 10, 15, 25, 30, 45, or 60 seconds following application) following the final application of the active agent. Alternatively the hair may be rinsed and washed about within about 30 minutes following application, preferably between about 5 minutes and about 20 minutes, more preferably about 10 minutes after the
- 25 final application of the active agent to the hair, depending on the hair type. The active agent can be rinsed from the hair within 10, 15, 25, 30, 45, 60 seconds from the hair after application, and still achieve a desired level of hair waving or curling.

- The active agent may be applied to the hair as a single application, or
- 30 application of the agent may be repeated one or more times. Typically, the amount of active agent formulation applied in each application is sufficient to

saturate the hair. In some embodiments, the volume of active agent formulation applied to the hair in each application is about 1 to about 10 mL per perm rod. In some embodiments, application of the active agent could be repeated immediately (*e.g.* within 10 to 15 seconds) or approximately 1, 5, 7.5, 10, 12.5,
5 15, 17.5, or 20 minutes after the first application. In some embodiments, the second application is about 7 minutes to about 10 minutes after the first application.

The active agent is rinsed from the hair after its application. The hair may be rinsed and washed immediately (*e.g.* within 10 to 15 seconds following
10 application) after final application of the active agent. Alternatively the hair may be rinsed and washed about 10 minutes or later after the final application of the active agent, such as about 15 minutes to about 30 minutes, preferably about 20 minutes after repeated application of the active agent to the hair.

The active agents are generally washed from the individual's hair on the
15 same day as they are applied. In contrast, traditional perms which use only hydrogen peroxide (and do not involve the addition of the active agent) are generally not washed for at least 48 hours following application (washing the hair prior to 48 hours following a traditional permanent treatment may result in significant loss in the amount of curl in the hair and/or cause damage to the
20 hair).

The formulations described herein can be applied to hair to improve hair quality, such as appearance (*e.g.*, sheen) and feel, and decrease hair breakage when the hair is subjected to subsequent treatments, such as coloring.

In some embodiments, hair breakage decreases by 5, 10, 15, 20, 25, 30,
25 35, 40, 45, or 50% or higher after application of the active agent compared to untreated hair from the same individual. Hair breakage is a significant problem encountered during coloring and other treatments.

C. Treatment of skin or nails with the active agent

In one embodiment, a formulation containing one or more of the active
30 agents is applied to the skin or nails. Application of the active agent formulation

to skin or nails can help repair damaged disulfide bonds due to natural wear and tear or natural aging.

In some embodiments the active agent formulation is in the form of a cream or lotion, which is suitable for application to the skin or nails. In other
5 embodiments, the active agent formulation is in the form of a gel or polish, which is suitable for application to the nails. Typically, the amount of active agent formulation applied is sufficient to treat the damaged keratin in the skin or nails. The active agent formulation may be applied to the skin or nails in a single application, or application of the formulation may be repeated one or more
10 times, as needed, to achieve the desired effect of repairing keratin damage and/or strengthening the skin or nails.

IV. Kit

Kits for treating hair are provided. In one embodiment, the kit typically contains a first formulation for coloring hair. The hair coloring formulations
15 typically include a reducing agent capable of reducing disulfide bonds in hair to produce free thiol groups. The kit also includes a second formulation containing an effective amount of the active agent.

The kit may further include a developer bottle, gloves, shampoo, conditioner, and/or an odor eliminator. Instructions for use of the kit are also
20 typically provided.

Typically the kit contains more than one container (or more than one compartment in a given container) to ensure that the lightening agent (*e.g.*, peroxides) or the coloring agent is stored separately from the active agent.

A. First Formulation

25 The first formulation in the kit can be a coloring treatment. The first formulation may be formulated as two or more components which may be mixed together before application to the hair. For example, the first formulation may be in the form of two components such as a dye precursor and an oxidant. Typically, the hair coloring formulation contains a reducing agent capable of
30 reducing the disulfide bonds in hair and producing reduced free thiol groups. Suitable reducing agents include, but are not limited to, thioglycolic acid,

thiolactic acid, dihydrolipoate, thioglycerol, mercaptopropionic acid, sodium bisulfite, ammonium bisulfide, zinc formaldehyde sulfoxylate, sodium formaldehyde sulfoxylate, sodium metabisulfite, potassium borohydride, pegylated thiols and hydroquinone. The amount of the reducing agent in the first formulation is sufficient to rupture a sufficient number of disulfide bonds for effective diffusion of the hair coloring ingredients as would be appreciated by one of skill in the art.

The components of the first formulation may differ depending on the hair coloring treatment desired (such as for semi-permanent, demi-permanent, or permanent hair color), the texture of the hair, the sensitivity of the user's skin, and such the like. Hair coloring formulations for different hair coloring treatment, hair texture, and hair sensitivity are known to those of skill in the art.

B. Active agent formulation

The second formulation contains one or more active agents in an effective amount. Suitable formulations containing the active agents are discussed above. The second formulation may be in any suitable form. Suitable forms include, but are not limited to, low to moderate viscosity liquids, lotions, milks, mousses, sprays, gels, creams, shampoos, conditioners, and the like. The second formulation will be present in a suitable container, which depends on the form of the formulation.

In one embodiment, the active agent formulation is provided as two or more separate ingredients. For example, the active agent may be provided as a dry powder in a sealed package and the excipient provided in a vial or other container. A suitable mixing container for the active agent and the excipient may be provided.

In some embodiments, the active agent formulation (or second formulation) is mixed with the first formulation (or hair coloring treatment), and the mixture is applied to the hair.

C. Other materials in the kit

The kit optionally contains shampoos and conditioners. Suitable shampoos and conditioners include, but are not limited to LiQWd® Hydrating Shampoo and LiQWd® Hydrating Conditioner.

5 The kit may further contain an odor eliminator. The odor eliminator can be incorporated into the first or second formulation, or a mixture thereof. Alternately, the odor eliminator is present in a suitable container for use before or after washing the second formulation from the hair. Some suitable odor eliminators are known to those of ordinary skill in the art.

10 It is understood that the disclosed method and formulations are not limited to the particular methodology, protocols, and reagents described as these may vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to limit the scope of the present invention which will be limited only by the appended
15 claims.

Examples

Example 1: Color retention and texture of colored hair treated with the active agent formulation.

General

20 Three hair samples were obtained from a human subject and cut in ½ inch wide wefts.

Coloring formulation: The permanent hair coloring formulation was obtained from a L'Oreal® permanent hair coloring service (L'Oreal® Majirel permanent color #10 with 20 volume peroxide).

25 *Active agent formulation:* Maleic acid, at a concentration of 200 mg in 10 g total solution (water) was used.

Methods

The hair samples were washed with a clarifying shampoo then towel dried. The samples were then colored with the L'Oreal® permanent hair color
30 service, which was left on the hair samples for approximately 35-40 minutes.

The first color treated hair sample ("control") was subsequently rinsed and washed with Liqwd® Hydrating Shampoo and Conditioner five times before being photographed.

5 The active agent formulation was applied to the second and third color treated hair samples via a spray bottle and massaging using the fingers. The active agent formulation was left on the second hair sample for a period of about 1 minute and on the third sample for a period of about 10 minutes. The hair samples were subsequently rinsed, and then washed with Liqwd® Hydrating Shampoo and Conditioner five times before being examined.

10 Results:

The hair samples treated with the active agent formulation showed better color retention, more shine, and less frizz than the control. The hair samples treated with the active agent formulation felt smoother to the touch and combined with the lower frizz and added sheen gave an overall healthier appearance over the control.

Example 2: Comparison of color retention in traditionally permed hair and hair permed using the active agent formulations.

Method

20 A ½ inch wide weft of hair sample, obtained from a human subject, was washed with clarifying shampoo then towel dried. Ammonium thioglycolate or dithiothreitol was mechanically pulled through the hair with a wide and a fine toothcomb several times then left on the hair for 10 minutes to 1 hour. The hair was then rinsed for 30 seconds to 1 minute with water, and then towel dried.

25 The active agent formulation, described in Example 1 (Maleic acid in water), was then applied via a needle nose applicator drenching the hair and leaving it on for 7.5 minutes. This step was repeated, for a total of 15 minutes. The hair was then rinsed for 1-2 minutes, shampooed, and then conditioned with various salon shampoo and conditioner brands, including LiQWd® Hydrating Shampoo and Hydrating Conditioner.

A second sample of hair was straightened, as described above, but using hydrogen peroxide instead of the active agent formulation. The hair samples were washed and conditioned repeatedly.

Comparison of hair color:

5 After both hair samples were washed five times using LiQWd® Hydrating Shampoo and LiQWd® Hydrating Conditioner, the samples were examined for their color retention.

Results

10 The hair sample treated with the active agent formulation displayed a color closer in intensity to the hair sample prior to the first washing, compared to the hair treated with hydrogen peroxide.

Example 3: Comparison of hair treated with highlighting formulation applied simultaneously with active agent formulation and hair treated with highlighting formulation alone

15 The active agent formulation in Example 1 contained maleic acid at concentrations of 2.0 g in 10 g total solution (water).

Two swatches of human hair were tested. A sample was taken from the same head, 1 inch wide, and split in half. The color was medium brown and had been previously color treated with an unknown professional hair color.

20 Swatch 1, 1/2 inch wide and 8 inches long, was lightened with traditional highlighting ingredients mixed with the active agent formulation. 1oz of Joico Verocolor Veroxide developer-20 volume was mixed with 1oz Joico Verolight powder bleach to form the highlighting formulation. Then 9mL of the active agent formulation was added to the highlighting formulation to form a mixture.

25 The mixture was applied on the Swatch 1 hair with an applicator brush as the hair lay on aluminum foil. The foil was then wrapped around the swatch and allowed to process for 35 minutes. The swatch was rinsed and shampooed one time.

30 Swatch 2, the control, 1/2 inch wide and 8 inches long, was lightened with traditional highlighting ingredients in the absence of the active agent formulation. 1oz of Joico Verocolor Veroxide developer-20 volume was mixed

with 1oz Joico Verolight powder bleach to form a highlighting formulation with a creamy consistency.

The highlighting formulation was applied on the Swatch 2 hair with an applicator brush as the hair lay on aluminum foil. The foil was then wrapped around the swatch and allowed to process for 35 minutes. The swatch was rinsed and shampooed one time.

Results

A noticeable difference in hair quality between Swatch 1 and Swatch 2 was observed. Swatch 1 hair was softer, less frizzy, appeared hydrated, with more shine than the control, Swatch 2.

Both swatches were washed and conditioned 5 more times with the same noticeable benefits of Swatch 1 (treated with the mixture of highlighting formulation and active agent formulation) compared to the control, Swatch 2 (treated with highlighting formulation, alone).

Example 4: Comparison of hair treated with bleaching formulation applied simultaneously with active agent formulation and hair treated with bleaching formulation alone

General

Two hair samples were obtained from a human subject and cut in ½ inch wide wefts.

Methods

(1) 0.5 ounces of powder lightener (Clairol Professional, Basic White) and 0.5 ounces of conditioning cream developer (Redken, Blonde Icing) were combined to form a bleaching mixture. 3.5 g of 2-(methacryloyloxy)ethan-1-aminium (Z)-3-carboxyacrylate (12 wt % in water) was added to the bleaching mixture and thoroughly mixed with a brush.

(2) The bleaching mixture prepared was brushed onto the swatches of hair with a brush in order to thoroughly coat the strands of hair. The mixture coated hair was wrapped in aluminum paper and allowed to stand under ambient conditions for a period of two hours.

(3) After the two hour bleaching period the swatches of hair were washed with shampoo and the hair was subsequently allowed to air dry.

Results

A noticeable difference in hair quality between Swatch 1 and Swatch 2 was observed. Swatch 1 hair was demonstrated no discernible breakage, great feel, and a healthy appearance while the control (treated with bleaching formulation, alone) showed some breakage, had a rough feel, and was frayed with an unhealthy appearance.

Example 5: Comparison of hair treated with bleaching formulation applied simultaneously with active agent formulation and hair treated with bleaching formulation alone

General

Two hair samples were obtained from a human subject and cut in ½ inch wide wefts.

Methods

(1) 0.5 ounces of powder lightener (Clairol Professional, Basic White) and 0.5 ounces of conditioning cream developer (Redken, Blonde Icing) were combined to form a bleaching mixture. 3.5 g of prop-2-en-1-aminium (Z)-3-carboxyacrylate (10 wt% in water) was added to the bleaching mixture and thoroughly mixed with a brush.

(2) The bleaching mixture prepared was brushed onto the swatches of hair with a brush in order to thoroughly coat the strands of hair. The mixture coated hair was wrapped in aluminum paper and allowed to stand under ambient conditions for a period of two hours.

(3) After the two hour bleaching period the swatches of hair were washed with shampoo and the hair was subsequently allowed to air dry.

Results

A noticeable difference in hair quality between Swatch 1 and Swatch 2 was observed. Swatch 1 hair was demonstrated no discernible breakage, great feel, and a healthy appearance while the control (treated with bleaching

formulation, alone) showed some breakage, had a rough feel, and was frayed with an unhealthy appearance.

Example 6: Comparison of traditional perm versus perm using maleic acid

5 General

Hair samples were obtained from a human subject and cut in ½ inch wide wefts.

Reducing agents: Ammonium thioglycolate (ATG) was obtained from a permanent wave kit manufactured by Zotos. 300 mg of Dithiothreitol in a 10g
10 solution was also used as the reducing agent.

Active agent formulation: Maleic acid at a concentration of 200 mg in 10 g total solution (water) was used.

Methods

Method for perming hair using the active agent

15 The hair was washed with clarifying shampoo, towel dried, and then rolled around a perm rod. Ammonium thioglycolate or dithiothreitol was then applied to the hair and left on the hair for 10 minutes to 1 hour. The hair was then rinsed for 30 seconds to 1 minute and then blotted dry with a towel.

20 The active agent formulation was applied to the hair, via a needle nose applicator, drenching the hair. The active agent formulation was left on the hair for a period of about 7.5 minutes. The hair was drenched for a second time with the active agent formulation and left for a second 7.5 minutes, for a total of 15 minutes. The hair was then rinsed with water for about 1-2 minutes then unrolled from the perm rods. After the hair was removed from the perm rods,
25 the hair was shampooed and conditioned with various salon shampoo and conditioner brands, including LiQWd® Hydrating Shampoo and Hydrating Conditioner. The washing and drying steps were repeated 40 times.

A second portion of hair was permed as described above, except, hydrogen peroxide was used instead of the active agent formulation.

30

Results

Both perms (utilizing the active agent formulation or hydrogen peroxide) showed only slight reduction in the overall curl after 40 cycles of washing and drying with the same shampoo and conditioner. However, the appearance and texture of the perm using the active agent formulation showed more sheen and less frizz compared to the perm using hydrogen peroxide.

Example 7: Comparison of hair breakage due to repeated application of traditional perm and the active agent formulation.

Methods

Two hair samples were obtained. Both samples were treated with dithiothreitol or ammonium thioglycolate as described in Example 4. One of the hair samples was subsequently treated with the active agent formulation (Maleic acid in water), while the other was neutralized with hydrogen peroxide. The process was completed the same day for the hair treated with the active agent formulation. The process was completed in three days with hydrogen peroxide (traditional perm).

The procedure was repeated three times for each hair sample over a 48 hour time period.

Results

Upon visual inspections, the second hair sample treated with the active agent formulation showed little or no signs of breakage. However, the first hair sample treated with hydrogen peroxide showed significant breakage.

Example 8: Comparison of the extent of damage to hair previously relaxed with a Japanese relaxer

Methods

Two samples of hair, the first previously straightened with a Japanese relaxer (Yuko), and the second previously straightened with a no lye relaxer (African Pride Miracle Deep Conditioning) were obtained. The samples were treated as described in Examples 4 and 5 using the active agent formulation (Maleic acid in water).

Another hair sample, previously straightened with a no lye relaxer (African Pride Miracle Deep Conditioning) was obtained. The sample was treated with a traditional hair straightening perm (Zotos).

Results

5 The hair samples treated with the active agent formulation showed no noticeable damage. However, the sample treated with a traditional perm showed significant breaking, even during application.

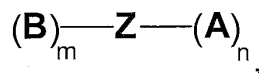
 Unless defined otherwise, all technical and scientific terms used herein have the same meanings as commonly understood by one of skill in the art to
10 which the disclosed invention belongs. Publications cited herein and the materials for which they are cited are specifically incorporated by reference.

 Those skilled in the art will recognize, or be able to ascertain using no more than routine experimentation, many equivalents to the specific
embodiments of the invention described herein. Such equivalents are intended to
15 be encompassed by the following claims.

We claim:

1. A method for treating hair comprising:
 - (a) applying to the hair a formulation comprising an active agent,

wherein the active agent has the formula:



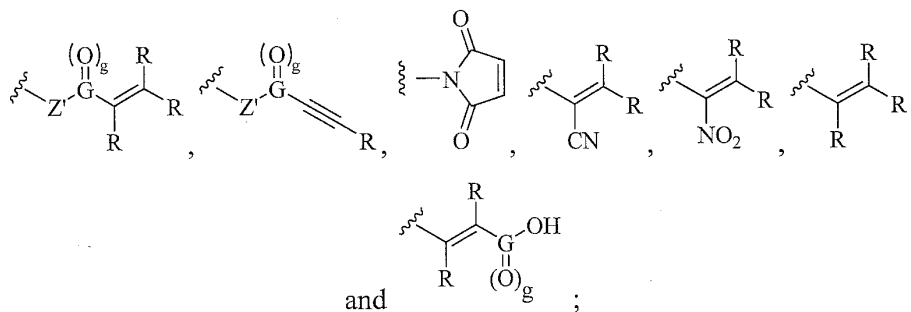
wherein Z is a linker or is absent;

m and n are each an integer independently selected from 0-6, and the sum of m+n is equal to or greater than 2;

B is a functional group capable of forming a covalent bond with a nucleophile; and

A is an ionizable functional group.

2. The method of claim 1, wherein B is independently selected from the group consisting of:



wherein R is independently selected from the group consisting of hydrogen, C₁₋₆ alkyl groups, aryl groups, or an ionizable functional groups; Z' is oxygen (O), NH or is absent, and G is carbon (C) and g is 1, or G is sulfur (S) and g is 2; and A is independently selected from the group consisting of: -COOH, -SO₃H, -PO₃H₂, -N(R¹)₂, -N(R¹)₃; wherein R¹ is independently selected from the group consisting of a hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and heteroaryl groups; wherein each R¹ is independently unsubstituted or substituted with one or more substituents.

3. The method of claim 1, wherein the linker Z is an alkyl group, alkenyl group, cycloalkyl group, cycloalkenyl group, aryl group, heterocycloalkyl group, or heteroaryl group,

wherein the alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, or heteroaryl group, is unsubstituted or substituted one or more times by a halogen, cyano, alkoxy, alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, heteroaryl, amine, hydroxy, oxo, formyl, acyl, carboxylic acid (-COOH), -C(O)R¹, -C(O)OR¹, (-COO⁻), primary amide (e.g., -CONH₂), secondary amide (e.g., -CONHR¹), -C(O)NR¹R², -NR¹R², -NR¹S(O)₂R², -NR¹C(O)R², -S(O)₂R², -SR¹, -S(O)₂NR¹R², -SOR¹, or -SOOR¹;

wherein R¹ and R² are each independently selected from the group consisting of a hydrogen, alkyl group, alkenyl group, alkynyl group, cycloalkyl group, aryl group, heterocycloalkyl, and heteroaryl group, wherein each of R¹ and R² is independently unsubstituted or substituted with one or more substituents.

4. The method of claim 1, wherein the linker Z is a C₁₋₄ alkyl group.

5. The method of claim 4, wherein the alkyl group is substituted with one or more substituents replacing a hydrogen on one or more carbons of the alkyl hydrocarbon backbone or the alkyl group is substituted with one or more heteroatoms within the hydrocarbon carbon backbone, or a combination thereof, and

wherein the substituents are selected from the group consisting of oxo, hydroxyl, carboxyl, amido, and amino groups.

6. The method of claim 1, further comprising the step of:

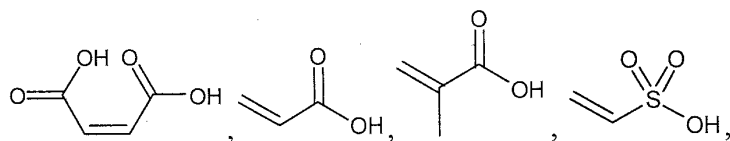
applying a first formulation comprising a reducing agent capable of reducing disulfide bonds in the hair to produce free thiol groups,

wherein the step is performed prior to step (a).

7. The method of claim 6, wherein the reducing agent is selected from the group consisting of thioglycolic acid and its derivative salts and esters, thiolactic acid and its derivative salts and esters, cysteine and its derivatives, cysteamine and its derivatives, inorganic sulfites, sodium metabisulfite, other inorganic bisulfites, dithiothreitol, dithioerythritol, organic phosphines, and Japanese relaxers.

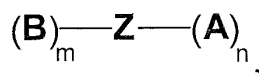
8. The method of claim 1, further comprising prior to or simultaneously with step (a),
applying to the hair a coloring formulation comprising a hair coloring agent and a reducing agent capable of reducing disulfide bonds in the hair to produce free thiol groups.
9. The method of claim 8, wherein prior to step (a), the coloring formulation is applied to the hair.
10. The method of claim 1, further comprising prior to or simultaneously with step (a), applying to the hair a bleaching formulation comprising a bleaching agent to lighten the hair and produce free thiol groups.
11. The method of claim 10, wherein prior to step (a), the bleaching formulation is applied to the hair.
12. The method of claim 1, wherein the formulation further comprises one or more pharmaceutically acceptable excipients selected from the group consisting of water, surfactants, vitamins, natural extracts, preservatives, chelating agents, perfumes, preservatives, antioxidants, proteins, amino acids, humectants, fragrances, emollients, penetrants, thickeners, viscosity modifiers, hair fixatives, film formers, emulsifiers, opacifying agents, propellants, liquid vehicles, carriers, salts, pH adjusting agents, neutralizing agents, buffers, hair conditioning agents, anti-static agents, anti-frizz agents, anti-dandruff agents, and combinations thereof.
13. The method of claim 1, wherein the active agent is present in an amount ranging from about 0.01 wt% to about 10 wt% of the formulation.
14. The method of claim 1, wherein the active agent is present in an amount ranging from about 0.5 to 3 wt% of the formulation.
15. The method of claim 12, wherein the one or more excipients are present in an amount ranging from about 50 wt% to about 90 wt% of the formulation.
16. The method of claim 1, wherein the formulation is in the form of a gel, cream, lotion, shampoo, or conditioner.
17. The method of claim 1, wherein step (a) is repeated one or more times.

18. The method of claim 1, further comprising:
 (b) rinsing, shampooing, or conditioning the hair, or a combination thereof,
 wherein step (b) occurs subsequent to step (a).
19. The method of claim 18, wherein step (b) is performed about 10 minutes after step (a).
20. The method of claim 8, wherein the hair coloring agent is selected from the group consisting of highlighting agents, permanent coloring agents, demi-permanent coloring agents, and semi-permanent coloring agents.
21. The method of claim 1, wherein the active agent is selected from the group consisting of:



and simple salts thereof.

22. A kit comprising:
 (a) a first formulation comprising a hair coloring agent and a reducing agent capable of reducing disulfide bonds in hair to produce free thiol groups,
 and
 (b) a second formulation comprising an active agent,
 wherein the active agent has the formula:



wherein Z is a linker or is absent;

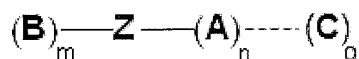
m and n are each an integer independently selected from 0-6, and wherein the sum of m+n is equal to or greater than 2;

B is a functional group capable of forming a covalent bond with a nucleophile;
 and

A is an ionizable functional group.

23. The kit of claim 22, further comprising a shampoo, a conditioner, instructions for use, a developer, gloves, or a combination thereof.

24. A method for treating hair comprising:
 (a) applying to the hair a formulation comprising an active agent,
 wherein the active agent has the formula:



Formula II

wherein Z is a linker or is absent;

m and n are each an integer independently selected from 0-6, and the sum of m+n is equal to or greater than 2;

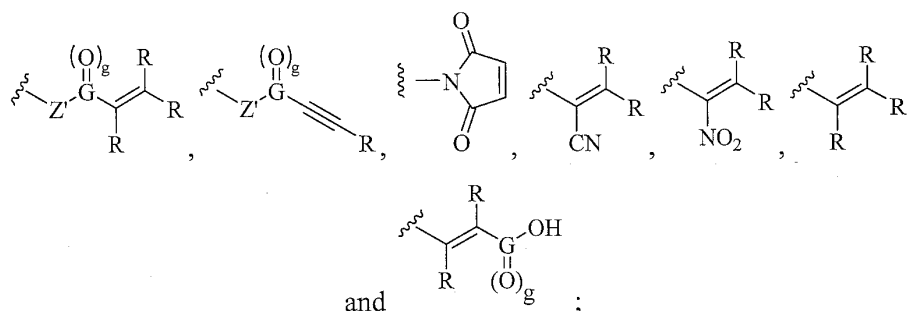
B is a functional group capable of forming a covalent bond with a nucleophile;

A is an ionizable functional group; and

C contains an ionic group and a functional group capable of forming a covalent bond with a nucleophile, and has a charge opposite to that of the ionizable group A, and

o is an integer value independently selected from 0-6, such that the sum of charges of C and A is zero.

25. The method of claim 24, wherein B is independently selected from the group consisting of:



wherein R is independently selected from the group consisting of hydrogen, C₁₋₆ alkyl groups, aryl groups, or an ionizable functional groups; Z' is oxygen (O), NH or is absent, and G is carbon (C) and g is 1, or G is sulfur (S) and g is 2; and A is independently selected from the group consisting of: -COOH, -SO₃H, -PO₃H₂ and -N(R¹)₂, -N(R¹)₃; wherein R¹ is independently selected from the

group consisting of a hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and heteroaryl groups; wherein each R¹ is independently unsubstituted or substituted with one or more substituents.

26. The method of claim 24, wherein the linker Z is an alkyl group, alkenyl group, cycloalkyl group, cycloalkenyl group, aryl group, heterocycloalkyl group, or heteroaryl group,

wherein the alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, or heteroaryl group is unsubstituted or substituted one or more times by a halogen, cyano, alkoxy, alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, heteroaryl, amine, hydroxy, oxo, formyl, acyl, carboxylic acid (-COOH), -C(O)R¹, -C(O)OR¹, (-COO⁻), primary amide (*e.g.*, -CONH₂), secondary amide (*e.g.*, -CONHR¹), -C(O)NR¹R², -NR¹R², -NR¹S(O)₂R², -NR¹C(O)R², -S(O)₂R², -SR¹, -S(O)₂NR¹R², -SOR¹, or -SOOR¹;

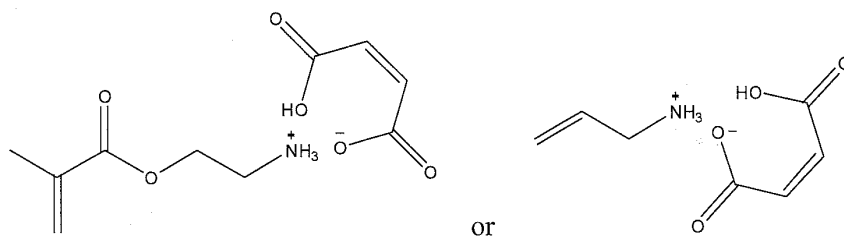
wherein R¹ and R² are each independently selected from the group consisting of a hydrogen, alkyl group, alkenyl group, alkynyl group, cycloalkyl group, aryl group, heterocycloalkyl, and heteroaryl group, wherein each of R¹ and R² is independently unsubstituted or substituted with one or more substituents.

27. The method of claim 24, wherein the linker Z is a C₁₋₄ alkyl group.

28. The method of claim 27, wherein the alkyl group is substituted with one or more substituents replacing a hydrogen on one or more carbons of the alkyl hydrocarbon backbone or the alkyl group is substituted with one or more heteroatoms within the hydrocarbon carbon backbone, or a combination thereof, and

wherein the substituents are selected from the group consisting of oxo, hydroxyl, carboxyl, amido, and amino groups.

29. The method of claim 24, wherein the active agent is:



KERATIN TREATMENT FORMULATIONS AND METHODS

ABSTRACT

Formulations, kits, and methods for rebuilding the disulfide bonds in keratin found in hair, skin, or nails. Hair that is damaged due to a hair coloring treatment and/or other reducing treatment, such as during a permanent wave, can be treated with the formulations containing one or more active agents. The formulations may be applied subsequent to a hair coloring treatment or simultaneously with a hair coloring treatment. Use of the active agent formulations during a permanent wave treatment prevents the reversion of the hair to its previous state, for at least one week, preferably at least three months, more preferably at least one year, most preferably greater than one year, after one or more than one application of the formulation. Application of the active agent formulation to skin or nails can help repair damaged disulfide bonds due to natural wear and tear or natural aging.

Electronic Acknowledgement Receipt	
EFS ID:	27177296
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit
Filer Authorized By:	
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	11-OCT-2016
Filing Date:	
Time Stamp:	16:08:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WebADS.pdf	133784 ff03905f54780399222a05eff8eb3407fb26cf48	no	8
Warnings:					

Information:					
2	Transmittal of New Application	LIQ_103_CON_2_Transmittal.pdf	106890 a84e926a2cce7072881699ab22ba440e819f0ad2	no	2
Warnings:					
Information:					
3	Oath or Declaration filed	LIQ_103_Declarations.pdf	1514172 9ee0e37cd598b9fef9600c8b9f8a539819751878	no	2
Warnings:					
Information:					
4		LIQ_103_Application.pdf	2270146 9ed452f593578ad18d6a1906066ee3574892f5cd0	yes	50
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Miscellaneous Incoming Letter		1	1	
	Specification		2	42	
	Claims		43	49	
	Abstract		50	50	
Warnings:					
Information:					
Total Files Size (in bytes):			4024992		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)
		Application Number	
Title of Invention	Keratin Treatment Formulations and Methods		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Eric	D.	Pressly	
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service				
City	Santa Barbara	State/Province	CA	Country of Residence ⁱ US
Mailing Address of Inventor:				
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Address 2				
City	Santa Barbara	State/Province	CA	
Postal Code	93108	Country ⁱ	US	
Inventor 2				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Craig	J.	Hawker	
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service				
City	Santa Barbara	State/Province	CA	Country of Residence ⁱ US
Mailing Address of Inventor:				
Address 1		1420 Greenworth Place		
Address 2				
City	Santa Barbara	State/Province	CA	
Postal Code	93108	Country ⁱ	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)
		Application Number	
Title of Invention	Keratin Treatment Formulations and Methods		

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence information of this application.**

Customer Number	23579		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	Keratin Treatment Formulations and Methods		
Attorney Docket Number	LIQ 103 CON (2)	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	23579		

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)	
		Application Number		
Title of Invention	Keratin Treatment Formulations and Methods			

Prefix	Given Name	Middle Name	Family Name	Suffix	Remove
Registration Number					
Prefix	Given Name	Middle Name	Family Name	Suffix	Remove
Registration Number					
Additional Representative Information blocks may be generated within this form by selecting the Add button.					

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the application number blank.

Prior Application Status		Pending		Remove	
Application Number	Continuity Type		Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)	
	Continuation of		15087415	2016-03-31	

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15087415	Continuation of	14713885	2015-05-15	9326926	2016-05-03

Prior Application Status		Expired		Remove	
Application Number	Continuity Type		Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)	
14713885	Claims benefit of provisional		61994709	2014-05-16	
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)
		Application Number	
Title of Invention	Keratin Treatment Formulations and Methods		
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Access Code ¹ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. ☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.
--

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)
		Application Number	
Title of Invention	Keratin Treatment Formulations and Methods		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)
		Application Number	
Title of Invention	Keratin Treatment Formulations and Methods		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

[Clear](#)

☒ Assignee
 ☐ Legal Representative under 35 U.S.C. 117
 ☐ Joint Inventor

☐ Person to whom the inventor is obligated to assign.
 ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name Liqwd, Inc.

Mailing Address Information For Applicant:

Address 1		1482 E. Valley Road, #701	
Address 2			
City	Santa Barbara	State/Province	CA
Country ¹	US	Postal Code	93108
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)
		Application Number	
Title of Invention	Keratin Treatment Formulations and Methods		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	LIQ 103 CON (2)
		Application Number	
Title of Invention	Keratin Treatment Formulations and Methods		

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Rivka D. Monheit/			Date (YYYY-MM-DD)	
First Name	Rivka	Last Name	Monheit	Registration Number	48731
Additional Signature may be generated within this form by selecting the Add button.					



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/290,593	10/11/2016	1764	0.00	LIQ 103 CON (2)	29	3

CONFIRMATION NO. 3136

FILING RECEIPT



23579
Pabst Patent Group LLP
1545 PEACHTREE STREET NE
SUITE 320
ATLANTA, GA 30309

Date Mailed: 10/24/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Eric D. Pressly, Santa Barbara, CA;
Craig J. Hawker, Santa Barbara, CA;

Applicant(s)

Liqwd, Inc., Santa Barbara, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/087,415 03/31/2016
which is a CON of 14/713,885 05/15/2015 PAT 9326926
which claims benefit of 61/994,709 05/16/2014

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/20/2016

page 1 of 3

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/290,593**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Keratin Treatment Formulations and Methods

Preliminary Class

008

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)

CONFIRMATION NO. 3136

FORMALITIES LETTER



23579
Pabst Patent Group LLP
1545 PEACHTREE STREET NE
SUITE 320
ATLANTA, GA 30309

Date Mailed: 10/24/2016

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Additional claim fees of \$ **360** as a small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
The surcharge is due for any one of:
 - late submission of the basic filing fee, search fee, or examination fee,
 - late submission of inventor's oath or declaration,
 - filing an application that does not contain at least one claim on filing, or
 - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ **70** basic filing fee.
- \$ **70** surcharge.
- \$ **300** search fee.
- \$ **360** examination fee.
- \$ **360** for **9** total claims over 20.

- \$(0) previous unapplied payment amount.
- **\$ 1160** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at
(571) 272-4000 or **(571) 272-4200** or **1-888-786-0101**.

/fhadera/

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/290,593				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A				
SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A	300		N/A				
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	29	minus 20 = * 9	x 40 =	360	OR					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 210 =	0.00						
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00						
			TOTAL	1090		TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Liqwd, Inc.

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Examiner: Unassigned

Filed: October 11, 2016

Art Unit: 1764

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

Prior to examination, please consider the following amendments and remarks.

Amendments to the Specification begin on **page 2**.

Amendments to the Claims begin on **page 3**.

Remarks begin on **page 11**.

Amendment

In the Specification

Please replace the paragraph on page 1, lines 4-6, with the following paragraph.

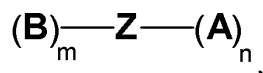
This application is a continuation of U.S. Application 15/087,415, filed March 31, 2016,
now U.S. Patent No. 9,498,419, which is a continuation of U.S. Application 14/713,885, filed
May 15, 2015, now U.S. Patent No. 9,326,926, which claims benefit and priority to U.S.
Provisional Application Serial No. 61/994,709, filed May 16, 2014, the ~~disclosure~~ disclosures of
which are ~~is~~ incorporated herein by reference in ~~its~~ their entirety.

Amendments to the Claims

1. (Currently amended) A method for treating hair comprising:

(a) applying to the hair a formulation comprising an active agent,

wherein the active agent has the formula:



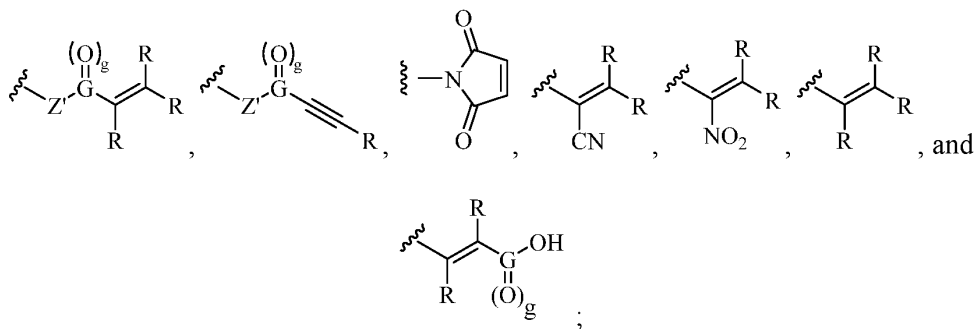
wherein Z is a linker or is absent;

m and n are each an integer independently selected from $[[0-6]]$ 1-6, and the sum of m+n is equal to or greater than 2;

B is a functional group capable of forming a covalent bond with a ~~nucleophile~~ thiol or amine group; and

A is an ionizable functional group.

2. (Original) The method of claim 1, wherein B is independently selected from the group consisting of:



wherein R is independently selected from the group consisting of hydrogen, C₁₋₆ alkyl groups, aryl groups, or an ionizable functional groups; Z' is oxygen (O), NH or is absent, and G is carbon (C) and g is 1, or G is sulfur (S) and g is 2; and

A is independently selected from the group consisting of: -COOH, -SO₃H, -PO₃H₂, -N(R¹)₂, -N(R¹)₃; wherein R¹ is independently selected from the group consisting of a hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and heteroaryl groups; wherein each R¹ is independently unsubstituted or substituted with one or more substituents.

3. (Currently amended) The method of claim 1, wherein the linker Z is an alkyl group, alkenyl group, cycloalkyl group, cycloalkenyl group, aryl group, heterocycloalkyl group, or heteroaryl group,

wherein the alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, or heteroaryl group, is unsubstituted or substituted one or more times by a halogen, cyano, alkoxy, alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, heteroaryl, amine, hydroxy, oxo, formyl, acyl, carboxylic acid (~~-COOH~~), -C(O)R¹, -C(O)OR¹, (-COO⁻), primary amide (~~e.g., -CONH₂~~), secondary amide (~~e.g., -CONHR¹~~), -C(O)NR¹R², -NR¹R², -NR¹S(O)₂R², -NR¹C(O)R², -S(O)₂R², -SR¹, -S(O)₂NR¹R², -SOR¹, or -SOOR¹;

wherein R¹ and R² are each independently selected from the group consisting of a hydrogen, alkyl group, alkenyl group, alkynyl group, cycloalkyl group, aryl group, heterocycloalkyl, and heteroaryl group, wherein each of R¹ and R² is independently unsubstituted or substituted with one or more substituents.

4. (Original) The method of claim 1, wherein the linker Z is a C₁₋₄ alkyl group.
5. (Original) The method of claim 4, wherein the alkyl group is substituted with one or more substituents replacing a hydrogen on one or more carbons of the alkyl hydrocarbon backbone or the alkyl group is substituted with one or more heteroatoms within the hydrocarbon carbon backbone, or a combination thereof, and

wherein the substituents are selected from the group consisting of oxo, hydroxyl, carboxyl, amido, and amino groups.

6. (Currently amended) The method of claim 1, further comprising the step of:

applying a first formulation comprising a reducing agent ~~capable of reducing disulfide bonds in the hair to produce free thiol groups,~~

wherein the step is performed prior to step (a).

7. (Original) The method of claim 6, wherein the reducing agent is selected from the group consisting of thioglycolic acid and its derivative salts and esters, thiolactic acid and its derivative salts and esters, cysteine and its derivatives, cysteamine and its derivatives, inorganic sulfites, sodium metabisulfite, other inorganic bisulfites, dithiothreitol, dithioerythritol, organic phosphines, and Japanese relaxers.

8. (Currently amended) The method of claim 1, further comprising prior to or simultaneously with step (a),

applying to the hair a coloring formulation comprising a hair coloring agent and a reducing agent ~~capable of reducing disulfide bonds in the hair to produce free thiol groups.~~

9. (Original) The method of claim 8, wherein prior to step (a), the coloring formulation is applied to the hair.

10. (Currently amended) The method of claim 1, further comprising prior to or simultaneously with step (a), applying to the hair a bleaching formulation comprising a bleaching agent to lighten the hair ~~and produce free thiol groups~~.

11. (Original) The method of claim 10, wherein prior to step (a), the bleaching formulation is applied to the hair.

Claim 12. (Canceled).

13. (Original) The method of claim 1, wherein the active agent is present in an amount ranging from about 0.01 wt% to about 10 wt% of the formulation.

14. (Original) The method of claim 1, wherein the active agent is present in an amount ranging from about 0.5 to 3 wt% of the formulation.

15. (Original) The method of claim 12, wherein the one or more excipients are present in an amount ranging from about 50 wt% to about 90 wt% of the formulation.

16. (Currently Amended) The method of claim 1, wherein the formulation is in the form of a liquid, a gel, a cream, or a lotion, ~~shampoo, or conditioner~~.

17. (Original) The method of claim 1, wherein step (a) is repeated one or more times.

18. (Original) The method of claim 1, further comprising:

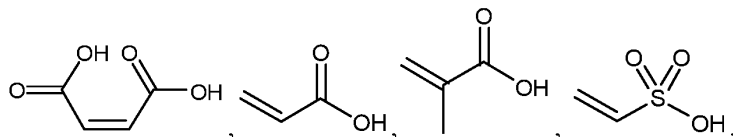
(b) rinsing, shampooing, or conditioning the hair, or a combination thereof,

wherein step (b) occurs subsequent to step (a).

19. (Original) The method of claim 18, wherein step (b) is performed about 10 minutes after step (a).

20. (Original) The method of claim 8, wherein the hair coloring agent is selected from the group consisting of highlighting agents, permanent coloring agents, demi-permanent coloring agents, and semi-permanent coloring agents.

21. (Original) The method of claim 1, wherein the active agent is selected from the group consisting of:



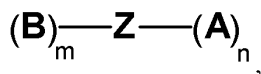
and simple salts thereof.

22. (Currently amended) A kit comprising:

(a) a first formulation comprising a hair coloring agent and a reducing agent ~~capable of reducing disulfide bonds in hair to produce free thiol groups~~, and

(b) a second formulation comprising an active agent,

wherein the active agent has the formula:



wherein Z is a linker or is absent;

m and n are each an integer independently selected from $[[0-6]]$ 1-6, and wherein the sum of m+n is equal to or greater than 2;

B is a functional group capable of forming a covalent bond with a ~~nucleophile~~ thiol or amine group; and

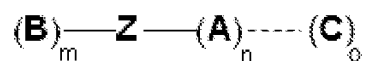
A is an ionizable functional group.

23. (Original) The kit of claim 22, further comprising a shampoo, a conditioner, instructions for use, a developer, gloves, or a combination thereof.

24. (Currently amended) A method for treating hair comprising:

(a) applying to the hair a formulation comprising an active agent,

wherein the active agent has the formula:



Formula II

wherein Z is a linker or is absent;

m and n are each an integer independently selected from $[[0-6]]$ 1-6, and the sum of m+n is equal to or greater than 2;

B is a functional group capable of forming a covalent bond with a ~~nucleophile~~ thiol or amine group;

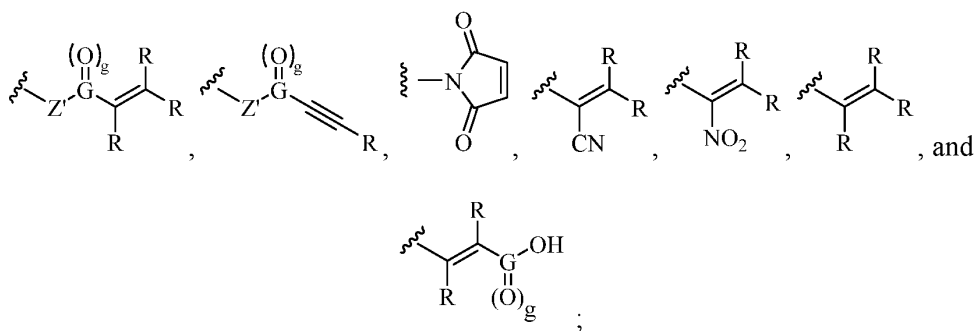
A is an ionizable functional group; and

C contains an ionic group and a functional group capable of forming a covalent bond with a ~~nucleophile~~ thiol or amine group, and has a charge opposite to that of the ionizable group

A, and

o is an integer value independently selected from 0-6, such that the sum of charges of C and A is zero.

25. (Original) The method of claim 24, wherein B is independently selected from the group consisting of:



wherein R is independently selected from the group consisting of hydrogen, C₁₋₆ alkyl groups, aryl groups, or an ionizable functional groups; Z' is oxygen (O), NH or is absent, and G is carbon (C) and g is 1, or G is sulfur (S) and g is 2; and

A is independently selected from the group consisting of: -COOH, -SO₃H, -PO₃H₂ and -N(R¹)₂, -N(R¹)₃; wherein R¹ is independently selected from the group consisting of a hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocycloalkyl and heteroaryl groups; wherein each R¹ is independently unsubstituted or substituted with one or more substituents.

26. (Currently amended) The method of claim 24, wherein the linker Z is an alkyl group, alkenyl group, cycloalkyl group, cycloalkenyl group, aryl group, heterocycloalkyl group, or heteroaryl group,

wherein the alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, or heteroaryl group is unsubstituted or substituted one or more times by a halogen, cyano, alkoxy, alkyl, alkenyl, cycloalkyl, cycloalkenyl, aryl, heterocycloalkyl, heteroaryl, amine, hydroxy, oxo, formyl, acyl, carboxylic acid (~~-COOH~~), -C(O)R¹, -C(O)OR¹, (-COO⁻), primary amide (~~e.g., -CONH₂~~), secondary amide (~~e.g., -CONHR¹~~), -C(O)NR¹R², -NR¹R², -NR¹S(O)₂R², -NR¹C(O)R², -S(O)₂R², -SR¹, -S(O)₂NR¹R², -SOR¹, or -SOOR¹;

wherein R¹ and R² are each independently selected from the group consisting of a hydrogen, alkyl group, alkenyl group, alkynyl group, cycloalkyl group, aryl group, heterocycloalkyl, and heteroaryl group, wherein each of R¹ and R² is independently unsubstituted or substituted with one or more substituents.

27. (Original) The method of claim 24, wherein the linker Z is a C₁₋₄ alkyl group.

28. (Original) The method of claim 27, wherein the alkyl group is substituted with one or more substituents replacing a hydrogen on one or more carbons of the alkyl hydrocarbon backbone or the alkyl group is substituted with one or more heteroatoms within the hydrocarbon carbon backbone, or a combination thereof, and

wherein the substituents are selected from the group consisting of oxo, hydroxyl, carboxyl, amido, and amino groups.

Remarks

The specification was amended to update the priority information.

Claims 1, 3, 6, 8, 10, 16, 22, 24, and 26 were amended. Claim 12 was cancelled.

Independent claims 1, 22 and 24 were amended to replace “0-6” with “1-6” and to replace the term nucleophile with the phrase “thiol or amine group”.

Dependent claims 3 and 26 were amended to remove parenthetical structures.

Dependent claims 6, 8, and 10 were amended to delete references to producing free thiol groups.

Claim 16 was amended to further specify the formulation can be in the form of a liquid. Support for this amendment can be found in the specification at least at page 25, line 22 through page 26, line 13; and page 33, lines 16-18.

U.S.S.N. 15/290,593
Filed: October 11, 2016
PRELIMINARY AMENDMENT

The amended claims are presented in accordance with 37 C.F.R. §1.121. No new matter has been added by way of this Preliminary Amendment, entry of which is respectfully requested.

Respectfully submitted,

/Rivka D. Monheit/
Rivka D. Monheit
Reg. No. 48,731

Date: January 24, 2017

PABST PATENT GROUP LLP
1545 Peachtree Street, NE
Suite 320
Atlanta, Georgia 30309
(404) 879-2152
(404) 879-2160 (Facsimile)

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) LIQ 103 CON (2)																														
Application Number 15/290,593	Filed October 11, 2016																															
For Keratin Treatment Formulations and Methods																																
Art Unit 1764	Examiner Unassigned																															
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below): <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th></th><th style="text-align: center;">Fee</th><th style="text-align: center;">Small Entity Fee</th><th style="text-align: center;">Micro Entity Fee</th><th></th></tr></thead><tbody><tr><td>☒ One month (37 CFR 1.17(a)(1))</td><td style="text-align: center;">\$200</td><td style="text-align: center;">\$100</td><td style="text-align: center;">\$50</td><td style="text-align: right;">\$ <u>100</u></td></tr><tr><td>☐ Two months (37 CFR 1.17(a)(2))</td><td style="text-align: center;">\$600</td><td style="text-align: center;">\$300</td><td style="text-align: center;">\$150</td><td style="text-align: right;">\$ _____</td></tr><tr><td>☐ Three months (37 CFR 1.17(a)(3))</td><td style="text-align: center;">\$1,400</td><td style="text-align: center;">\$700</td><td style="text-align: center;">\$350</td><td style="text-align: right;">\$ _____</td></tr><tr><td>☐ Four months (37 CFR 1.17(a)(4))</td><td style="text-align: center;">\$2,200</td><td style="text-align: center;">\$1,100</td><td style="text-align: center;">\$550</td><td style="text-align: right;">\$ _____</td></tr><tr><td>☐ Five months (37 CFR 1.17(a)(5))</td><td style="text-align: center;">\$3,000</td><td style="text-align: center;">\$1,500</td><td style="text-align: center;">\$750</td><td style="text-align: right;">\$ _____</td></tr></tbody></table> ☒ Applicant asserts small entity status. See 37 CFR 1.27. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director has already been authorized to charge fees in this application to a Deposit Account. ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>503129</u>. ☒ Payment made via EFS-Web. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. I am the ☐ applicant. ☒ attorney or agent of record. Registration number <u>48,731</u>. ☐ attorney or agent acting under 37 CFR 1.34. Registration number _____. <u>/Rivka D. Monheit/</u> <u>January 24, 2017</u> Signature Date <u>Rivka D. Monheit</u> <u>404-879-2152</u> Typed or printed name Telephone Number NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.				Fee	Small Entity Fee	Micro Entity Fee		☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ <u>100</u>	☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____	☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ _____	☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____	☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____
	Fee	Small Entity Fee	Micro Entity Fee																													
☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ <u>100</u>																												
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____																												
☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ _____																												
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____																												
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____																												

☐ * Total of _____ forms are submitted.
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This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Liqwd, Inc.
Inventors: Eric D. Pressly and Craig J. Hawker
Serial No.: 15/290,593 Group Art Unit: 1764
Filed: October 11, 2016 Examiner: Unassigned
For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Sir:

Responsive to the Notice to File Corrected Application Papers mailed October 24, 2016,

Applicant encloses the following for filing in the above-identified application:

1. Preliminary Amendment;
2. Petition for Extension of Time to extend the period for response by one month;
3. Payment via credit card of \$1,220 which is the sum of the fee for the Petition for one-month extension of time, basic filing fee, surcharge, search fee, examination fee, and excess claims fee for 8 claims in excess of 20 claims; and
4. A copy of the Notice to File Corrected Application Papers.

It is believed that no additional fee is required with this submission. However should a fee be required, the Commissioner is hereby authorized to charge any additional fees that may be due, or credit any overpayment in connection with this matter, to Deposit Account No. 50-3129.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Date: January 24, 2017

PABST PATENT GROUP LLP
1545 Peachtree Street
Suite 320
Atlanta, Georgia 30309
(404) 879-2152 (Telephone)
(404) 879-2160 (Fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: January 24, 2017

Signature: /Gina Sharpe/

Name: Gina Sharpe



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)

CONFIRMATION NO. 3136

FORMALITIES LETTER



23579
Pabst Patent Group LLP
1545 PEACHTREE STREET NE
SUITE 320
ATLANTA, GA 30309

Date Mailed: 10/24/2016

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Additional claim fees of \$ **360** as a small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
The surcharge is due for any one of:
 - late submission of the basic filing fee, search fee, or examination fee,
 - late submission of inventor's oath or declaration,
 - filing an application that does not contain at least one claim on filing, or
 - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ **70** basic filing fee.
- \$ **70** surcharge.
- \$ **300** search fee.
- \$ **360** examination fee.
- \$ **360** for **9** total claims over 20.

- \$(0) previous unapplied payment amount.
- **\$ 1160** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at
(571) 272-4000 or **(571) 272-4200** or **1-888-786-0101**.

/fhadera/

Electronic Patent Application Fee Transmittal				
Application Number:		15290593		
Filing Date:		11-Oct-2016		
Title of Invention:		Keratin Treatment Formulations and Methods		
First Named Inventor/Applicant Name:		Eric D. Pressly		
Filer:		Rivka D. Monheit/Gina Sharpe		
Attorney Docket Number:		LIQ 103 CON (2)		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	70	70
UTILITY SEARCH FEE	2111	1	300	300
UTILITY EXAMINATION FEE	2311	1	360	360
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	8	40	320
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	70	70

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
Total in USD (\$)				1220

Electronic Acknowledgement Receipt	
EFS ID:	28153456
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Gina Sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	24-JAN-2017
Filing Date:	11-OCT-2016
Time Stamp:	16:21:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1220
RAM confirmation Number	012517INTEFSW16222500
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		LIQ_103_CON_2_Preliminary_Amendment.pdf	152869	yes	12
			311029e950d632f739998e731ecf18707928763e		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Claims		3	10	
	Applicant Arguments/Remarks Made in an Amendment		11	12	
Warnings:					
Information:					
2	Extension of Time	LIQ_103_CON_2_EOT.pdf	31164	no	1
			921de22277ad5be2b67bd4ac10cb0486c5e81fdf		
Warnings:					
Information:					
3	Applicant Response to Pre-Exam Formalities Notice	LIQ_103_CON_2_Response_to_file_Missing_Parts.pdf	232550	no	4
			28746e16824bec350c54f01b85ac254e4317d6e4		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	40500	no	2
			b7305d58018a605b377709026af3d8112faeb915		
Warnings:					
Information:					
Total Files Size (in bytes):			457083		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/290,593		Filing Date 10/11/2016		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A		N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*		X \$ =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		X \$ =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	01/24/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 27	Minus	** 28	= 0	X \$40 =		0	
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						LIE ZURIASHWORK ZENEBE			

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/290,593	10/11/2016	1764	1120	LIQ 103 CON (2)	28	3

CONFIRMATION NO. 3136

UPDATED FILING RECEIPT



23579
Pabst Patent Group LLP
1545 PEACHTREE STREET NE
SUITE 320
ATLANTA, GA 30309

Date Mailed: 01/25/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Eric D. Pressly, Santa Barbara, CA;
Craig J. Hawker, Santa Barbara, CA;

Applicant(s)

Liqwd, Inc., Santa Barbara, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/087,415 03/31/2016 PAT 9498419
which is a CON of 14/713,885 05/15/2015 PAT 9326926
which claims benefit of 61/994,709 05/16/2014

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/20/2016

page 1 of 3

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/290,593**

Projected Publication Date: 05/04/2017

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Keratin Treatment Formulations and Methods

Preliminary Class

008

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/290,593				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A				
SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A	300		N/A				
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	28	minus 20 = 8	x 40 =	320	OR					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 =	x 210 =	0.00						
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00						
			TOTAL	1050		TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

15/290,593

October 11, 2016

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

23579

OR



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:



The address associated with the above-mentioned Customer Number

OR



The address associated with Customer Number:

23579

OR

Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Liqwd, Inc.



Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Date (Optional)

Name

Title

on behalf of Liqwd, Inc.

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.



Total of

forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. This information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1480, Alexandria, VA 22313-1480.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt	
EFS ID:	28348818
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Heather Biffle
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	14-FEB-2017
Filing Date:	11-OCT-2016
Time Stamp:	12:41:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	LIQ_103_CON_2_Executed_PO A.pdf	461138 5a8dad6fac62cf1943484b4274537f0193f010d	no	1
Warnings:					

Information:	
Total Files Size (in bytes):	461138
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.	



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)

CONFIRMATION NO. 3136

POA ACCEPTANCE LETTER

23579
Pabst Patent Group LLP
1545 PEACHTREE STREET NE
SUITE 320
ATLANTA, GA 30309



Date Mailed: 02/16/2017

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/14/2017.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/s/brahim/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 11	Matter Number	LIQ103CON(2)

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Initials	Cite No.	Document Number	Issue/Publication Date	First Named Inventor	T
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	30	9095518	08/04/2015	Pressly	

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Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.	

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	Art Unit	1616
	Client Number	LIQ
Page 2 of 11	Matter Number	LIQ103CON(2)

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	Art Unit	1616
	Client Number	LIQ
Page 3 of 11	Matter Number	LIQ103CON(2)

U.S. PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Issue/Publication Date	First Named Inventor	T
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	Art Unit	1616
	Client Number	LIQ
Page 4 of 11	Matter Number	LIQ103CON(2)

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	Art Unit	1616
	Client Number	LIQ
Page 5 of 11	Matter Number	LIQ103CON(2)

FOREIGN PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Publication Date	Country	T
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Examiner Signature	Date Considered
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.	

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	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 6 of 11	Matter Number	LIQ103CON(2)

OTHER DOCUMENTS			
Initials	Cite No.	Author, Title, Date, Pages, etc.	T
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	Art Unit	1616
	Client Number	LIQ
Page 7 of 11	Matter Number	LIQ103CON(2)

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Initials	Cite No.	Author, Title, Date, Pages, etc.	T
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Page 8 of 11	Matter Number	LIQ103CON(2)

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Page 9 of 11	Matter Number	LIQ103CON(2)

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Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 10 of 11	Matter Number	LIQ103CON(2)

OTHER DOCUMENTS			
Initials	Cite No.	Author, Title, Date, Pages, etc.	T
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	195	Third Party Observation filed EP14758005.4 (May 13, 2016)	
	196	Third Party Observation filed EP14758005.4 (May 18, 2016)	
	197	Third Party Observation filed GB1513932.2 (October 3, 2016)	
	198	Third Party Observation filed GB1513932.2 (August 23, 2016)	
	199	Third Party Observation filed GB1513932.2 (January 2016)	
	200	Third Party Observation filed GB1513932.2 (September 22, 2016)	
	201	Third Party Observation filed GB1605346.4 (November 11, 2016)	
	202	Third Party Observation GB1513932.2 (June 24, 2016)	
	203	Third Party Observation mailed EP14758005.4 (December 21, 2016)	
	204	Third Party Observation mailed EP157250209.9 (January 10, 2017)	
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	206	Third Party Observation Submitted GB1513932.2 (April 20, 2016)	
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Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
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	Client Number	LIQ
Page 11 of 11	Matter Number	LIQ103CON(2)

OTHER DOCUMENTS			
Initials	Cite No.	Author, Title, Date, Pages, etc.	T
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Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

Electronic Acknowledgement Receipt	
EFS ID:	28544328
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/gina sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	06-MAR-2017
Filing Date:	11-OCT-2016
Time Stamp:	17:50:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Other Reference-Patent/App/Search documents	Grounds_of_Invalidity_Nov_04_2016.pdf	1641375 e7f0d61b2453259e41e03e016d744f018a33ef6f	no	28
Warnings:					

Information:					
2	Other Reference-Patent/App/Search documents	Docket_1_17_cv_00014_20170215.pdf	97716 ef799d08b06c7d417bde4a99d78331738d1b6f41	no	7
Warnings:					
Information:					
3	Transmittal Letter	LIQ_103_CON_2_TRANSMITTAL_IDS.pdf	224682 22cac772a4999918ebc8859eee9156f4965f4aac	no	14
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	LIQ_103_CON_2_SyncIDS_Form_1449.pdf	50144 69018dec1935645b83850d913a4d2cff7df17a3	no	11
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
Total Files Size (in bytes):			2013917		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Art Unit: 1616

Confirmation No. 3136

Filed: October 11, 2016

Examiner: FISHER, Abigail L.

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT AND
STATEMENT UNDER MPEP § 2001.06(c)**

Sir:

Pursuant to MPEP § 2001.06(c), Applicant informs the Office of the following
concurrent proceedings in which a related patent, U.S. Patent No. 9,498,419, is involved:

- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the Central District of California, Civil Action No. 2:16-cv-08708 [*dismissed without prejudice*];
- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 [*pending*];
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00011 [*pending; not instituted*]; and
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00012 [*pending; not instituted*].

U.S.S.N.: 15/290,593
Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

Applicant also informs the Office of concurrent proceedings in the United Kingdom before the High Court of Justice Chancery Division Patents Court relating to a corresponding Patent in the United Kingdom, GB Patent No. 2 525 793:

- *Liqwd, Inc. et al. v. L'Oréal (UK) Limited, et al.,*

UK High Court of Justice Chancery Division Patents Court; Claim No HP-2016-000056
[pending].

The Examiner is invited to review the entire PGR records and the litigation records and to request copies of additional documents from Applicant, if she believes they may be relevant. Enclosed is a docket listing for Civil Action No. 1:17-cv-00014 (D. Del.) to facilitate the Examiner's review.

Information Disclosure Statement

Pursuant to 37 C.F.R. § 1.56 and 37 C.F.R. § 1.97, Applicants submit an Information Disclosure Statement, including 11 pages of Form PTO-1449 and copies of 62 documents cited therein.

Most of the documents listed below were cited by or submitted to the Patent Office in Application No. 15/087,415, filed March 31, 2016, now U.S. Patent No. 9,498,419, issued November 22, 2016 to which the present application claims priority. Pursuant to 37 C.F.R. § 1.98(d), Applicants are not enclosing copies of these publications. Copies will be provided upon request, however. Newly cited documents are marked in **bold** and with an asterisk (*).

Pursuant to the waiver in the notice entitled "Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications Filed

U.S.S.N.: 15/290,593
Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

After June 30, 2003” published on August 5, 2003 in 1273 OG 55, copies of the U.S. Patents and Published Applications are not enclosed. Copies will be provided upon request, however.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission.

However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S.S.N.: 15/290,593
Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

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<u>Number</u>	<u>Publication Date</u>	<u>Inventor</u>
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INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

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***Examination Report** for GB 1605346.4 (mailed January 11, 2017)

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U.S.S.N.: 15/290,593
Filed: October 11, 2016

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***Declaration of Arun Nandagiri** dated Jan. 31, 2017, with *curriculum vitae*

Documents filed in PGR 2017-00012

Foreign Documents

<u>Number</u>	<u>Publication Date</u>	<u>Patentee</u>
*Certified English transl. of DE 1220969	07-16-1966	Ernst Krugermeyer and Co.
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***Declaration of Arun Nandagiri** dated Jan. 30, 2017, with *curriculum vitae*

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INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

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***Thomas Clausen** et al., Hair Preparations, in Ullman's Encyclopedia of Industrial Chemistry (July 15, 2006), http://onlinelibrary.wiley.com/doi/10.1002/14356007.a12_571.pub2.

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***Grounds of Invalidity** filed by L'Oreal (UK) Limited, *et al.*, on Nov. 4, 2016.

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Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

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Dated: March 6, 2017

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Name: Gina Sharpe

Electronic Acknowledgement Receipt	
EFS ID:	28543530
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/gina sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	07-MAR-2017
Filing Date:	11-OCT-2016
Time Stamp:	10:08:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)

CONFIRMATION NO. 3136

23579

Pabst Patent Group LLP
1545 PEACHTREE STREET NE
SUITE 320
ATLANTA, GA 30309

PUBLICATION NOTICE



Title:Keratin Treatment Formulations and Methods

Publication No.US-2017-0119637-A1

Publication Date:05/04/2017

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)	3136
23579 7590 05/31/2017 Pabst Patent Group LLP 1545 PEACHTREE STREET NE SUITE 320 ATLANTA, GA 30309			EXAMINER VANHORN, ABIGAIL LOUISE	
			ART UNIT 1616	PAPER NUMBER
			MAIL DATE 05/31/2017	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 15/290,593	Applicant(s) PRESSLY ET AL.	
	Examiner ABIGAIL VANHORN	Art Unit 1616	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____.; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-11 and 13-28 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) _____ is/are allowed.
- 7) ☐ Claim(s) _____ is/are rejected.
- 8) ☐ Claim(s) _____ is/are objected to.
- 9) ☒ Claim(s) 1-11 and 13-28 are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) ☐ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____ | 4) ☐ Other: _____ |

DETAILED ACTION

Claim 12 was/stands cancelled. Claims 1-11 and 13-28 are pending.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Election/Restrictions

This application contains claims directed to the following patentably distinct species: first formulation. Specifically, applicants must elect whether the first formulation comprises a reducing agent (claims 6-7), a hair coloring agent and a reducing agent (claims 8-9), or bleaching formulation (claims 10-11). The species are independent or distinct because they have different design and effect. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1-5 and 13-28 are generic.

There is a search and/or examination burden for the patentably distinct species as set forth above because at least the following reason(s) apply: the inventions have acquired a separate status in the art in view of their different classification and the inventions require a different field of search (e.g., searching different classes /subclasses or electronic resources, or employing different search strategies or search queries).

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species or grouping of patentably indistinct species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be corrected in compliance with 37 CFR 1.48(a) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. A request to correct inventorship under 37 CFR 1.48(a) must be accompanied by an application data sheet in accordance with 37 CFR 1.76 that identifies each inventor by his or her legal name and by the processing fee required under 37 CFR 1.17(i).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABIGAIL VANHORN (née Fisher) whose telephone number is (571)270-3502. The examiner can normally be reached on M-Th 6-4 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue X. Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABIGAIL VANHORN/
Primary Examiner, Art Unit 1616

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 2	Matter Number	LIQ103CON(2)

U.S. PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Issue/Publication Date	First Named Inventor	T
	1	3568685	03/09/1971	Howard L Scott	
	2	20140125452	05/08/2014	Frank Josefiak	

FOREIGN PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Publication Date	Country	T

OTHER DOCUMENTS					
Initials	Cite No.	Author, Title, Date, Pages, etc.			T
	3	Clarence R. Robbins, Mouhatsu no kagaku [Science of Hair], 4th edition, Fragrance Journal Ltd., July 10, 2006, p.221-225 with English counterpart, p.194-198.			X
	4	DECISION, denying Institution of Post-Grant Review, by Patent Trial and Appeal Board in PGR 2017-00011 (July 19, 2017).			
	5	Decision, partial Institution of Post-Grant Review, by Patent Trial and Appeal Board in PGR 2017-00012 (July 19, 2017).			
	6	Examination Report for Saudi Arabia Patent Application No. 516370509, mailed May 25, 2017 (with English summary).			X
	7	Keshouhin kagaku guide [Cosmetic Science Guide] 2nd edition, Fragrance Journal Ltd., May 16, 2011, p.256-257 with English description			X
	8	MEMORANDUM ORDER in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., Case No. 1:17-cv-00014 (D. Del), denying MOTION for Preliminary Injunction by Judge Sue L. Robinson (July 6, 2017)			
	9	New Zealand Examination Report for corresponding New Zealand Application No. 725652 mailed April 3, 2017			
	10	Office Action for Canada Patent Application No. 2,947,303, mailed May 12, 2017.			
	11	Office Action for Chinese Patent Application No. 201480042200.1, mailed May 2, 2017 (with English summary).			X
	12	Office Action for Colombian Patent Application No. 16-030.965, mailed July 28, 2017 (with English summary).			X
	13	Office Action for European Patent Application No. 15725209.9, mailed May 18, 2017.			
	14	Office Action for Georgia Patent Application No. AP 2014 01404, mailed May 4, 2017 (with English translation).			X
	15	Office Action for Israel Patent Application No. 248989, mailed June 5, 2017. (with English summary).			X
	16	Office Action for Japanese Patent Application No. 2016-572832, mailed June 2, 2017 (with English summary).			X
	17	Office Action for Korean Patent Application No. 10-2016-7034158, mailed April 10, 2017 (with English summary).			X

Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 2 of 2	Matter Number	LIQ103CON(2)

OTHER DOCUMENTS			
Initials	Cite No.	Author, Title, Date, Pages, etc.	T
	18	Office Action for Panama Patent Application No. 91008-01, mailed January 31, 2017(with English summary).	X
	19	Office Action for Panama Patent Application No. 91418-01, mailed June 8, 2017. (with English summary).	X
	20	Office Action for Ukraine Patent Application No. a201601137, mailed June 22, 2017 (with English translation).	X
	21	Office Action for United Kingdom Patent Application No. 1618547.2, mailed November 30, 2016.	
	22	Office Action for United Kingdom Patent Application No. GB1605344.9, mailed April 29, 2016.	
	23	Redacted Version of Declaration of Robert .W. J. Hefferd, PhD_PART_1of3; with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	
	24	Redacted Version of Declaration of Robert .W. J. Hefferd, PhD_PART_2of3; with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	
	25	Redacted Version of Declaration of Robert .W. J. Hefferd, PhD_PART_3of3;with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	
	26	Redacted Version of Defendant's Brief in Opposition to Plaintiff's Motion for Preliminary Injunction, by L'Oreal USA Products, Inc., et al., filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	

Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Art Unit: 1616

Filed: October 11, 2016

Examiner: Van Horn, Abigail L.

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SECOND STATEMENT UNDER MPEP § 2001.06(c)

Sir:

Pursuant to MPEP § 2001.06(c), Applicant provides the Office of the following update on concurrent proceedings in which a related patent, U.S. Patent No. 9,498,419, is involved:

- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 [*pending*];
- Decision by U.S. District Court for the District of Delaware in Civil Action No. 1:17-cv-00014 to deny Preliminary Injunction appealed by Liqwd, Inc., Olaplex LLC. To the United States Court of Appeals for the Federal Circuit, USCA Case Number 17-2295 [*pending*];
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00011 [*institution denied*]; and
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00012 [*pending; trial instituted*].

U.S.S.N.: 15/290,593
Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

Applicant also informs the Office of concurrent proceedings in the United Kingdom before the High Court of Justice Chancery Division Patents Court relating to a corresponding Patent in the United Kingdom, GB Patent No. 2 525 793:

- *Liqwd, Inc. et al. v. L'Oréal (UK) Limited, et al.,*

UK High Court of Justice Chancery Division Patents Court; Claim No HP-2016-000056
[pending].

The Examiner is invited to review the entire PGR records and the litigation records and to request copies of additional documents from Applicant, if she believes they may be relevant.

Enclosed are recent docket listings for Civil Action No. 1:17-cv-00014 (D. Del.) and Court of Appeals Docket Number 17-2295 (CAFC) to facilitate the Examiner's review.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Dated: September 29, 2017

PABST PATENT GROUP LLP
1545 Peachtree Street NE
Suite 320
Atlanta, GA 30309
(404) 879-2152 (Telephone)
(404) 879-2160 (Fax)

U.S.S.N.: 15/290,593

Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: September 29, 2017

Signature: /Gina Sharpe/

Name: Gina Sharpe

Electronic Acknowledgement Receipt	
EFS ID:	30521689
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Gina Sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	29-SEP-2017
Filing Date:	11-OCT-2016
Time Stamp:	15:12:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
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Information:					
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4	Other Reference-Patent/App/Search documents	DECISION_DENYING_INSTITUTION_OF_POST_GRANT_REVIEW_Paper24_PGR2017_00011.pdf	68765	no	17
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7	Other Reference-Patent/App/Search documents	Keshouhin_Kagaku_Guide_p_256-257.pdf	970489	no	5
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8	Other Reference-Patent/App/Search documents	MEMORANDUM_ORDER_DENYING_MOTION_FOR_PRELIM_INJUNCTION_JUL_06_2017.pdf	1792219	no	15
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10	Other Reference-Patent/App/Search documents	OA_CA_2947303_OA_MAY_12_2017.pdf	234544	no	4
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The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
20	Other Reference-Patent/App/Search documents	OA_EP15725209_mailed05182017.pdf	2815981	no	24
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Warnings:					
Information:					
27	Transmittal Letter	LIQ_103_CON_2_TRANSMITTAL_STMT_MPEP_2001_06.pdf	56587	no	3
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Information:					
28	Other Reference-Patent/App/Search documents	LIQ_103_CON_2_172295_Docket_SEP_29_2017.pdf	180658	no	9
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Warnings:					
Information:					
Total Files Size (in bytes):			94492755		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Art Unit: 1616

Confirmation No. 3136

Filed: October 11, 2016

Examiner: Abigail Van Horn

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Information Disclosure Statement

Pursuant to 37 C.F.R. § 1.56 and 37 C.F.R. § 1.97, Applicant submits an Information Disclosure Statement, including two pages of Form PTO-1449 and copies of 24 documents cited therein.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S.S.N.: 15/290,593
Filed: October 11, 2016

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

U.S. Patent Documents

Number	Issue Date	Patentee
3,566,685	03-09-1971	Scott
2014/0125452	05-08-2014	Josefiak

Other Documents

Clarence R. Robbins, Mouhatu no kagaku [Science of Hair], 4th edition, FragranceJournal Ltd., July 10, 2006, p.221-225 with Eng Counterpart, p. 194-198

DECISION, denying Institution of Post-Grant Review, by Patent Trial and Appeal Board in PGR 2017-00011 (July 19, 2017).

Decision, partial Institution of Post-Grant Review, by Patent Trial and Appeal Board in PGR 2017-00012 (July 19, 2017).

Examination Report for Saudi Arabia Patent Application No. 516370509, mailed May 25, 2017(with English summary).

Keshouhin kagaku guide [Cosmetic Science Guide] 2nd edition, Fragrance Journal Ltd., May 16, 2011, p. 256-257 with English description.

MEMORANDUM ORDER in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., Case No. 1:17-cv-00014 (D. Del), denying MOTION for Preliminary Injunction by Judge Sue L. Robinson (July 6, 2017)

New Zealand Examination Report for corresponding New Zealand Application No. 725652 mailed April 3, 2017.

Office Action for Canada Patent Application No. 2,947,303, mailed May 12, 2017.

Office Action for Chinese Patent Application No. 201480042200.1, mailed May 2, 2017(with English summary).

Office Action for Colombian Patent Application No. 16-030.965, mailed July 28, 2017 (with English summary).

Office Action for European Patent Application No. 15725209.9, mailed May 18, 2017.

Office Action for Georgia Patent Application No. AP 2014 01404, mailed May 4, 2017 (with English translation).

Office Action for Israel Patent Application No. 248989, mailed June 5, 2017 (with English summary).

U.S.S.N.: 15/290,593

Filed: October 11, 2016

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Office Action for Japanese Patent Application No. 2016-572832, mailed June 2, 2017 (with English summary).

Office Action for Korean Patent Application No. 10-2016-7034158, mailed April 10, 2017 (with English summary).

Office Action for Panama Patent Application No. 91008-01, mailed January 31, 2017 (with English summary).

Office Action for Panama Patent Application No. 91418-01, mailed June 8, 2017 (with English summary).

Office Action for Ukraine Patent Application No. a201601137, mailed June 22, 2017 (with English translation).

Office Action for United Kingdom Patent Application No. 1605344.9, mailed April 29, 2016.

Office Action for United Kingdom Patent Application No. 1618547.2, mailed November 30, 2016.

Redacted Version (PART 1 of 3) of Declaration of Robert J.W. Hefford, PhD with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017

Redacted Version (PART 2 of 3) of Declaration of Robert J.W. Hefford, PhD with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017

Redacted Version (PART 3 of 3) of Declaration of Robert J.W. Hefford, PhD with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017

Redacted Version of Defendant's Brief in Opposition to Plaintiff's Motion for Preliminary Injunction, by L'Oreal USA Products, Inc., et al., filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017.

U.S.S.N.: 15/290,593

Filed: October 11, 2016

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Dated: September 29, 2017

PABST PATENT GROUP LLP

1545 Peachtree Street NE

Suite 320

Atlanta, GA 30309

(404) 879-2152 (Telephone)

(404) 879-2160 (Fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: September 29, 2017

Signature: /Gina Sharpe/

Name: Gina Sharpe

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Eric D. Pressly and Craig J. Hawker

Application No. 15/290,593 Group Art Unit: 1616

Filed: October 11, 2016 Examiner: Abigail VanHorn

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO ELECTION OF SPECIES REQUIREMENT

Sir:

Responsive to the Office Action mailed May 31, 2017, please amend the application as follows. A Petition for a Four Month Extension of Time for a small entity is enclosed and the appropriate fee is being paid by credit card. It is believed no additional fee is due with this response. However, should a fee be required, the Commissioner is authorized to charge the fee to Deposit Account No. 50-3129.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) LIQ 103 CON (2)																																		
Application Number 15/290,593	Filed October 11, 2016																																			
For Keratin Treatment Formulations and Methods																																				
Art Unit 1616	Examiner VANHORN, Abigail L.																																			
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below): <table style="width: 100%; border-collapse: collapse;"><thead><tr><th></th><th style="text-align: center;"><u>Fee</u></th><th style="text-align: center;"><u>Small Entity Fee</u></th><th style="text-align: center;"><u>Micro Entity Fee</u></th><th></th></tr></thead><tbody><tr><td>☐ One month (37 CFR 1.17(a)(1))</td><td style="text-align: center;">\$200</td><td style="text-align: center;">\$100</td><td style="text-align: center;">\$50</td><td>\$ _____</td></tr><tr><td>☐ Two months (37 CFR 1.17(a)(2))</td><td style="text-align: center;">\$600</td><td style="text-align: center;">\$300</td><td style="text-align: center;">\$150</td><td>\$ _____</td></tr><tr><td>☐ Three months (37 CFR 1.17(a)(3))</td><td style="text-align: center;">\$1,400</td><td style="text-align: center;">\$700</td><td style="text-align: center;">\$350</td><td>\$ _____</td></tr><tr><td>☒ Four months (37 CFR 1.17(a)(4))</td><td style="text-align: center;">\$2,200</td><td style="text-align: center;">\$1,100</td><td style="text-align: center;">\$550</td><td>\$ <u>1,100</u></td></tr><tr><td>☐ Five months (37 CFR 1.17(a)(5))</td><td style="text-align: center;">\$3,000</td><td style="text-align: center;">\$1,500</td><td style="text-align: center;">\$750</td><td>\$ _____</td></tr></tbody></table> ☒ Applicant asserts small entity status. See 37 CFR 1.27. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director has already been authorized to charge fees in this application to a Deposit Account. ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>503129</u>. ☒ Payment made via EFS-Web. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. I am the ☐ applicant. ☒ attorney or agent of record. Registration number <u>48,731</u>. ☐ attorney or agent acting under 37 CFR 1.34. Registration number _____. <table style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%; padding: 5px;"><u>/Rivka D. Monheit/</u> Signature</td><td style="width: 50%; padding: 5px;"><u>November 30, 2017</u> Date</td></tr><tr><td style="padding: 5px;"><u>Rivka D. Monheit</u> Typed or printed name</td><td style="padding: 5px;"><u>404-879-2151</u> Telephone Number</td></tr></table> NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.				<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>		☐ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____	☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____	☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ _____	☒ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ <u>1,100</u>	☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____	<u>/Rivka D. Monheit/</u> Signature	<u>November 30, 2017</u> Date	<u>Rivka D. Monheit</u> Typed or printed name	<u>404-879-2151</u> Telephone Number
	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>																																	
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☒ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ <u>1,100</u>																																
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<u>/Rivka D. Monheit/</u> Signature	<u>November 30, 2017</u> Date																																			
<u>Rivka D. Monheit</u> Typed or printed name	<u>404-879-2151</u> Telephone Number																																			
☐ * Total of _____ forms are submitted.																																				

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Electronic Patent Application Fee Transmittal				
Application Number:		15290593		
Filing Date:		11-Oct-2016		
Title of Invention:		Keratin Treatment Formulations and Methods		
First Named Inventor/Applicant Name:		Eric D. Pressly		
Filer:		Rivka D. Monheit/Gina Sharpe		
Attorney Docket Number:		LIQ 103 CON (2)		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 4 months with \$0 paid	2254	1	1100	1100
Miscellaneous:				
Total in USD (\$)				1100

Electronic Acknowledgement Receipt	
EFS ID:	31084371
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Gina Sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	30-NOV-2017
Filing Date:	11-OCT-2016
Time Stamp:	15:16:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1100
RAM confirmation Number	120117INTEFSW15163600
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		LIQ_103_CON_2_AMD_RESP_ELECTION_SPECIES.pdf	33390	yes	5
			782fe46b8be1aba891e16d30f5243d35bf555ec1		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Applicant Arguments/Remarks Made in an Amendment		4	5	
	Claims		2	3	
	Response to Election / Restriction Filed		1	1	
Warnings:					
Information:					
2	Extension of Time	LIQ_103_CON_2_4mosEOT.pdf	84693	no	1
			61d03ce6a92399813f359a11b848bfdc9e74464ee		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30551	no	2
			5d6939cd50f1a8652edf752e2d15fc21c5657250		
Warnings:					
Information:					
Total Files Size (in bytes):			148634		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Remarks

Claims 1-11 and 13-29 are currently pending.

In the attached amendment, claims 1-29 are canceled and claims 30-44 are newly presented.

Applicant notes that the claims 1-29 were originally filed on October 11, 2016. The Preliminary Amendment filed on January 24, 2017, inadvertently omitted claim 29 from the listing of the amended claims.

Accordingly, the attached amendment indicates that claim 29 is canceled.

Amendments to the Claims

Claims 1-11 and 13-29 were canceled without prejudice or disclaimer.

Support for new claim 30 can be found in the specification at least at page 14, lines 5-7; and page 31, line 28 until page 32, line 11.

Support for new claims 31-34 can be found in the specification at least at page 25, lines 5-16.

Support for new claims 35 and 36 can be found in the specification at least at page 25, lines 6-7.

Support for new claim 37 can be found in the specification at least at page 32, lines 9-11.

Support for new claim 38 can be found in the specification at least at page 14, lines 5-7; and page 31, line 28 until page 32, line 11.

Support for new claims 39-42 can be found in the specification at least at page 25, lines 5-16.

Support for new claims 43 and 44 can be found in the specification at least at page 25, lines 6-7.

No new matter was added by way of these amendments.

Election of Species

The Examiner requested an election of a single disclosed species for examination regarding whether the first formulation comprised a reducing agent (claims 6-7), a hair coloring agent and a reducing agent (claims 8-9), or a bleaching formulation (claims 10-11).

This election of species is moot in view of the cancelation of claims 1-11 and 13-29 and the presentation of new claims 30-44, which are drawn to methods of treating nails and nail formulations.

Applicant kindly requests clarification in the event that an election of species is required.

Favorable consideration of newly presented claims 30-44 is respectfully solicited.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Date: November 30, 2017

PABST PATENT GROUP LLP
1545 Peachtree Street NE
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Atlanta, Georgia 30309
(404) 879-2152
(404) 879-2160 (fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: November 30, 2017

Signature: /Gina Sharpe/

Name: Gina Sharpe

Amendments to the Claims

Claims 1-29. (Canceled)

30. (New) A method for treating nails comprising:

(a) applying a nail formulation to a nail, wherein the nail formulation comprises an active agent,

wherein the active agent is maleic acid or a salt thereof.

31. (New) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.01 wt% to about 50 wt% of the nail formulation.

32. (New) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.1 to 50 wt% of the nail formulation.

33. (New) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.1 to 5 wt% of the nail formulation.

34. (New) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.1 to 3 wt% of the nail formulation.

35. (New) The method of claim 30, wherein the nail formulation is in the form of a cream, a lotion, a gel, or a nail polish.

36. (New) The method of claim 30, wherein the nail formulation is in the form of a nail polish.

37. (New) The method of claim 30, wherein step of applying is repeated one or more times.

38. (New) A nail formulation comprising:

an active agent, wherein the active agent is maleic acid or a salt thereof.

39. (New) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.01 wt% to about 50 wt% of the nail formulation.

40. (New) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.1 to 50 wt% of the nail formulation.

41. (New) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.1 to 5 wt% of the nail formulation.

42. (New) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.1 to 3 wt% of the nail formulation.

43. (New) The nail formulation of claim 38, wherein the nail formulation is in the form of a cream, a lotion, a gel, or a nail polish.

44. (New) The nail formulation of claim 38, wherein the nail formulation is in the form of a nail polish.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/290,593		Filing Date 10/11/2016		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(j))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	11/30/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 15	Minus	** 28	= 0	X \$40 =		0	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						SLIE VIKKI GRAY			

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 2	Matter Number	LIQ103CON(2)

U.S. PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Issue/Publication Date	First Named Inventor	T
	1	9498419	11/22/2016	PRESSLY ERIC D	
	2	20130034515	02/07/2013	STONE ERIN A [US]	

FOREIGN PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Publication Date	Country	T

OTHER DOCUMENTS			
Initials	Cite No.	Author, Title, Date, Pages, etc.	T
	3	BOLDUC, C. et al., "Hair Care Products: Waving, Straightening, Conditioning, and Coloring" Clinics in Dermatology 19:431-436 (2001)	
	4	Borish, Edwart T., CV	
	5	Brown, Keith C. (1997) Hair Coloring, Clairol, Inc., Stamford, Connecticut	
	6	Declaration of Dean Christal, signed OCT 18, 2017(Redacted)	
	7	Declaration of Eric D. Pressly, Ph.D., signed OCT 19, 2017 (Redacted)	
	8	Declaration of Thomas Dispenza, signed OCT 17, 2017	
	9	Deposition transcript, Nandagiri, Arun, dated OCT 6, 2017	
	10	DOERING, et al., "Super mild oxidation coloring: preventing hair damage at the molecular lever", IFSCC Magazine, 10(4):323-9 (2007).	
	11	English Summary of Office Action for IL 248989 with Third Party Submission, mailed SEP 6, 2017	
	12	English Translation of Office Action JP 2016-572832 dated OCT 26 2017	
	13	FMC Webinar, The Science of Persulfate Activation, APR 24, 2013	
	14	Liqwd, Inc.'s Patent Owner Response under 37 C.F.R. §42.220, filed in PGR 2017-00012 on OCT 20, 2017 (Redacted)	
	15	Office Action for CA 2,947,303 mailed SEP 8, 2017	
	16	Office Action for USSN 15/415,464 mailed MAR 15, 2017	
	17	ROBBINS, Chapter 4 "Bleaching Human Hair", in Chemical and Physical Behavior of Human Hair, 2002	
	18	ROBBINS, Chapter 5 "Bleaching and Oxidation of Human Hair" in Chemical and Physical Behavior of Human Hair, 2012	
	19	ROBBINS, Chapter 6 "Interactions of Shampoo and Conditioner Ingredients with Hair" in Chemical and Physical Behavior of Human Hair, 2012	
	20	Second Examination Report for AU 2015258904 mailed OCT 26, 2017	
	21	Second Examination Report for NZ 725652 mailed OCT 13, 2017	

Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 2 of 2	Matter Number	LIQ103CON(2)

OTHER DOCUMENTS			
Initials	Cite No.	Author, Title, Date, Pages, etc.	T
	22	Third Party Observation for AU 2015258904 mailed OCT 5, 2017	
	23	Third Party Observation for EP 15725209.9 mailed OCT 27, 2017	
	24	Third Party Observation for JP 2016-572832 mailed SEP 29, 2017	
	25	Third Party Submission USSN 15087415 filed AUG 25, 2016	
	26	Third Party Submission USSN 15087415 filed AUG 29, 2016	
	27	Third Party Submission USSN 15087415 filed SEP 14, 2016	
	28	Third Party Submission USSN 15087415 filed SEP 23, 2016	

Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

Electronic Acknowledgement Receipt	
EFS ID:	31163892
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Gina Sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	08-DEC-2017
Filing Date:	11-OCT-2016
Time Stamp:	10:49:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	Bolduc_2001.pdf	793121	no	6
			1e3552b7ad4fade7a3ab080d04ca773d155915cc		

Warnings:

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2	Other Reference-Patent/App/Search documents	Borish_CV.pdf	447362	no	4
			0ba410e9a773a843f6bde53f73ada0fe589ebfec		
Warnings:					
Information:					
3	Non Patent Literature	BrownChapter_1997.pdf	3921233	no	28
			9c006fdd0b854365491c55949ff3a6b204464dbc		
Warnings:					
Information:					
4	Other Reference-Patent/App/Search documents	Declaration_Dean_Christal_signed_OCT182017_REDACTED.pdf	87975	no	7
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Warnings:					
Information:					
5	Other Reference-Patent/App/Search documents	Declaration_Eric_Pressly_signed_OCT192017_REDACTED.pdf	80820	no	6
			c57204ea619e6c4ad2cbeb21aedd924c2c4db0e		
Warnings:					
Information:					
6	Other Reference-Patent/App/Search documents	Declaration_Thomas_Dispenza_signed_OCT172017.pdf	111547	no	15
			99608de32100998490d0014a7941328fec397810		
Warnings:					
Information:					
7	Other Reference-Patent/App/Search documents	Deposition_Transcript_Nandagiri_Arun_dated_OCT062017.pdf	1210169	no	110
			f2c138af80cc81ce4db7a9fc7c5ca07b3033dc4b		
Warnings:					
Information:					
8	Non Patent Literature	Doering_2007.pdf	828901	no	7
			4ad892cd8ae67c60a815dae1f1b2f72a408e2d60		
Warnings:					
Information:					

9	Other Reference-Patent/App/Search documents	English_Summary_Office_Action_IL_248989_with_Third_Party_Submission_mailed_SEP062017.pdf	2691794	no	32
			ad3f91c6c99715240e1b258cfd3a5d41a5a1fa06		
Warnings:					
Information:					
10	Other Reference-Patent/App/Search documents	FMCWebinar_TheScienceOfPersulfateActivation_APR242013.pdf	4884464	no	35
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11	Other Reference-Patent/App/Search documents	Liqwd_Patent_Owner_Response_files_OCT202017_REDACTED.pdf	3442002	no	112
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Information:					
12	Other Reference-Patent/App/Search documents	Office_Action_CA_2947303_mailed_SEP082017.pdf	152782	no	4
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13	Other Reference-Patent/App/Search documents	English_Translation_Office_Action_JP_2016_572832_dated_OCT262017.pdf	54603	no	11
			5094be3d79d1e1fc3dd74e45a0721a9725bd2c14		
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14	Other Reference-Patent/App/Search documents	Office_Action_USSN_15415464_mailed_MAR152017.pdf	1018954	no	27
			34701cfa56915a340c40f004fdfe6ed021036fdd		
Warnings:					
Information:					
15	Non Patent Literature	Robbins_Chapter_4_2002.pdf	7392049	no	6
			0cb5f113c7ced1992912dff9b5effed7310867fb		
Warnings:					
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16	Non Patent Literature	Robbins_Chapter_5_2012.pdf	1807168	no	68
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Warnings:					
Information:					
17	Non Patent Literature	Robbins_Chapter_6_2012.pdf	2739959	no	117
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Warnings:					
Information:					
18	Non Patent Literature	Second_Examination_Report_AU_2015258904_mailed_OCT262017.pdf	390327	no	6
			847e7fae2bf6cd400b24fb5f854687e603ef6fc2		
Warnings:					
Information:					
19	Non Patent Literature	Second_Examination_Report_NZ_725652_mailed_OCT132017.pdf	198074	no	8
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20	Other Reference-Patent/App/Search documents	ThirdPartyObservation_AU_2015258904_mailedOCT052017.pdf	51253	no	6
			b9e8858e8921e8a44845fc4ffe4efb39e89bd043		
Warnings:					
Information:					
21	Other Reference-Patent/App/Search documents	ThirdPartyObservation_EP_15725209_9_mailed_OCT272017.pdf	2316427	no	8
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Warnings:					
Information:					
22	Other Reference-Patent/App/Search documents	ThirdPartyObservation_JP_2016572832_mailed_SEP292017.pdf	928819	no	16
			3928c9a09e2f0cd2d3eb3556ceab9eefcf67b77f		
Warnings:					
Information:					

23	Other Reference-Patent/App/Search documents	ThirdPartySubmission_USSN_15087415_filed_AUG252016.pdf	778043	no	9
			ab507c88e366c53d5290b18b20a909d9156e0815		
Warnings:					
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24	Other Reference-Patent/App/Search documents	ThirdPartySubmission_USSN_15087415_filed_AUG292016.pdf	953584	no	9
			201565e1b4c8fd2acf45184518ddfd8541752eac		
Warnings:					
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25	Other Reference-Patent/App/Search documents	ThirdPartySubmission_USSN_15087415_filed_SEP142016.pdf	2150211	no	16
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26	Other Reference-Patent/App/Search documents	ThirdPartySubmission_USSN_15087415_filed_SEP232016.pdf	975259	no	9
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Information:					
27	Transmittal Letter	LIQ_103_CON_2_SUPPL_IDS_TRANSMITTAL.pdf	25398	no	2
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28	Information Disclosure Statement (IDS) Form (SB08)	LIQ_103_CON_2_SyncIDSForm1449.pdf	60474	no	2
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Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
Total Files Size (in bytes):			40492772		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Liqwd, Inc.

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Art Unit: 1616

Confirmation No. 3136

Filed: October 11, 2016

Examiner: Abigail Van Horn

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. § 1.56 and 37 C.F.R. § 1.97, Applicant submits an Information Disclosure Statement, including two pages of Form PTO-1449 and copies of 26 documents cited therein.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S.S.N.: 15/290,593

Filed: October 11, 2016

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicant invites the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicant is of the opinion that its claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Dated: December 7, 2017

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CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: December 8, 2017

Signature: /Gina Sharpe/

Name: Gina Sharpe

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Art Unit: 1616

Confirmation No. 3136

Filed: October 11, 2016

Examiner: FISHER, Abigail L.

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT AND
STATEMENT UNDER MPEP § 2001.06(c)**

Sir:

Pursuant to MPEP § 2001.06(c), Applicant informs the Office of the following
concurrent proceedings in which a related patent, U.S. Patent No. 9,498,419, is involved:

- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the Central District of California, Civil Action No. 2:16-cv-08708 [*dismissed without prejudice*];
- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 [*pending*];
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00011 [*pending; not instituted*]; and
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00012 [*pending; not instituted*].

U.S.S.N.: 15/290,593

Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

Applicant also informs the Office of concurrent proceedings in the United Kingdom before the High Court of Justice Chancery Division Patents Court relating to a corresponding Patent in the United Kingdom, GB Patent No. 2 525 793:

- *Liqwd, Inc. et al. v. L'Oréal (UK) Limited, et al.,*

UK High Court of Justice Chancery Division Patents Court; Claim No HP-2016-000056
[pending].

The Examiner is invited to review the entire PGR records and the litigation records and to request copies of additional documents from Applicant, if she believes they may be relevant. Enclosed is a docket listing for Civil Action No. 1:17-cv-00014 (D. Del.) to facilitate the Examiner's review.

Information Disclosure Statement

Pursuant to 37 C.F.R. § 1.56 and 37 C.F.R. § 1.97, Applicants submit an Information Disclosure Statement, including 11 pages of Form PTO-1449 and copies of 62 documents cited therein.

Most of the documents listed below were cited by or submitted to the Patent Office in Application No. 15/087,415, filed March 31, 2016, now U.S. Patent No. 9,498,419, issued November 22, 2016 to which the present application claims priority. Pursuant to 37 C.F.R. § 1.98(d), Applicants are not enclosing copies of these publications. Copies will be provided upon request, however. Newly cited documents are marked in **bold** and with an asterisk (*).

Pursuant to the waiver in the notice entitled "Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications Filed

U.S.S.N.: 15/290,593

Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

After June 30, 2003” published on August 5, 2003 in 1273 OG 55, copies of the U.S. Patents and Published Applications are not enclosed. Copies will be provided upon request, however.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S.S.N.: 15/290,593

Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

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<u>Number</u>	<u>Publication Date</u>	<u>Inventor</u>
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U.S.S.N.: 15/290,593

Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

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U.S.S.N.: 15/290,593

Filed: October 11, 2016

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U.S.S.N.: 15/290,593

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INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

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U.S.S.N.: 15/290,593

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INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)

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***Declaration of Arun Nandagiri** dated Jan. 31, 2017, with *curriculum vitae*

Documents filed in PGR 2017-00012**Foreign Documents**

<u>Number</u>	<u>Publication Date</u>	<u>Patentee</u>
*Certified English transl. of DE 1220969	07-16-1966	Ernst Krugermeyer and Co.
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U.S.S.N.: 15/290,593

Filed: October 11, 2016

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Publications

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U.S.S.N.: 15/290,593

Filed: October 11, 2016

INFORMATION DISCLOSURE STATEMENT AND STATEMENT UNDER MPEP § 2001.06(c)**Remarks**

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,

/Rivka D. Monheit/

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Dated: March 6, 2017

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CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: March 6, 2017Signature: /Gina Sharpe/Name: Gina Sharpe/ABIGAIL VANHORN/

12/31/2017

<i>Notice of References Cited</i>	Application/Control No. 15/290,593		Applicant(s)/Patent Under Reexamination Pressly et al.	
	Examiner ABIGAIL L VANHORN		Art Unit 1616	Page 1 of 1

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20100015253-A1	01-2010	Benjamin; Nigel	A61K8/19	424/718
	B					
	C					
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	I					
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	L					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 2	Matter Number	LIQ103CON(2)

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	2	20130034515	02/07/2013	STONE ERIN A [US]	

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Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.VH./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 2 of 2	Matter Number	LIQ103CON(2)

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	22	Third Party Observation for AU 2015258904 mailed OCT 5, 2017	
	23	Third Party Observation for EP 15725209.9 mailed OCT 27, 2017	
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	27	Third Party Submission USSN 15087415 filed SEP 14, 2016	
	28	Third Party Submission USSN 15087415 filed SEP 23, 2016	

Examiner Signature	/ABIGAIL VANHORN/	Date Considered	12/31/2017
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

Search Notes 	Application/Control No. 15/290,593	Applicant(s)/Patent Under Reexamination Pressly et al.
	Examiner ABIGAIL L VANHORN	Art Unit 1616

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST (USPGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	12/31/2017	AVH
GOOGLE PATENTS	12/31/2017	AVH
EAST INVENTOR NAME SEARCH	12/31/2017	AVH
PALM INVENTOR NAME SEARCH	12/31/2017	AVH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 2	Matter Number	LIQ103CON(2)

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	2	20140125452	05/08/2014	Frank Josefiak	

FOREIGN PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Publication Date	Country	T

OTHER DOCUMENTS					
Initials	Cite No.	Author, Title, Date, Pages, etc.			T
	3	Clarence R. Robbins, Mouhatsu no kagaku [Science of Hair], 4th edition, Fragrance Journal Ltd., July 10, 2006, p.221-225 with English counterpart, p.194-198.			X
	4	DECISION, denying Institution of Post-Grant Review, by Patent Trial and Appeal Board in PGR 2017-00011 (July 19, 2017).			
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	6	Examination Report for Saudi Arabia Patent Application No. 516370509, mailed May 25, 2017 (with English summary).			X
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	8	MEMORANDUM ORDER in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., Case No. 1:17-cv-00014 (D. Del), denying MOTION for Preliminary Injunction by Judge Sue L. Robinson (July 6, 2017)			
	9	New Zealand Examination Report for corresponding New Zealand Application No. 725652 mailed April 3, 2017			
	10	Office Action for Canada Patent Application No. 2,947,303, mailed May 12, 2017.			
	11	Office Action for Chinese Patent Application No. 201480042200.1, mailed May 2, 2017 (with English summary).			X
	12	Office Action for Colombian Patent Application No. 16-030.965, mailed July 28, 2017 (with English summary).			X
	13	Office Action for European Patent Application No. 15725209.9, mailed May 18, 2017.			
	14	Office Action for Georgia Patent Application No. AP 2014 01404, mailed May 4, 2017 (with English translation).			X
	15	Office Action for Israel Patent Application No. 248989, mailed June 5, 2017. (with English summary).			X
	16	Office Action for Japanese Patent Application No. 2016-572832, mailed June 2, 2017 (with English summary).			X
	17	Office Action for Korean Patent Application No. 10-2016-7034158, mailed April 10, 2017 (with English summary).			X

Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

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	Art Unit	1616
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Page 2 of 2	Matter Number	LIQ103CON(2)

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Initials	Cite No.	Author, Title, Date, Pages, etc.	T
	18	Office Action for Panama Patent Application No. 91008-01, mailed January 31, 2017(with English summary).	X
	19	Office Action for Panama Patent Application No. 91418-01, mailed June 8, 2017. (with English summary).	X
	20	Office Action for Ukraine Patent Application No. a201601137, mailed June 22, 2017 (with English translation).	X
	21	Office Action for United Kingdom Patent Application No. 1618547.2, mailed November 30, 2016.	
	22	Office Action for United Kingdom Patent Application No. GB1605344.9, mailed April 29, 2016.	
	23	Redacted Version of Declaration of Robert .W. J. Hefferd, PhD_PART_1of3; with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	
	24	Redacted Version of Declaration of Robert .W. J. Hefferd, PhD_PART_2of3; with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	
	25	Redacted Version of Declaration of Robert .W. J. Hefferd, PhD_PART_3of3;with Appendices (1-3) and Exhibits (A-O), filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	
	26	Redacted Version of Defendant's Brief in Opposition to Plaintiff's Motion for Preliminary Injunction, by L'Oreal USA Products, Inc., et al., filed in Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al., U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 on April 17, 2017	

Examiner Signature	/ABIGAIL VANHORN/	Date Considered	12/31/2017
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)	3136
23579	7590	01/02/2018	EXAMINER	
Pabst Patent Group LLP 1545 PEACHTREE STREET NE SUITE 320 ATLANTA, GEORGIA 30309			VANHORN, ABIGAIL LOUISE	
			ART UNIT	PAPER NUMBER
			1616	
			MAIL DATE	DELIVERY MODE
			01/02/2018	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 15/290,593	Applicant(s) Pressly et al.	
	Examiner ABIGAIL L VANHORN	Art Unit 1616	AIA Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 30 November 2017
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 30-44 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☒ Claim(s) 30-44 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____

4) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Based on the amendments filed November 30 2017, the restriction requirement set forth in the Office action mailed on May 31 2017 is withdrawn.

Claims 1-29 were/stand cancelled. Claims 30-44 are pending and examined herein.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on March 6 2017, September 29 2017 and December 8 2017 were considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

Claim(s) 38-44 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Benjamin (USPGPUB No. 20100015253).

The instant application claims a nail formulation comprising: an active agent, wherein the active agent is maleic acid or a salt thereof.

Benjamin is directed to the treatment of nail infections with NO. Exemplified are solutions containing maleic acid in 2.6, 5, 7.5 and 10% (example 1). Example 3 teaches a cream containing maleic acid in 2.5, 5, 7.5 and 10%. Since the compositions of Benjamin are intended to be applied to the nail, Benjamin anticipates the instantly claimed nail formulation.

Regarding claim 44, neither the claims nor specification provide a limiting definition of nail polish. Since this recitation does not impart any structural requirements to the claim, the compositions of Benjamin are interpreted as reading on the instantly claimed nail polish.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102 of this title, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

Claims 30-44 are rejected under 35 U.S.C. 103 as being unpatentable over Benjamin as applied to claims 38-44 above.

Applicant Claims

The instant application claims a method for treating nails comprising: (a) applying a nail formulation to a nail, wherein the nail formulation comprises an active agent, wherein the active agent is maleic acid or a salt thereof.

Determination of the Scope and Content of the Prior Art (MPEP §2141.01)

The teachings of Benjamin are set forth above. Claimed is a method for the treatment of subungual infection in a patient. The formulation is applied to a nail of the patient in an amount that effectively treats an infection under the nail (claim 26). Repeating the process is taught (example 14). The compositions may be dispensed as paints or lacquers (paragraph 0051).

**Ascertainment of the Difference Between Scope the Prior Art and the Claims
(MPEP §2141.012)**

While Benjamin expressly teaches composition with maleic acid, Benjamin does not exemplify their application to the nail.

***Finding of Prima Facie Obviousness Rationale and Motivation
(MPEP §2142-2143)***

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to apply the exemplified composition comprising maleic acid to the nail. One of ordinary skill in the art would have been motivated to apply the compositions in this manner as Benjamin expressly teaches that the compositions are to be applied to the nail.

Regarding the claimed amounts of maleic acid, Benjamin exemplifies amounts reading on the claims.

Regarding claim 36, neither the claims nor specification provide a limiting definition of nail polish. Since this recitation does not impart any structural requirements to the claim, the compositions of Benjamin are interpreted as reading on the instantly claimed nail polish. Even if a more narrow interpretation is required, Benjamin teaches the actives may be dispensed as paints or lacquers which reads on nail polish.

Regarding claim 37, firstly Benjamin teaches repeating the application process. Secondly, it would have been obvious to one of ordinary skill in the art to reapply the composition as necessary in order to treat the infection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABIGAIL VANHORN (née Fisher) whose telephone

number is 5712703502. The examiner can normally be reached on M-Th 5:30am-5pm EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABIGAIL VANHORN/
Primary Examiner, Art Unit 1616

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	124	nail same (maleic acid)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:33
L2	88	L1 and @ad<"20140516"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:33
L3	26	"9919789".FMID.	US-PGPUB; USPAT; FPRS	ADJ	ON	2017/12/31 08:37
L4	2	US-20100015253-\$.did.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:42
L5	2	L4 and maleic	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:45
L6	0	L5 and polish	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:45
L7	0	L5 and (pigment or colorant or coloring)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:46
L8	5561	(nail polish).ab. or (nail polish).cm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	ADJ	ON	2017/12/31 08:46

			DERWENT; IBM_TDB			
L9	89	L8 and (maleic acid)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:46
L10	7	L9 and (maleic acid).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:46
L11	2	L4 and (cream or lotion or gel or polish)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:48
L12	3	(US-20040197280-\$ or US-20100015253-\$).did. or (JP-2001288024-\$).did.	US-PGPUB; JPO	ADJ	ON	2017/12/31 08:49
L13	1	L12 and polish	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:49
L14	16	(nail polish) same (nail infection)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:51
L15	14	L14 and (polish same (cream or lotion or gel))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 08:51
L16	9	L15 and maleic	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 09:20
L17	29	L8 and (organic same (maleic acid))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 09:21

L18	1	2009-E40656.NRAN.	DERWENT	ADJ	ON	2017/12/31 09:37
L19	14	polish same (maleic acid) same nail	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 09:46
L20	9	(nail laquer) same polish	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 09:50
L21	6	(nail laquer) and (nail infection) and (colorant or pigment or coloring)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 09:50
L22	39	(nail lacquer) and (nail infection) and (colorant or pigment or coloring)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 09:51
L23	73	("0006028" "20010042276" "20020189034" "20030049222" "20030072962" "20040034944" "20040034946" "20040086475" "20040088800" "20050036970" "20050087718" "20060024257" "20060228316" "20070041921" "20070067924" "20070261594" "20070264208" "20080066773" "20080138309" "20080141468" "20080187506" "20090022681" "20090126756" "20090252697" "20100004391" "20100202998" "20110256084" "20120180807" "20120244082" "20130152959" "20130172518" "20130309190" "20140186283" "20140196741" "20150034117" "20150034119" "20150297496" "20160081899" "20160193129" "20160263003" "20160310394" "2850351" "3142623" "3472243" "3840656" "4240450" "4425132" "4532950" "4793993" "4812307" "4834971" "5143518" "5221286" "5350572" "5565216" "5651960" "5656265" "5811085" "5833966" "6173717" "6458906" "6537532" "6984250" "7041142" "7044986" "7390479" "7598213" "8298519" "8613913" "9095518" "9144537" "9180086" "9326926").PN.	US-PGPUB; USPAT	ADJ	ON	2017/12/31 09:54
L24	2	("20140125452" "3568685").PN.	US-PGPUB;	ADJ	ON	2017/12/31

			USPAT			09:55
L25	2	("20130034515" "9498419").PN.	US-PGPUB; USPAT	ADJ	ON	2017/12/31 09:59
L26	77	L23 or L24 or L25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 10:00
L27	6	L26 and (nail)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 10:00
L28	5	L27 and maleic	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 10:00
L29	8	((("LIQWD") near3 ("INC"))).AANM.	USPAT	ADJ	ON	2017/12/31 10:02
L30	23	((("PRESSLY") near3 ("Eric"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	ON	2017/12/31 10:02
L31	135	((("HAWKER") near3 ("Craig"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	ON	2017/12/31 10:02
L32	135	L29 or L30 or L31	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 10:03
L33	0	L32 and (keratin or nail).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2017/12/31 10:03

EAST Search History (Interference)

<This search history is empty>

12/31/2017 10:10:31 AM**C:\Users\afisher\Documents\EAST\Workspaces\15290593_2.wsp**



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BIB DATA SHEET

CONFIRMATION NO. 3136

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
15/290,593	10/11/2016	424	1616	LIQ 103 CON (2)		
APPLICANTS Liqwd, Inc., Santa Barbara, CA; INVENTORS Eric D. Pressly, Santa Barbara, CA; Craig J. Hawker, Santa Barbara, CA; ** CONTINUING DATA ***** This application is a CON of 15/087,415 03/31/2016 PAT 9498419 which is a CON of 14/713,885 05/15/2015 PAT 9326926 which claims benefit of 61/994,709 05/16/2014 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 10/20/2016						
Foreign Priority claimed ☐ Yes ☒ No	35 USC 119(a-d) conditions met ☐ Yes ☒ No	☐ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
Verified and /ABIGAIL LOUISE VANHORN/ Acknowledged Examiner's Signature		Initials	CA	0	28	3
ADDRESS Pabst Patent Group LLP 1545 PEACHTREE STREET NE SUITE 320 ATLANTA, GA 30309 UNITED STATES						
TITLE Keratin Treatment Formulations and Methods						
FILING FEE RECEIVED 1120	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees		
				☐ 1.16 Fees (Filing)		
				☐ 1.17 Fees (Processing Ext. of time)		
				☐ 1.18 Fees (Issue)		
				☐ Other _____		
				☐ Credit		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 11	Matter Number	LIQ103CON(2)

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	8	4793993	12/27/1988	Patricia Siuta-Mangano	
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	10	4834971	05/30/1989	Adolf Klenk	
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	12	5221286	06/22/1993	Singleton	
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	30	9095518	08/04/2015	Pressly	

Examiner Signature	Date Considered
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.	

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Page 2 of 11	Matter Number	LIQ103CON(2)

U.S. PATENT DOCUMENTS					
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	35	20020189034	12/19/2002	Yasuhiko Kitabata	
	36	20030049222	03/13/2003	Humayoun Akhter	
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	60	20120180807	07/19/2012	FLOHR	

Examiner Signature	Date Considered
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Page 3 of 11	Matter Number	LIQ103CON(2)

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	85	2295029	03/16/2011	EP	
	86	2478892	07/25/2012	EP	
	87	2975900	12/07/2012	FR	T1

Examiner Signature	Date Considered
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.	

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Page 4 of 11	Matter Number	LIQ103CON(2)

FOREIGN PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Publication Date	Country	T
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 5 of 11	Matter Number	LIQ103CON(2)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 6 of 11	Matter Number	LIQ103CON(2)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 7 of 11	Matter Number	LIQ103CON(2)

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	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 8 of 11	Matter Number	LIQ103CON(2)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 9 of 11	Matter Number	LIQ103CON(2)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 10 of 11	Matter Number	LIQ103CON(2)

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	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 11 of 11	Matter Number	LIQ103CON(2)

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A61K8/8152[?]

Homopolymers or copolymers of esters, e.g. (meth)acrylic acid esters; Compositions of derivatives of such polymers

Nail polish compositions containing acrylic polymers



[Grant US6254878B1](#) • Milan Bohuslav Bednarek • E. I. Du Pont De Nemours And Company
Priority 1999-07-01 • Filing 1999-07-01 • Grant 2001-07-03 • Publication 2001-07-03

Colored and clear **nail polish** compositions comprise a solvent system having no more than 30 weight % water, a film forming acrylic binder prepared from (meth)acrylic monomers and styrene and which further contain specific adhesion ...

Aqueous nail coating composition



[Grant US5922334A](#) • Robert Krasnansky • Rohm And Haas Company
Priority 1998-05-06 • Filing 1998-05-06 • Grant 1999-07-13 • Publication 1999-07-13

The present invention provides an aqueous nail coating composition containing a dispersion of multi-phase polymers. The aqueous nail coating composition has improved resistance to abrasion and chemicals.

Composition e.g. **nail polish**, applying assembly for coating e.g. nail, has felt

...

[Application FR2909844A1](#) • Guillaume Kergosien • Oreal
Priority 2006-12-14 • Filing 2006-12-14 • Publication 2008-06-20

A **nail polish** composition has a continuous aqueous phase presenting average size with particles having pigments lesser than or equal to 1micrometer, where composition has two film former polymer and a dispersing agent and pigments can be ...

➔ Search within classification A61K8/8152 (1,507 results)

Colored **nail polishes**



[Grant US3849547A](#) • G Kalopissis • Oreal
Priority 1967-07-25 • Filing 1971-02-02 • Grant 1974-11-19 • Publication 1974-11-19

1. A TRANSPARENT **NAIL POLISH** COMPOSITION CONSISTING ESSENTIALLY OF A SOLUTION OF 12-15% BY WEIGHT OF A NITROCELLULOSE FILM FORMER, 6-13% BY WEIGHT OF AN ARYL SULFONAMIDE FORMALDEHYDE RESIN, 5-8% BY WEIGHT OF A PLASTICIZER SELECTED FROM THE ...

Aqueous **nail polish** compositions containing acrylic resins crosslinked with ...

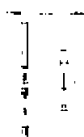


[Grant US5716603A](#) • Robert Gowsheng Chen • Eastman Chemical Company

Priority 1995-06-20 • Filing 1995-10-30 • Grant 1998-02-10 • Publication 1998-02-10

This invention relates to an aqueous acrylic resin crosslinked with difunctional acrylated urethane oligomers which are used in **nail polish** compositions. The **nail polish** compositions exhibit quick dry time, excellent leveling, good water/ ...

Nail polish compositions and means for applying same



[Grant US4747419A](#) • Madeline D. Flynn • Chesebrough-Pond's, Inc.

Priority 1986-06-17 • Filing 1986-06-17 • Grant 1988-05-31 • Publication 1988-05-31

The present invention relates to a novel **nail polish** composition to be dispersed by way of a pen having a substantially non-bristle brush tip; said composition having a low viscosity, i.e. not greater than about 200 cps and comprising a ...

Adhesive cyanoacrylate compositions with reduced adhesion to skin



[Grant US4444933A](#) • Peter S. Columbus • Borden, Inc.

Priority 1982-12-02 • Filing 1982-12-02 • Grant 1984-04-24 • Publication 1984-04-24

from about 10 to about 18 percent by weight of a vinyl chloride/vinyl acetate/**maleic acid** terpolymer dissolved in said 2-cyanoacrylate ester, said terpolymer having a molecular weight of at least about 8000 and comprising about 80 to about ...

Antimycotic nail enamel and preparation process thereof

Application EP0298271A1 • Manfred Dr. Bohn • Hoechst Aktiengesellschaft

Priority 1987-06-16 • Filing 1988-06-10 • Publication 1989-01-11

The **nail lacquer** contains at least one water-insoluble film former and at least one antimycotic substance from the group comprising tioconazole, econazole, oxiconazole, miconazole, tolnaftate and naftifine hydrochloride.

Method for coating human nails



[Grant US3928113A](#) • Ira Rosenberg • Clairol Inc

Priority 1973-06-14 • Filing 1973-10-24 • Grant 1975-12-23 • Publication 1975-12-23

10. A method according to claim 9 wherein said liquid photocurable **nail lacquer** composition contains from about 0.5% to 1.0% by weight of said surfactant, about 1% to 10% by weight of said photocuring rate accelerator and from about 1% to ...

UV Curable polyene-polythiol-surfactant compositions



[Grant US3896014A](#) • Ira Rosenberg • Clairol Inc

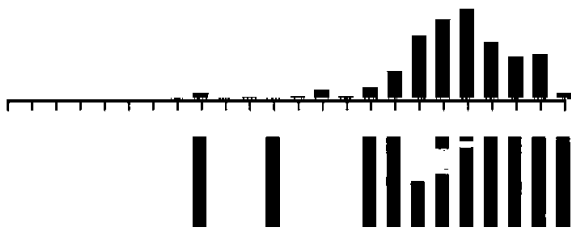
Priority 1973-06-14 • Filing 1973-06-14 • Grant 1975-07-22 • Publication 1975-07-22

Photocurable liquid **nail lacquer** compositions comprising a polyene, a polythiol, a photocuring rate accelerator and a surfactant from a particular class; these compositions being curable to a hard nail finish when applied to nails and ...

Next > >>

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Inventor Information for 15/290593

Inventor Name	City	State/Country
PRESSLY, ERIC D.	SANTA BARBARA	CALIFORNIA
HAWKER, CRAIG J.	SANTA BARBARA	CALIFORNIA

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 2	Matter Number	LIQ103CON(2)

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	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 2 of 2	Matter Number	LIQ103CON(2)

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	34	REDACTED Petition for Post-Grant review of U.S. Patent 9,668,954, filed in PGR 2018-00023	
	35	REDACTED Petition for Post-Grant review pf U.S. Patent 9,668,954, filed in PGR 2018-00025	
	36	REDACTED Petition for Post-Grant review of U.S. Patent No. 9,668,954, filed in PGR 2018-00024	
	37	REDACTED Petitioners reply to patent owner's response, pages 1-32 January 26, 2018, filed in PGR 2017-00012.	
	38	Robbins, et al., "Chemical Composition of Different Hair Types" Chemical and Physical Behavior of Human Hair ,Chapter 2:104-76, Springer-Verlag, Berlin Heidelberg (2012).	
	39	Second Written Opinion for corresponding Singapore Application No. 11201609005Q mailed November 29, 2017.	
	40	Table 3.4, pKa values of some amino acids", From: Appendix: Acid-Base Concepts Biochemistry. 5th edition. Berg JM, Tymoczko JL, Stryer L.New York: W H Freeman; (2002).	
	41	Third Party Observation filed in corresponding Australian Divisional Application No. AU 2017251818 mailed January 17, 2018.	
	42	Third Party Observation filed in corresponding Canadian Application No. 2,947,303 mailed December 7, 2017.	
	43	Third Party Observation filed in corresponding Mexican Application No. MX/a/2016014917 mailed November 6, 2017	
	44	WICKET and JACHOWICZ, "Measuring Hair", Handbook of Cosmetic Science and Techonologypgs 694-724 Andre Barrel #rd. Ed, (2009).	

Examiner Signature		Date Considered	
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Art Unit: 1616

Confirmation No. 3136

Filed: October 11, 2016

Examiner: Abigail Van Horn

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. § 1.56 and 37 C.F.R. § 1.97,

Applicants submit a Supplemental Information Disclosure Statement, including **two** pages of Form PTO-1449 and copies of **35** documents cited therein.

Pursuant to the waiver in the notice entitled “Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications Filed After June 30, 2003” published on August 5, 2003 in 1273 OG 55, copies of the U.S. Patents and Published Applications are not enclosed. Copies will be provided upon request, however.

This Supplemental Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(c) after a first Office Action on the merits. The Commissioner is authorized to charge \$120.00, the fee for a small entity set forth under 37 C.F.R. § 1.17(p), via credit card. It is believed that no additional fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S. Patent Documents

<u>Cite No.</u>	<u>Number</u>	<u>Issue/Publication Date</u>	<u>Inventor</u>
1.	4,067,345	01-10-1978	Kelly
2.	4,138,478	02-06-1979	Reese
3.	6,358,502	03-19-2002	Tanabe
4.	7,179,302	02-20-2007	Baswell
5.	8,556,992	10-15-2013	De George
6.	9,668,954	06-06-2017	Pressly
7.	2012/0024309	02-02-2012	Pratt
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9.	2015/0328102	11-19-2015	Pressly

Foreign Documents

	<u>Number</u>	<u>Publication Date</u>	<u>Applicant</u>
10.	WO 2017/041908	03-16-2017	Kao Germany GMBH
11.	KR 2003-0003970 certified translation	1/14/20013	LG Household & Health Care, Ltd.

Other Documents

<u>Cite No.</u>	<u>Author, Title, Date, Pages etc.</u>
12.	<u>CTFA Cosmetic Ingredient handbook</u> , pages 1023-1 thru 1023-8, John Wenninger Editor, (1992).
13.	EVANS, "Fatigue testing of hair-A statistical approach to hair breakage", <i>J Cosmet. Sci.</i> , 60:599-616 (2009).
14.	KAMATH and ROBBINS, "Hair breakage by combing and brushing—A comment on: T.A. Evans and K. Park, A statistical analysis of hair breakage. II Repeated grooming experiments", <i>J. Cosmet. Sci.</i> , 41:439-56 (2010).
15.	<u>Quantitative Chemical Analysis</u> , pgs 1027-1 thru 1027-5, Daniel Harris Editor, 3 rd Ed., (1991).
16.	Robbins, <i>et al.</i> , "Chemical Composition of Different Hair Types" <u>Chemical and Physical Behavior of Human Hair</u> , Chapter 2:104-76, Springer-Verlag, Berlin Heidelberg (2012).
17.	"Table 3.4, pKa values of some amino acids", From: Appendix: <u>Acid-Base Concepts; Biochemistry</u> . 5th edition. Berg JM, Tymoczko JL, Stryer L. New York: W H Freeman; (2002).
18.	WICKET and JACHOWICZ, "Measuring Hair", <u>Handbook of Cosmetic Science and Technology</u> pages 694-724 Andre Barrel #rd. Ed, (2009).
19.	Curriculum vitae of R. Randall Wickett Ph.D.
20.	Declaration of R. Randall Wickett, Ph.D., PGR 2018-0023

21.	Declaration of R. Randall Wickett, Ph.D., PGR 2018-0024
22.	Declaration of R. Randall Wickett, Ph.D., PGR 2018-0025
23.	Memorandum filed in response to official action of June 5, 2017 in corresponding Israel application No 248989.
24.	Third Party Observation filed in corresponding Mexican Application No. MX/a/2016/014917 mailed November 6, 2017
25.	Office Action for corresponding Canadian Application No. CA 2,947,303 mailed December 21, 2017.
26.	Office Action for Japanese Application No.2016-515948 mailed June 27, 2017.
27.	Office Action for Mexican Application No. MX a/2016/00176mailed August 24, 2017.
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29.	Office Action for Eurasian Application No. 201592291 mailed August 1, 2017.
30.	Office Action for Chinese Application No. 201480042200.1 mailed January 1, 2018.
31.	Office Action for Cuban Application No. 2016-0017 mailed January 26, 2018.
32.	Third Party Observation filed in corresponding Canadian Application No. 2,947,303 mailed December 7, 2017.
33.	Third Party Observation filed in corresponding Australian Divisional Application No. AU 2017251818 mailed January 17, 2018.
34.	Second Written Opinion for corresponding Singapore Application No. 11201609005Q mailed November 29, 2017.
35.	REDACTED Petition for Post-Grant review of U.S. Patent No. 9,668,954, filed in PGR 2018-00024
36.	REDACTED Petition for Post-Grant review of U.S. Patent 9,668,954, filed in PGR 2018-00023
37.	REDACTED Petition for Post-Grant review of U.S. Patent 9,668,954, filed in PGR 2018-00025
38.	DISPENZA License status webpage, https://aca.licensecenter.ny.gov/aca/GeneralProperty/LicenseeDetail , retrieved from the internet 12/12/2017.
39.	OLAPLEX, “The Olaplex Differences”, https://olaplex.com/pages/how-it-works , retrieved from the internet 12/12/2017.
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41.	DISPENZA, Disposition transcript, pages 1-125, December 13, 2017.
42.	BORISH, Disposition transcript, pages 1-204, January 5, 2018.
43.	NANDAGIRI, Rebuttal declaration, pages 1-7, January 30, 2017.
44.	REDACTED Petitioners reply to patent owner’s response, pages 1-32 January 26, 2018, filed in PGR 2017-00012.

U.S.S.N.: 15/290,593
Filed: October 11, 2016
SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Dated: March 19, 2018

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1545 Peachtree Street NE
Suite 320
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(404) 879-2160 (Fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: March 19, 2018

Signature: / Bonnie Lee /

Name: Bonnie Lee

Electronic Patent Application Fee Transmittal				
Application Number:		15290593		
Filing Date:		11-Oct-2016		
Title of Invention:		Keratin Treatment Formulations and Methods		
First Named Inventor/Applicant Name:		Eric D. Pressly		
Filer:		Rivka D. Monheit		
Attorney Docket Number:		LIQ 103 CON (2)		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
Total in USD (\$)				120

Electronic Acknowledgement Receipt	
EFS ID:	32082785
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit
Filer Authorized By:	
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	19-MAR-2018
Filing Date:	11-OCT-2016
Time Stamp:	14:24:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 120
RAM confirmation Number	032018INTEFSW14265600
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Foreign Reference	KR20030003970_English_Translation.pdf	247652	no	8
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Information:					
2	Foreign Reference	WO2017041908.pdf	2118430	no	30
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Warnings:					
Information:					
3	Other Reference-Patent/App/Search documents	BorishDepositionTranscript_01052018.pdf	381813	no	204
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4	Other Reference-Patent/App/Search documents	ChromasticsTrainingManual.pdf	9620135	no	32
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5	Other Reference-Patent/App/Search documents	CirriculumVitaeWicket_update_d_2017.pdf	230815	no	22
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6	Other Reference-Patent/App/Search documents	CTFA_CosmeticIngredientHandbook_1992.pdf	11247385	no	8
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7	Other Reference-Patent/App/Search documents	DeclarationWickett_2018_00023.pdf	1573412	no	72
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12	Non Patent Literature	Evans_2009.pdf	525079	no	18
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13	Non Patent Literature	Kamath_2010.pdf	62429	no	8
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Warnings:					
Information:					

14	Other Reference-Patent/App/Search documents	Memorandum_IsraelFiled06052017.pdf	110777	no	9
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16	Other Reference-Patent/App/Search documents	OfficeAction_CA_LIQ103CA_12212017.pdf	180842	no	5
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18	Other Reference-Patent/App/Search documents	OfficeAction_EU_mailed_08012017_EnglishTranslation.pdf	385111	no	3
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19	Other Reference-Patent/App/Search documents	OfficeAction_JP_OA_EnglishSummary_10032017.pdf	46645	no	3
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20	Other Reference-Patent/App/Search documents	OfficeAction_JP2016_515948_mailed_06272017.pdf	910974	no	11
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21	Other Reference-Patent/App/Search documents	OfficeAction_MX_mailed_0824_2017_FirstOfficeAction.pdf	420304	no	3
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22	Other Reference-Patent/App/Search documents	OlaplexDifference_12122017.pdf	2346440	no	5
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25	Other Reference-Patent/App/Search documents	RedactedPGR_2018_00024.pdf	1113235	no	107
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27	Other Reference-Patent/App/Search documents	REDACTED_PetitionersReplyPatentOwnersResponse_01262018.pdf	190853	no	32
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28	Other Reference-Patent/App/Search documents	Robbins_chapter_2_2012.pdf	1136881	no	74
			067185e0e42413dad664c681cc114bc06b8eead6		
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29	Other Reference-Patent/App/Search documents	SecondWrittenOpinion_LIQ103 SG_mailed_11292017.PDF	185833	no	6
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30	Non Patent Literature	Table_3_4_AminoAcid_pKa_values.pdf	52605	no	1
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31	Other Reference-Patent/App/Search documents	Third_Party_Observation_AU_01172018.pdf	510526	no	2
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32	Other Reference-Patent/App/Search documents	Third_Party_Observation_LIQ103CA_12072017.pdf	555099	no	16
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33	Other Reference-Patent/App/Search documents	ThirdPartyObservation_LIQ103MX_11062017.pdf	204255	no	41
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Warnings:					
Information:					
34	Non Patent Literature	Wicket2009.pdf	1495209	no	33
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Warnings:					
Information:					

35	Non Patent Literature	OfficeAction_CN_OA_EnglishSummary_mailed_01012018.pdf	48124 18380b19e38f64615d1830fe4fe171e1dbc7466c	no	3
Warnings:					
Information:					
36	Information Disclosure Statement (IDS) Form (SB08)	LIQ103CON_2_1449.pdf	65132 b45e4f6d6917bc8bec4c9ff8cf369a11f505707	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
37	Transmittal Letter	LIQ_103_CON_2_SyncIDS.pdf	48964 437148be6246bde542727637959f88dd7bd0849	no	4
Warnings:					
Information:					
38	Fee Worksheet (SB06)	fee-info.pdf	30356 598da37a526964900cb0b2211cfd130793a378fe	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			48583493		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Liqwd, Inc.

Inventors: Eric D. Pressly and Craig J. Hawker

Application No. 15/290,593

Examiner: Abigail VanHorn

Filed: October 11, 2016

Art Unit: 1616

Conf. No. 3136

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

STATEMENT UNDER MPEP § 2001.06(c)

Sir:

Pursuant to MPEP § 2001.06(c), Applicant informs the Office of the following concurrent proceedings in which a related patent, U.S. Patent No. 9,498,419, is involved:

- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the Central District of California, Civil Action No. 2:16-cv-08708 [*dismissed without prejudice*];
- Decision by U.S. District Court for the District of Delaware in Civil Action No. 1:17-cv-00014 to deny Preliminary Injunction appealed by Liqwd, Inc., Olaplex LLC to the United States Court of Appeals for the Federal Circuit, USCA Case Number 17-2295;

- Decision by the United States Court of Appeals for the Federal Circuit, USCA Case Number 17-2295 in the appeal of Decision by U.S. District Court for the District of Delaware in Civil Action No. 1:17-cv-00014 to deny Preliminary Injunction [*vacated and remanded*];
- Petition for Panel Rehearing and Rehearing *En Banc* of Decision by the United States Court of Appeals for the Federal Circuit, USCA Case Number 17-2295 [*denied*];
- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 [*pending*];
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00011 [*institution denied*]; and
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00012 [*pending; trial instituted*].

Application also informs the Office of three Petitions for Post-Grant Review (PGR) filed for a related patent, U.S. Patent No. 9,668,954:

- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2018-00023 [*no decision*];
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2018-00024 [*no decision*]; and
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2018-00025 [*no decision*].

Applicant also informs the Office of concurrent proceedings in the United Kingdom before the High Court of Justice Chancery Division Patents Court relating to a corresponding Patent in the United Kingdom, GB Patent No. 2 525 793:

- *Liqwd, Inc. et al. v. L'Oréal (UK) Limited, et al.*

U.S.S.N.: 15/290,593
Filed: October 11, 2016
STATEMENT UNDER MPEP § 2001.06(c)

UK High Court of Justice Chancery Division Patents Court; Claim No HP-2016-
000056 [*pending*].

The Examiner is invited to review the entire PGR records and the litigation records and to request copies of additional documents from Applicant, if she believes they may be relevant.

Enclosed is a recent docket listing for Civil Action No. 1:17-cv-00014 (D. Del.) to facilitate the Examiner's review.

Respectfully submitted,

/Rivka D. Monheit/
Rivka D. Monheit
Reg. No. 48,731

Dated: March 30, 2018

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(404) 879-2152 (Telephone)
(404) 879-2160 (Fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: March 30, 2018
Signature: /Gina Sharpe/
Name: Gina Sharpe

Electronic Acknowledgement Receipt	
EFS ID:	32210087
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Gina Sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	30-MAR-2018
Filing Date:	11-OCT-2016
Time Stamp:	15:11:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	LIQ_103_CON_2_Stmt_MPEP_2001_06_c.pdf	43276 5a18d93bd622f536fd964aa4c03ee4b68200414c	no	3
Warnings:					

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2	Other Reference-Patent/App/Search documents	LIQ_103_CON_2_DocketList.pdf	170202 05f235e8cff5db9d82d7481019bf060e365a70c8	no	25
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Information:					
Total Files Size (in bytes):			213478		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PATENT APPLICATION FEE DETERMINATION RECORD				Application or Docket Number 15/290,593		Filing Date 10/11/2016		☐ To be Mailed		
Substitute for Form PTO-875										
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO										
APPLICATION AS FILED - PART I										
		(Column 1)	(Column 2)							
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A		N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =	*		x \$40 =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*		x \$210 =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL					
APPLICATION AS AMENDED - PART II										
		(Column 1)	(Column 2)		(Column 3)					
AMENDMENT	07/02/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0	x \$50 =	0			
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	x \$230 =	0			
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE	0			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =				
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE				
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						marsha R richards				
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Liqwd, Inc.

Inventors: Eric D. Pressly and Craig J. Hawker

Application No. 15/290,593

Group Art Unit: 1616

Confirmation No. 3136

Filed: October 11, 2016

Examiner: Abigail VanHorn

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO OFFICE ACTION

Sir:

Responsive to the Office Action mailed January 2, 2018, please consider the following amendment and remarks. A Petition for a Three Month Extension of Time for a small entity is submitted herewith, and the appropriate fee is being paid by credit card. It is believed that no additional fee is due with this response. However, should a fee be required, the Commissioner is authorized to charge the fee to Deposit Account No. 50-3129.

Amendments to the Claims

Claims 1-29. (Canceled)

30. (Currently Amended) A method for treating nails comprising:

(a) applying a nail formulation to a nail, wherein the nail formulation comprises an active agent for treating keratin,

wherein the active agent is maleic acid or a salt thereof, and

wherein the nail formulation does not contain any additional active agent for treating keratin.

31. (Previously Presented) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.01 wt% to about 50 wt% of the nail formulation.

32. (Previously Presented) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.1 to 50 wt% of the nail formulation.

33. (Previously Presented) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.1 to 5 wt% of the nail formulation.

34. (Previously Presented) The method of claim 30, wherein the active agent is present in an amount ranging from about 0.1 to 3 wt% of the nail formulation.

35. (Previously Presented) The method of claim 30, wherein the nail formulation is in the form of a cream, a lotion, a gel, or a nail polish.

36. (Previously Presented) The method of claim 30, wherein the nail formulation is in the form of a nail polish.

37. (Currently amended) The method of claim 30, wherein step (a) ~~of applying~~ is repeated one or more times.

38. (Currently amended) A nail formulation comprising[[:]]

an active agent for treating keratin, wherein the active agent is maleic acid or a salt thereof; and

wherein the nail formulation does not contain any additional active agent for treating keratin.

39. (Previously Presented) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.01 wt% to about 50 wt% of the nail formulation.

40. (Previously Presented) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.1 to 50 wt% of the nail formulation.

41. (Previously Presented) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.1 to 5 wt% of the nail formulation.

42. (Previously Presented) The nail formulation of claim 38, wherein the active agent is present in an amount ranging from about 0.1 to 3 wt% of the nail formulation.

43. (Previously Presented) The nail formulation of claim 38, wherein the nail formulation is in the form of a cream, a lotion, a gel, or a nail polish.

44. (Previously Presented) The nail formulation of claim 38, wherein the nail formulation is in the form of a nail polish.

45. (New) The method of claim 30, wherein the active agent repairs and/or strengthens the keratin of the nails.

46. (New) The nail formulation of claim 38, wherein the active agent repairs and/or strengthens keratin in nails.

Remarks

Independent claims 30 and 38 were amended to specify the active agent treats keratin and to specify that the nail formulation does not contain any additional active agent for treating keratin. Support for these amendments can be found in the specification at least at page 32, lines 29-30 and at page 32, lines 1-14.

New claims 45 and 46, which depend from claims 30 and 38, respectively, were added. Support for new claims 45 and 46 can be found in the specification at least at page 32, lines 1-14.

No new matter was added by way of these amendments.

Rejection Under 35 U.S.C. § 102

Claims 38-44 were rejected under 35 U.S.C. § 102(a)(1) as anticipated by U.S. Publication No. 2010/0015253 by Benjamin (“Benjamin”).

Applicants respectfully traverse this rejection to the extent that it is applied to the claims as amended.

Analysis

Claims 38-44 are novel in view of Benjamin

Applicant respectfully submits that Benjamin does not disclose the claimed subject-matter for at least the reasons discussed below.

First, as recognized by the Examiner, “Benjamin is directed to the treatment of nail infections with NO” (nitrogen oxide) (Office Action, mailed January 2, 2018, page 3). More specifically, Benjamin describes compositions for treating subungual infections, which generate nitrogen oxide (NO) that penetrates the nail and exerts an antifungal effect (Benjamin, abstract). Benjamin describes mixing a first composition, containing a suitable nitrite, with a second

AMENDMENT AND RESPONSE TO OFFICE ACTION

composition, containing a suitable acid, to form a final nitrogen oxide generating composition, which is applied to the nail (*Id.*, para. [0036]). Benjamin teaches that NO is produced “by *reaction of nitrite with an acid*, particularly an inorganic nitrite with an organic acid” (*Id.*, para. [0018], emphasis added). Accordingly, it is understood from Benjamin that the suitable acidifying agents taught therein react with nitrite in order to generate NO. Thus, the acids are not active agents that treat keratin.

Further, Benjamin discloses that both the nitrite and the acid are required to form the NO-generating composition. Therefore, Benjamin does not disclose a nail formulation which contains maleic acid or a salt thereof as the only active agent for treating keratin.

For at least these reasons, claims 38-44 are novel over Benjamin.

Rejection Under 35 U.S.C. § 103

Claims 30-44 were rejected under 35 U.S.C. § 103 as obvious over Benjamin. Applicant respectfully traverses this rejection to the extent that it is applied to the claims as amended.

Analysis

Claims 30-44 are not obvious in view of Benjamin

Benjamin is described above.

Applicant respectfully submits that a *prima facie* case of obviousness of the claims has not been established at least because all of the limitations of independent claims 30 and 38, as amended, are not disclosed or suggested by Benjamin.

Benjamin describes forming nitrogen oxide-generating compositions containing both a nitrite and an acid, where the mixture reacts to form the NO, which allegedly treats subungual nail infections, as discussed above. Benjamin does not disclose a method or formulation in which

(1) the acids are active agents for treating keratin and (2) the nail formulation contains maleic acid or a salt thereof as the only active agent for treating keratin.

The MPEP explains that in an obviousness analysis, one cannot modify a prior art reference to render the prior art unsuitable for its intended purpose or change the principle of operation of the reference. *See* MPEP §§ 2143.01(V) and (VI). A person of ordinary skill in the art would not modify Benjamin's formulations and methods to arrive at the claims formulations and methods, at least because it would require removing a critical component, i.e. the nitrite. Accordingly, the claims are not obvious over Benjamin.

Favorable consideration of claims 30-44, as amended, and new claims 45 and 46 is respectfully solicited.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Date: July 2, 2018

PABST PATENT GROUP LLP
1545 Peachtree Street NE
Suite 320
Atlanta, Georgia 30309
(404) 879-2152
(404) 879-2160 (fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: July 2, 2018

Signature: /Heather Biffle/

Name: Heather Biffle

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) LIQ 103 CON (2)																														
Application Number 15/290,593	Filed October 11, 2016																															
For Keratin Treatment Formulations and Methods																																
Art Unit 1616	Examiner VANHORN, Abigail Louise																															
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below): <table style="width: 100%; border-collapse: collapse;"><thead><tr><th></th><th style="text-align: center;"><u>Fee</u></th><th style="text-align: center;"><u>Small Entity Fee</u></th><th style="text-align: center;"><u>Micro Entity Fee</u></th><th></th></tr></thead><tbody><tr><td>☐ One month (37 CFR 1.17(a)(1))</td><td style="text-align: center;">\$200</td><td style="text-align: center;">\$100</td><td style="text-align: center;">\$50</td><td>\$ _____</td></tr><tr><td>☐ Two months (37 CFR 1.17(a)(2))</td><td style="text-align: center;">\$600</td><td style="text-align: center;">\$300</td><td style="text-align: center;">\$150</td><td>\$ _____</td></tr><tr><td>☒ Three months (37 CFR 1.17(a)(3))</td><td style="text-align: center;">\$1,400</td><td style="text-align: center;">\$700</td><td style="text-align: center;">\$350</td><td>\$ <u>700</u></td></tr><tr><td>☐ Four months (37 CFR 1.17(a)(4))</td><td style="text-align: center;">\$2,200</td><td style="text-align: center;">\$1,100</td><td style="text-align: center;">\$550</td><td>\$ _____</td></tr><tr><td>☐ Five months (37 CFR 1.17(a)(5))</td><td style="text-align: center;">\$3,000</td><td style="text-align: center;">\$1,500</td><td style="text-align: center;">\$750</td><td>\$ _____</td></tr></tbody></table> ☒ Applicant asserts small entity status. See 37 CFR 1.27. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director has already been authorized to charge fees in this application to a Deposit Account. ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>503129</u>. ☒ Payment made via EFS-Web. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. I am the ☐ applicant. ☒ attorney or agent of record. Registration number <u>48,731</u>. ☐ attorney or agent acting under 37 CFR 1.34. Registration number _____. <u>/Rivka D. Monheit/</u> <u>July 2, 2018</u> Signature Date <u>Rivka D. Monheit</u> <u>404-879-2152</u> Typed or printed name Telephone Number NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.				<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>		☐ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____	☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____	☒ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ <u>700</u>	☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____	☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____
	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>																													
☐ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____																												
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____																												
☒ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ <u>700</u>																												
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____																												
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____																												

☐ * Total of _____ forms are submitted.
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This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Electronic Patent Application Fee Transmittal				
Application Number:		15290593		
Filing Date:		11-Oct-2016		
Title of Invention:		Keratin Treatment Formulations and Methods		
First Named Inventor/Applicant Name:		Eric D. Pressly		
Filer:		Rivka D. Monheit/Heather Biffle		
Attorney Docket Number:		LIQ 103 CON (2)		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 3 months with \$0 paid	2253	1	700	700
Miscellaneous:				
Total in USD (\$)				700

Electronic Acknowledgement Receipt	
EFS ID:	33067004
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Heather Biffle
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	02-JUL-2018
Filing Date:	11-OCT-2016
Time Stamp:	15:01:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 700
RAM confirmation Number	070318INTEFSW15022100
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		LIQ_103_CON_2_AMD_and_RS P_to_OA.pdf	168101	yes	6
			b7a2c4fd0ba8bcb9b5c64ea9a346f0e8f31cf33		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	3	
	Applicant Arguments/Remarks Made in an Amendment		4	6	
Warnings:					
Information:					
2	Extension of Time	LIQ_103_CON_2_3mosEOT.pdf	136790	no	1
			1a8181c1b923cba705cd265a98df94ecd56ec9e5		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30689	no	2
			91e493179bc6a6327b87beea1676cd26a63be699		
Warnings:					
Information:					
Total Files Size (in bytes):			335580		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)	3136
23579	7590	08/01/2018	EXAMINER	
Pabst Patent Group LLP 1545 PEACHTREE STREET NE SUITE 320 ATLANTA, GEORGIA 30309 UNITED STATES OF AMERICA			VANHORN, ABIGAIL LOUISE	
			ART UNIT	PAPER NUMBER
			1616	
			MAIL DATE	DELIVERY MODE
			08/01/2018	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 15/290,593	Applicant(s) Pressly et al.	
	Examiner ABIGAIL VANHORN	Art Unit 1616	AIA Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 02 July 2018.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 30-46 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 30-46 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.

4) ☐ Other: ____.

DETAILED ACTION

Receipt of Arguments/Remarks filed on July 2 2018 is acknowledged. Claims 30 and 37-38 were amended. Claims 45-46 were added. Claims 30-46 are pending.

In consideration of the amendment and in reconsideration of the prior office actions and responses thereto, rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on March 30 2018 was considered by the examiner.

New and Modified Rejections Necessitated by the Amendments filed July 2 2018

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), first paragraph:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 30-46 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 30 and 38 introduce new matter as the claims recite the limitation: "wherein the nail formation does not contain any additional active agent for treating keratin". There is no support in the specification for this limitation. The limitation of: "no additional active agent for treating keratin" was not described in the specification as filed, and person skilled in the art would not recognize in the applicant's disclosure a description of the invention as presently claimed. Applicants direct the examiner's attention to page 32 for support for these amendments. However, page 32 does not contemplate the addition of other actives within the scope instantly claimed. A

description which renders the claim invention obvious does not satisfy the written description requirement (p 1172, *Ariad v. Eli Lilly*, 598 F 3d 1336, 94 USPQ 2d 1161, citing *Lockwood v. Am. Airlines*). The mere absence of a positive recitation of a claim element in the Specification is not basis for its express exclusion in the claims. MPEP § 2173.05(i). Any claim containing a negative limitation which does not have basis in the original disclosure is correctly rejected under 35 U.S.C. § 112(a) or pre-AIA 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. *Id.* "Negative claim limitations are adequately supported when the specification describes a reason to exclude the relevant limitation," describing disadvantages of the excluded part will suffice. *Inphi Corp. v. Netlist, Inc.*, 805 F. 3d 1350, 1355 (Fed. Cir. 2015) (quoting *Santarus, Inc. v. Par Pharmaceutical, Inc.*, 694 F. 3d 1344, 1351 (Fed. Cir. 2012)); see also MPEP § 2173.05(i) ("If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims."). The Specification fails under these requirements. Therefore, it is the Examiner's position that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of filing of the instant application.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 30-44 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claims 30 and 38 as currently written are vague and indefinite. The claims recites the nail formation does not contain any additional active agent for treating keratin. But the claims do not recite what type of treatment is encompassed to understand what active agents are excluded. For example, in the instant specification all of the active agent formulations contain water. However, water would be expected to hydrate/moisturize the keratin. Therefore, this ingredient would appear to be excluded by the recitation the nail formation does not contain any additional active agent for treating keratin. The metes and bounds of the claims are unclear as the scope of what is excluded by the recitation "additional active agent for treating keratin" is unclear.

Claims 45-46 recites the limitation "the active agent" in line 1. There is insufficient antecedent basis for this limitation in the claim. Specifically, it is unclear if the recitation is referring to the function of the maleic acid, the active agent excluded or both.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

Claim(s) 38-44 and 46 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Benjamin (USPGPUB No. 20100015253).

The instant application claims a nail formulation comprising an active agent for treating keratin, wherein the active agent is maleic acid or a salt thereof; and wherein the nail formulation does not contain any additional active agent for treating keratin.

Benjamin is directed to the treatment of nail infections with NO. Exemplified are solutions containing maleic acid in 2.6, 5, 7.5 and 10% (example 1). Example 3 teaches a cream containing maleic acid in 2.5, 5, 7.5 and 10%. Since the compositions of Benjamin are intended to be applied to the nail, Benjamin anticipates the instantly claimed nail formulation. The NO is taught as having fungicidal effects (paragraph 0019). Exemplified is mixing creams with fungal spores to kill the spores (examples 3 or 4).

Regarding the recitation wherein the nail formation does not contain any additional active agent for treating keratin, the NO is specifically taught for treating the fungus not the keratin. Since the above rejected claims are directed to the composition, the NO is not interpreted as being excluded from the claims.

Regarding claim 44, neither the claims nor specification provide a limiting definition of nail polish. Since this recitation does not impart any structural requirements

to the claim, the compositions of Benjamin are interpreted as reading on the instantly claimed nail polish.

Regarding claim 46, a wherein clause that merely states the result of the limitations in the claim adds nothing to the patentability or substance of the claim. *Texas Instruments, Inc. v. International Trade Comm.*, 988 F. 2d 1165, 1172 (Fed. Cir. 1993). See also *Minton v. National Assoc. of Securities Dealers, Inc.*, 336 F. 3d 1373, 1381 (Fed. Cir. 2003) ("A whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited."). In the instant claim, the wherein clause merely characterizes the result of the composition.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102 of this title, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

Claims 30-46 are rejected under 35 U.S.C. 103 as being unpatentable over Benjamin as applied to claims 38-44 and 46 above.

Applicant Claims

The instant application claims a method for treating nails comprising: (a) applying a nail formulation to a nail, wherein the nail formulation comprises an active agent for treating keratin, wherein the active agent is maleic acid or a salt thereof; and wherein the nail formulation does not contain any additional active agent for treating keratin.

Determination of the Scope and Content of the Prior Art (MPEP §2141.01)

The teachings of Benjamin are set forth above. Claimed is a method for the treatment of subungual infection in a patient. The formulation is applied to a nail of the patient in an amount that effectively treats an infection under the nail (claim 26).

Repeating the process is taught (example 14). The compositions may be dispensed as paints or lacquers (paragraph 0051).

**Ascertainment of the Difference Between Scope the Prior Art and the Claims
(MPEP §2141.012)**

While Benjamin expressly teaches composition with maleic acid, Benjamin does not exemplify their application to the nail.

***Finding of Prima Facie Obviousness Rationale and Motivation
(MPEP §2142-2143)***

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to apply the exemplified composition comprising maleic acid to the nail. One of ordinary skill in the art would have been motivated to apply the compositions in this manner as Benjamin expressly teaches that the compositions are to be applied to the nail.

Regarding the claimed amounts of maleic acid, Benjamin exemplifies amounts reading on the claims.

Regarding the recitation wherein the nail formation does not contain any additional active agent for treating keratin, the NO is specifically taught for treating the fungus not the keratin. Claim 26 of Benjamin expressly states that formulation is applied to a nail of the patient in an amount that effectively treats an infection under the nail. Therefore, the generated NO is not treating the keratin but the infection under the keratin and therefore is not excluded by the instant claim language.

Regarding claim 36, neither the claims nor specification provide a limiting definition of nail polish. Since this recitation does not impart any structural requirements to the claim, the compositions of Benjamin are interpreted as reading on the instantly claimed nail polish. Even if a more narrow interpretation is required, Benjamin teaches the actives may be dispensed as paints or lacquers which reads on nail polish.

Regarding claim 37, firstly Benjamin teaches repeating the application process. Secondly, it would have been obvious to one of ordinary skill in the art to reapply the composition as necessary in order to treat the infection.

Regarding claim 45, a wherein clause that merely states the result of the limitations in the claim adds nothing to the patentability or substance of the claim. *Texas Instruments, Inc. v. International Trade Comm.*, 988 F. 2d 1165, 1172 (Fed. Cir. 1993). See also *Minton v. National Assoc. of Securities Dealers, Inc.*, 336 F. 3d 1373, 1381 (Fed. Cir. 2003) ("A whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited."). In the instant claim, the wherein clause does not inform the artisan of how the "applying" step is performed; rather the wherein clause merely characterizes the result of that step.

Response to Arguments

Applicants' arguments filed July 2 2018 have been fully considered but they are not persuasive.

Applicants argue that Benjamin does not teach the acids are active for treating keratin. Applicants argue that Benjamin does not disclose a nail formation for which maleic acid is the only active for treating keratin.

Regarding applicants' arguments, as indicated above, the NO is for treating fungus under the nail and thus is not an active for treating keratin and therefore isn't excluded by the claims. While Benjamin does not expressly teach that the maleic acid is for treating keratin, Benjamin teaches the same application and a composition

comprising maleic acid in the same claimed amount. With regard to the functional limitation pertaining to treating keratin, repairing or strengthening keratin, Benjamin discloses the same claimed maleic. Note MPEP 2112.01 (II): "Products of identical chemical composition cannot have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F. 2d 705,709, 15 USPQ 2d 1655, 1658 (Fed. Cir. 1990).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABIGAIL VANHORN whose telephone number is (571)270-3502. The examiner can normally be reached on M-Th 5:30am-5pm EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABIGAIL VANHORN/
Primary Examiner, Art Unit 1616

<i>Search Notes</i> 	Application/Control No. 15/290,593	Applicant(s)/Patent Under Reexamination Pressly et al.
	Examiner ABIGAIL VANHORN	Art Unit 1616

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST (USPGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	12/31/2017	AVH
GOOGLE PATENTS	12/31/2017	AVH
EAST INVENTOR NAME SEARCH	12/31/2017	AVH
PALM INVENTOR NAME SEARCH	12/31/2017	AVH
EAST (USPGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	07/31/2018	AVH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
	First Named Inventor	Pressly
	Art Unit	1616
	Client Number	LIQ
Page 1 of 2	Matter Number	LIQ103CON(2)

U.S. PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Issue/Publication Date	First Named Inventor	T
	1	4067345	01/10/1978	Kelly	
	2	4138478	02/06/1979	Reese	
	3	6358502	03/19/2002	Tanabe	
	4	7179302	02/20/2007	Baswell	
	5	8556992	10/15/2013	De George	
	6	9668954	06/06/2017	Pressley	
	7	20120024309	02/02/2012	Pratt	
	8	20130034515	02/07/2013	STONE	
	9	20150328102	11/19/2015	Pressley	

FOREIGN PATENT DOCUMENTS					
Initials	Cite No.	Document Number	Publication Date	Country	T
	10	1020030003970	01/14/2003	KR	X
	11	2017041908	03/16/2017	WO	

OTHER DOCUMENTS					T
Initials	Cite No.	Author, Title, Date, Pages, etc.			
	12	BORISH, Disposition transcript, pages 1-204, January 5, 2018			
	13	CHROMASTICS, "The evolution of hair color", Technical ad training manual, pages 1-32 (2009).			
	14	Cirriculum Vitae of R. Randall Wickett Ph.D.			
	15	CTFA Cosmetic Ingredient handbook, pages 1023-1 thru 1023-8, John Wenninger Editor, (1992).			
	16	Declaration of R. Randall Wickett, Ph.D., PGR 2018-00023			
	17	Declaration of R. Randall Wickett, Ph.D., PGR 2018-00024			
	18	Declaration of R. Randall Wickett, Ph.D., PGR 2018-00025			
	19	DISPENZA License status webpage, https://aca.licensecenter.ny.gov/aca/GeneralProperty/LicenseeDetail , retrieved from the internet 12/12/2017.			
	20	DISPENZA, Disposition transcript, pages 1-125, December 13, 2017.			
	21	EVANS, "Fatigue testing of hair-A statistical approach to hair breakage", J Cosmet. Sci., 60:599-616 (2009).			
	22	KAMATH and ROBBINS, "Hair breakage by combing and brushing—A comment on: T.A. Evans and K. Park, A statistical analysis of hair breakage. II Repeated grooming experiments", J. Cosmet. Sci., 41:439-56 (2010).			

Examiner Signature	Date Considered
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	15290593
	Filing Date	10/11/2016
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Page 2 of 2	Matter Number	LIQ103CON(2)

OTHER DOCUMENTS			
Initials	Cite No.	Author, Title, Date, Pages, etc.	T
	23	Memorandum filed in response to official action of June 5, 2017 in corresponding Israel application No 248989.	
	24	NANDAGIRI, Rebuttal declaration, pages 1-7, January 30, 2017.	
	25	Office Action for Chinese Application No. 201480042200.1 mailed January 1, 2018.	
	26	Office Action for corresponding Canadian Application No. CA 2,947,303 mailed December 21, 2017.	
	27	Office Action for Cuban Application No. 2016-0017 mailed January 26, 2018.	
	28	Office Action for Eurasian Application No. 201592291 mailed August 1, 2017.	
	29	Office Action for Japanese Application No. 2016-515948 mailed October 3, 2017	
	30	Office Action for Japanese Application No.2016-515948 mailed June 27, 2017.	X
	31	Office Action for Mexican Application No. MXa/2016/00176mailed August 24, 2017.	
	32	OLAPLEX, "The Olaplex Differences", https://olaplex.com/pages/how-it-works , retrieved from the internet 12/12/2017.	
	33	Quantitative Chemical Analysis, pgs 1027-1 thru 1027-5, Daniel Harris Editor, 3rd Ed., (1991).	
	34	REDACTED Petition for Post-Grant review of U.S. Patent 9,668,954, filed in PGR 2018-00023	
	35	REDACTED Petition for Post-Grant review pf U.S. Patent 9,668,954, filed in PGR 2018-00025	
	36	REDACTED Petition for Post-Grant review of U.S. Patent No. 9,668,954, filed in PGR 2018-00024	
	37	REDACTED Petitioners reply to patent owner's response, pages 1-32 January 26, 2018, filed in PGR 2017-00012.	
	38	Robbins, et al., "Chemical Composition of Different Hair Types" Chemical and Physical Behavior of Human Hair ,Chapter 2:104-76, Springer-Verlag, Berlin Heidelberg (2012).	
	39	Second Written Opinion for corresponding Singapore Application No. 11201609005Q mailed November 29, 2017.	
	40	Table 3.4, pKa values of some amino acids", From: Appendix: Acid-Base Concepts Biochemistry. 5th edition. Berg JM, Tymoczko JL, Stryer L.New York: W H Freeman; (2002).	
	41	Third Party Observation filed in corresponding Australian Divisional Application No. AU 2017251818 mailed January 17, 2018.	
	42	Third Party Observation filed in corresponding Canadian Application No. 2,947,303 mailed December 7, 2017.	
	43	Third Party Observation filed in corresponding Mexican Application No. MX/a/2016014917 mailed November 6, 2017	
	44	WICKET and JACHOWICZ, "Measuring Hair", Handbook of Cosmetic Science and Techonologypgs 694-724 Andre Barrel #rd. Ed, (2009).	

Examiner Signature	/ABIGAIL VANHORN/	Date Considered	07/31/2018
Examiner: Please initial if citation considered, whether or not citation is in conformance with MPEP Section 609. Please draw a line through the citation if it is not in conformance and it is not considered. Please include a copy of this form with the next communication to the applicant.			

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	US-2010015253-\$.did.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2018/07/31 10:56
L2	2	US-20100015253-\$.did.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2018/07/31 10:58
S1	9	("20120024309" "20130034515" "20150328102" "4067345" "4138478" "6358502" "7179302" "8556992" "9668954").PN.	US-PGPUB; USPAT	ADJ	ON	2018/07/31 09:23
S2	2	S1 and (nail)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2018/07/31 09:26

EAST Search History (I nterference)

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7/ 31/ 2018 11:30:04 AM**C:\ Users\ afisher\ Documents\ EAST\ Workspaces\ 15290593_3.wsp**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Eric D. Pressly and Craig J. Hawker

Serial No.: 15/290,593

Art Unit: 1616

Confirmation No. 3136

Filed: October 11, 2016

Examiner: Abigail Van Horn

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. § 1.56 and 37 C.F.R. § 1.97,

Applicants submit a Supplemental Information Disclosure Statement, including **two** pages of Form PTO-1449 and copies of **35** documents cited therein.

Pursuant to the waiver in the notice entitled "Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications Filed After June 30, 2003" published on August 5, 2003 in 1273 OG 55, copies of the U.S. Patents and Published Applications are not enclosed. Copies will be provided upon request, however.

This Supplemental Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(c) after a first Office Action on the merits. The Commissioner is authorized to charge \$120.00, the fee for a small entity set forth under 37 C.F.R. § 1.17(p), via credit card. It is believed that no additional fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S.S.N.: 15/290,593

Filed: October 11, 2016

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

U.S. Patent Documents

<u>Cite No.</u>	<u>Number</u>	<u>Issue/Publication Date</u>	<u>Inventor</u>
1.	4,067,345	01-10-1978	Kelly
2.	4,138,478	02-06-1979	Reese
3.	6,358,502	03-19-2002	Tanabe
4.	7,179,302	02-20-2007	Baswell
5.	8,556,992	10-15-2013	De George
6.	9,668,954	06-06-2017	Pressly
7.	2012/0024309	02-02-2012	Pratt
8.	2013/0034515	02-07-2013	Stone
9.	2015/0328102	11-19-2015	Pressly

Foreign Documents

	<u>Number</u>	<u>Publication Date</u>	<u>Applicant</u>
10.	WO 2017/041908	03-16-2017	Kao Germany GMBH
11.	KR 2003-0003970 certified translation	1/14/20013	LG Household & Health Care, Ltd.

Other Documents

<u>Cite No.</u>	<u>Author, Title, Date, Pages etc.</u>
12.	<u>CTFA Cosmetic Ingredient handbook</u> , pages 1023-1 thru 1023-8, John Wenninger Editor, (1992).
13.	EVANS, "Fatigue testing of hair-A statistical approach to hair breakage", <i>J Cosmet. Sci.</i> , 60:599-616 (2009).
14.	KAMATH and ROBBINS, "Hair breakage by combing and brushing—A comment on: T.A. Evans and K. Park, A statistical analysis of hair breakage. II Repeated grooming experiments", <i>J. Cosmet. Sci.</i> , 41:439-56 (2010).
15.	<u>Quantitative Chemical Analysis</u> , pgs 1027-1 thru 1027-5, Daniel Harris Editor, 3 rd Ed., (1991).
16.	Robbins, <i>et al.</i> , "Chemical Composition of Different Hair Types" <u>Chemical and Physical Behavior of Human Hair</u> , Chapter 2:104-76, Springer-Verlag, Berlin Heidelberg (2012).
17.	"Table 3.4, pKa values of some amino acids", From: Appendix: <u>Acid-Base Concepts; Biochemistry</u> . 5th edition. Berg JM, Tymoczko JL, Stryer L. New York: W H Freeman; (2002).
18.	WICKET and JACHOWICZ, "Measuring Hair", <u>Handbook of Cosmetic Science and Technology</u> pages 694-724 Andre Barrel #rd. Ed, (2009).
19.	Curriculum vitae of R. Randall Wickett Ph.D.
20.	Declaration of R. Randall Wickett, Ph.D., PGR 2018-0023

U.S.S.N.: 15/290,593

Filed: October 11, 2016

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

21.	Declaration of R. Randall Wickett, Ph.D., PGR 2018-0024
22.	Declaration of R. Randall Wickett, Ph.D., PGR 2018-0025
23.	Memorandum filed in response to official action of June 5, 2017 in corresponding Israel application No 248989.
24.	Third Party Observation filed in corresponding Mexican Application No. MX/a/2016/014917 mailed November 6, 2017
25.	Office Action for corresponding Canadian Application No. CA 2,947,303 mailed December 21, 2017.
26.	Office Action for Japanese Application No.2016-515948 mailed June 27, 2017.
27.	Office Action for Mexican Application No. MX a/2016/00176mailed August 24, 2017.
28.	Office Action for Japanese Application No. 2016-515948 mailed October 3, 2017.
29.	Office Action for Eurasian Application No. 201592291 mailed August 1, 2017.
30.	Office Action for Chinese Application No. 201480042200.1 mailed January 1, 2018.
31.	Office Action for Cuban Application No. 2016-0017 mailed January 26, 2018.
32.	Third Party Observation filed in corresponding Canadian Application No. 2,947,303 mailed December 7, 2017.
33.	Third Party Observation filed in corresponding Australian Divisional Application No. AU 2017251818 mailed January 17, 2018.
34.	Second Written Opinion for corresponding Singapore Application No. 11201609005Q mailed November 29, 2017.
35.	REDACTED Petition for Post-Grant review of U.S. Patent No. 9,668,954, filed in PGR 2018-00024
36.	REDACTED Petition for Post-Grant review of U.S. Patent 9,668,954, filed in PGR 2018-00023
37.	REDACTED Petition for Post-Grant review of U.S. Patent 9,668,954, filed in PGR 2018-00025
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41.	DISPENZA, Disposition transcript, pages 1-125, December 13, 2017.
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44.	REDACTED Petitioners reply to patent owner's response, pages 1-32 January 26, 2018, filed in PGR 2017-00012.

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Filed: October 11, 2016
SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Dated: March 19, 2018

PABST PATENT GROUP LLP
1545 Peachtree Street NE
Suite 320
Atlanta, GA 30309
(404) 879-2152 (Telephone)
(404) 879-2160 (Fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.

Date: March 19, 2018

Signature: / Bonnie Lee /

Name: Bonnie Lee

/ABIGAIL VANHORN/

07/31/2018

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Liqwd, Inc.

Inventors: Eric D. Pressly and Craig J. Hawker

Application No. 15/290,593

Examiner: Abigail VanHorn

Filed: October 11, 2016

Art Unit: 1616

Conf. No. 3136

For: *KERATIN TREATMENT FORMULATIONS AND METHODS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

STATEMENT UNDER MPEP § 2001.06(c)

Sir:

Pursuant to MPEP § 2001.06(c), Applicant informs the Office of the following concurrent proceedings in which a related patent, U.S. Patent No. 9,498,419, is involved:

- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the Central District of California, Civil Action No. 2:16-cv-08708 [*dismissed without prejudice*];
- Decision by U.S. District Court for the District of Delaware in Civil Action No. 1:17-cv-00014 to deny Preliminary Injunction appealed by Liqwd, Inc., Olaplex LLC to the United States Court of Appeals for the Federal Circuit, USCA Case Number 17-2295;

U.S.S.N.: 15/290,593
 Filed: October 11, 2016
STATEMENT UNDER MPEP § 2001.06(c)

- Decision by the United States Court of Appeals for the Federal Circuit, USCA Case Number 17-2295 in the appeal of Decision by U.S. District Court for the District of Delaware in Civil Action No. 1:17-cv-00014 to deny Preliminary Injunction [*vacated and remanded*];
- Petition for Panel Rehearing and Rehearing *En Banc* of Decision by the United States Court of Appeals for the Federal Circuit, USCA Case Number 17-2295 [*denied*];
- *Liqwd, Inc. et al. v. L'Oréal USA, Inc. et al.*, U.S. District Court for the District of Delaware, Civil Action No. 1:17-cv-00014 [*pending*];
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00011 [*institution denied*]; and
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2017-00012 [*pending; trial instituted*].

Application also informs the Office of three Petitions for Post-Grant Review (PGR) filed for a related patent, U.S. Patent No. 9,668,954:

- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2018-00023 [*no decision*];
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2018-00024 [*no decision*]; and
- *L'Oréal USA, Inc., v. Liqwd, Inc.*, PGR 2018-00025 [*no decision*].

Applicant also informs the Office of concurrent proceedings in the United Kingdom before the High Court of Justice Chancery Division Patents Court relating to a corresponding Patent in the United Kingdom, GB Patent No. 2 525 793:

- *Liqwd, Inc. et al. v. L'Oréal (UK) Limited, et al.*

U.S.S.N.: 15/290,593
Filed: October 11, 2016
STATEMENT UNDER MPEP § 2001.06(c)

UK High Court of Justice Chancery Division Patents Court; Claim No HP-2016-
000056 [*pending*].

The Examiner is invited to review the entire PGR records and the litigation records and to
request copies of additional documents from Applicant, if she believes they may be relevant.

Enclosed is a recent docket listing for Civil Action No. 1:17-cv-00014 (D. Del.) to
facilitate the Examiner's review.

Respectfully submitted,

/Rivka D. Monheit/

Rivka D. Monheit

Reg. No. 48,731

Dated: March 30, 2018

PABST PATENT GROUP LLP
1545 Peachtree Street NE
Suite 320
Atlanta, GA 30309
(404) 879-2152 (Telephone)
(404) 879-2160 (Fax)

CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8

**I hereby certify that this correspondence, including any items indicated as attached or
included, is being transmitted via electronic transmission via EFS-Web on the date
indicated below.**

Date: March 30, 2018

Signature: /Gina Sharpe/

Name: Gina Sharpe

/ABIGAIL VANHORN/

07/31/2018

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

NOTICE OF APPEAL FROM THE EXAMINER TO THE PATENT TRIAL AND APPEAL BOARD		Docket Number (Optional) LIQ 103 CON (2)						
I hereby certify that this correspondence is being facsimile transmitted to the USPTO, EFS-Web transmitted to the USPTO, or deposited with the United States Postal Service with sufficient postage in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, on Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on <u>February 1, 2019</u> . Signature <u>/Gina Sharpe/</u> Typed or printed name <u>Gina Sharpe</u>	In re Application of Liqwd, Inc. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Application Number 15/290,593</td> <td style="width: 50%;">Filed October 11, 2016</td> </tr> <tr> <td colspan="2">For Keratin Treatment Formulations and Methods</td> </tr> <tr> <td>Art Unit 1616</td> <td>Examiner VANHORN, Abigail L.</td> </tr> </table>		Application Number 15/290,593	Filed October 11, 2016	For Keratin Treatment Formulations and Methods		Art Unit 1616	Examiner VANHORN, Abigail L.
Application Number 15/290,593	Filed October 11, 2016							
For Keratin Treatment Formulations and Methods								
Art Unit 1616	Examiner VANHORN, Abigail L.							
Applicant hereby appeals to the Patent Trial and Appeal Board from the last decision of the examiner.								
The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) \$ <u>800</u>								
☒ Applicant asserts small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by 50%, and the resulting fee is: \$ <u>400</u>								
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Therefore, the fee shown above is reduced by 75%, and the resulting fee is: \$ _____ Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.								
☐ A check in the amount of the fee is enclosed.								
☐ Payment by credit card. Form PTO-2038 is attached.								
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. <u>503129</u> .								
☒ Payment made via EFS-Web.								
☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/AIA/22 or equivalent) is enclosed. For extensions of time in reexamination proceedings, see 37 CFR 1.550.								
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.								
I am the								
☐ applicant								
☒ attorney or agent of record Registration number <u>48,731</u>								
☐ attorney or agent acting under 37 CFR 1.34 Registration number _____								
Signature <u>/Rivka D. Monheit/</u>								
Typed or printed name <u>Rivka D. Monheit</u>								
Telephone Number <u>404-879-2152</u>								
Date <u>February 1, 2019</u>								
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.								
☐ * Total of _____ forms are submitted.								

This collection of information is required by 37 CFR 41.20(b)(1) and 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) LIQ 103 CON (2)																																		
Application Number 15/290,593	Filed October 11, 2016																																			
For Keratin Treatment Formulations and Methods																																				
Art Unit 1616	Examiner VANHORN, Abigail L.																																			
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below): <table style="width: 100%; border-collapse: collapse;"><thead><tr><th></th><th style="text-align: center;"><u>Fee</u></th><th style="text-align: center;"><u>Small Entity Fee</u></th><th style="text-align: center;"><u>Micro Entity Fee</u></th><th></th></tr></thead><tbody><tr><td>☐ One month (37 CFR 1.17(a)(1))</td><td style="text-align: center;">\$200</td><td style="text-align: center;">\$100</td><td style="text-align: center;">\$50</td><td>\$ _____</td></tr><tr><td>☐ Two months (37 CFR 1.17(a)(2))</td><td style="text-align: center;">\$600</td><td style="text-align: center;">\$300</td><td style="text-align: center;">\$150</td><td>\$ _____</td></tr><tr><td>☒ Three months (37 CFR 1.17(a)(3))</td><td style="text-align: center;">\$1,400</td><td style="text-align: center;">\$700</td><td style="text-align: center;">\$350</td><td>\$ <u>700</u></td></tr><tr><td>☐ Four months (37 CFR 1.17(a)(4))</td><td style="text-align: center;">\$2,200</td><td style="text-align: center;">\$1,100</td><td style="text-align: center;">\$550</td><td>\$ _____</td></tr><tr><td>☐ Five months (37 CFR 1.17(a)(5))</td><td style="text-align: center;">\$3,000</td><td style="text-align: center;">\$1,500</td><td style="text-align: center;">\$750</td><td>\$ _____</td></tr></tbody></table> ☒ Applicant asserts small entity status. See 37 CFR 1.27. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director has already been authorized to charge fees in this application to a Deposit Account. ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>503129</u>. ☒ Payment made via EFS-Web. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. I am the ☐ applicant. ☒ attorney or agent of record. Registration number <u>48,731</u>. ☐ attorney or agent acting under 37 CFR 1.34. Registration number _____. <table style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%; padding: 5px;"><u>/Rivka D. Monheit/</u> Signature</td><td style="width: 50%; padding: 5px;"><u>February 1, 2019</u> Date</td></tr><tr><td style="padding: 5px;"><u>Rivka D. Monheit</u> Typed or printed name</td><td style="padding: 5px;"><u>404-879-2152</u> Telephone Number</td></tr></table> NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.				<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>		☐ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____	☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____	☒ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ <u>700</u>	☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____	☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____	<u>/Rivka D. Monheit/</u> Signature	<u>February 1, 2019</u> Date	<u>Rivka D. Monheit</u> Typed or printed name	<u>404-879-2152</u> Telephone Number
	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>																																	
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☐ * Total of _____ forms are submitted.
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This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Electronic Patent Application Fee Transmittal				
Application Number:		15290593		
Filing Date:		11-Oct-2016		
Title of Invention:		Keratin Treatment Formulations and Methods		
First Named Inventor/Applicant Name:		Eric D. Pressly		
Filer:		Rivka D. Monheit/Gina Sharpe		
Attorney Docket Number:		LIQ 103 CON (2)		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
NOTICE OF APPEAL	2401	1	400	400
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Extension - 3 months with \$0 paid	2253	1	700	700
Miscellaneous:				
Total in USD (\$)				1100

Electronic Acknowledgement Receipt	
EFS ID:	35032400
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Rivka D. Monheit/Gina Sharpe
Filer Authorized By:	Rivka D. Monheit
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	01-FEB-2019
Filing Date:	11-OCT-2016
Time Stamp:	12:57:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1100
RAM confirmation Number	020119INTEFSW12580600
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Appeal Brief Filed	LIQ_103_CON_2_NOTICE_OF_ APPEAL_FEB_01_2019.pdf	187619	no	1
			407b6646ff5debe17f4988eb72d5a874aab 9045f		
Warnings:					
Information:					
2	Extension of Time	LIQ_103_CON_2_EOT_FEB_01_ 2019.pdf	131133	no	1
			7588cd2f9212108ad41defc5e7bf1699e11a d696		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32205	no	2
			e17e1c2cedb78d67fb382a259b3dd94189a 6defc		
Warnings:					
Information:					
Total Files Size (in bytes):			350957		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) LIQ 103 CON (2)																														
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☐ * Total of _____ forms are submitted.
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Electronic Patent Application Fee Transmittal				
Application Number:		15290593		
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First Named Inventor/Applicant Name:		Eric D. Pressly		
Filer:		Carlos A Zuniga/Gina Sharpe		
Attorney Docket Number:		LIQ 103 CON (2)		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 5 months with \$0 paid	2255	1	1500	1500
Miscellaneous:				
Total in USD (\$)				1500

Electronic Acknowledgement Receipt	
EFS ID:	37015135
Application Number:	15290593
International Application Number:	
Confirmation Number:	3136
Title of Invention:	Keratin Treatment Formulations and Methods
First Named Inventor/Applicant Name:	Eric D. Pressly
Customer Number:	23579
Filer:	Carlos A Zuniga/Gina Sharpe
Filer Authorized By:	Carlos A Zuniga
Attorney Docket Number:	LIQ 103 CON (2)
Receipt Date:	29-AUG-2019
Filing Date:	11-OCT-2016
Time Stamp:	11:54:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1500
RAM confirmation Number	E20198SB54500589
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	LIQ_103_CON_2_EOT_AUG_29_2019.pdf	126292	no	1
			182cccaa47fa132a428c17b5816955f9c1bb1cd6		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30544	no	2
			91eeae7c5ec4f1e5d9bdcdf5de60d913f9144f5		
Warnings:					
Information:					
Total Files Size (in bytes):			156836		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/290,593	10/11/2016	Eric D. Pressly	LIQ 103 CON (2)	3136
23579	7590	11/29/2019	EXAMINER	
Pabst Patent Group LLP 1545 PEACHTREE STREET NE SUITE 320 ATLANTA, GA 30309			VANHORN, ABIGAIL LOUISE	
			ART UNIT	PAPER NUMBER
			1616	
			MAIL DATE	DELIVERY MODE
			11/29/2019	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<i>Notice of Abandonment</i>	Application No.	Applicant(s)
	Examiner	Art Unit
	15/290,593	Pressly et al.
	ABIGAIL VANHORN	1616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 01 August 2018.
 - (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) if this is utility or plant application, a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. Note that RCEs are not permitted in design applications.)
 - (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) ☒ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) ☐ The submitted fee of \$ _____ is insufficient. A balance of \$ _____ is due.
The issue fee required by 37CFR 1.18 is \$ _____. The publication fee, if required by 37 CFR 1.18(d), is \$ _____.
 - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record or other party authorized under 37 CFR 1.33 (b). See 37 CFR 1.138(b).
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34) upon the filing of a continuing application.
6. ☐ The decision by the Patent and Trademark Appeal Board rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:

/ABIGAIL VANHORN/ Primary Examiner, Art Unit 1616	11/26/19
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Petitions to revive under 37 CFR 1.137, or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.