

## TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

ETAS ID: TM340509

|                                   |  |                       |                     |
|-----------------------------------|--|-----------------------|---------------------|
| <b>SUBMISSION TYPE:</b>           | NEW ASSIGNMENT   |                       |                     |
| <b>NATURE OF CONVEYANCE:</b>      | Release of Patent, Trademark and Copyright Security Interest |                       |                     |
| <b>CONVEYING PARTY DATA</b>       |  |                       |                     |
| <b>Name</b>                       | <b>Formerly</b>  | <b>Execution Date</b> | <b>Entity Type</b>  |
| BOKF, N.A., dba Bank of Oklahoma  |  | 05/05/2015            | Bank: UNITED STATES |
| <b>RECEIVING PARTY DATA</b>       |  |                       |                     |
| <b>Name:</b>                      | POET Research, Inc. f/k/a Broin and Associates, Inc.         |                       |                     |
| <b>Street Address:</b>            | 4615 N. Lewis Avenue   |                       |                     |
| <b>City:</b>                      | Sioux Falls  |                       |                     |
| <b>State/Country:</b>             | SOUTH DAKOTA   |                       |                     |
| <b>Postal Code:</b>               | 57104  |                       |                     |
| <b>Entity Type:</b>               | CORPORATION: SOUTH DAKOTA                                    |                       |                     |
| <b>Name:</b>                      | POET, LLC f/k/a Broin Companies, LLC                         |                       |                     |
| <b>Street Address:</b>            | 4615 N. Lewis Avenue   |                       |                     |
| <b>City:</b>                      | Sioux Falls  |                       |                     |
| <b>State/Country:</b>             | SOUTH DAKOTA   |                       |                     |
| <b>Postal Code:</b>               | 57104  |                       |                     |
| <b>Entity Type:</b>               | LIMITED LIABILITY COMPANY: SOUTH DAKOTA                      |                       |                     |
| <b>Name:</b>                      | POET Investments, Inc. f/k/a Broin Enterprises, Inc.         |                       |                     |
| <b>Street Address:</b>            | 4615 N. Lewis Avenue   |                       |                     |
| <b>City:</b>                      | Sioux Falls  |                       |                     |
| <b>State/Country:</b>             | SOUTH DAKOTA   |                       |                     |
| <b>Postal Code:</b>               | 57104  |                       |                     |
| <b>Entity Type:</b>               | CORPORATION: SOUTH DAKOTA                                    |                       |                     |
| <b>Name:</b>                      | POET Plant Management, LLC                                   |                       |                     |
| <b>Street Address:</b>            | 4615 N. Lewis Avenue   |                       |                     |
| <b>City:</b>                      | Sioux Falls  |                       |                     |
| <b>State/Country:</b>             | SOUTH DAKOTA   |                       |                     |
| <b>Postal Code:</b>               | 57104  |                       |                     |
| <b>Entity Type:</b>               | LIMITED LIABILITY COMPANY: SOUTH DAKOTA                      |                       |                     |
| <b>PROPERTY NUMBERS Total: 57</b> |  |                       |                     |
| <b>Property Type</b>              | <b>Number</b>  | <b>Word Mark</b>      |                     |
| <b>Registration Number:</b>       | 2810597  | BROIN                 |                     |
| <b>TRADEMARK</b>                  |  |                       |                     |

CH \$1440.00 2810597

| Property Type        | Number  | Word Mark                                |
|----------------------|---------|--|
| Registration Number: | 3062557 |  |
| Registration Number: | 3108834 | LEADING THE ETHANOL INDUSTRY             |
| Registration Number: | 3231496 | ETHANOL EXPRESS                          |
| Registration Number: | 3154182 | ETHANOL. BIOREFINING. LEADING THE REVOLU |
| Registration Number: | 1994116 | DAKOTA GOLD                              |
| Registration Number: | 3322682 | HP                                       |
| Registration Number: | 3322683 | BPX                                      |
| Registration Number: | 3361609 | DAKOTA BRAN                              |
| Registration Number: | 3476057 | DAKOTA GOLD                              |
| Registration Number: | 3505795 | POET                                     |
| Registration Number: | 3591746 | POET                                     |
| Registration Number: | 3606411 | POET                                     |
| Registration Number: | 3591747 | POET                                     |
| Registration Number: | 3602982 | POET                                     |
| Registration Number: | 3436774 | POET                                     |
| Registration Number: | 3531513 | POET                                     |
| Registration Number: | 3502198 | POET                                     |
| Registration Number: | 3583775 | POET                                     |
| Registration Number: | 3502231 | POET                                     |
| Registration Number: | 3558032 | POET                                     |
| Registration Number: | 3603001 | POET                                     |
| Registration Number: | 3565063 | POET                                     |
| Registration Number: | 3603003 | POET                                     |
| Registration Number: | 3431939 | POET                                     |
| Registration Number: | 3528015 | POET                                     |
| Registration Number: | 3502233 | POET                                     |
| Registration Number: | 3583789 | POET                                     |
| Registration Number: | 3568072 |  |
| Registration Number: | 3612895 | O  |
| Registration Number: | 3612896 | O  |
| Registration Number: | 3568073 | O  |
| Registration Number: | 3568074 |  |
| Registration Number: | 3528056 | O  |
| Registration Number: | 3528057 | O  |
| Registration Number: | 3528058 | O  |
| Registration Number: | 3568075 | O  |
| Registration Number: | 3693029 | ENERGY INSPIRED.                         |
| Registration Number: | 3693030 | ENERGY INSPIRED.                         |

| Property Type        | Number  | Word Mark        |
|----------------------|---------|------------------|
| Registration Number: | 3693031 | ENERGY INSPIRED. |
| Registration Number: | 3693033 | ENERGY INSPIRED. |
| Registration Number: | 3587771 | ENERGY INSPIRED  |
| Registration Number: | 3693034 | ENERGY INSPIRED. |
| Registration Number: | 3558587 |                  |
| Registration Number: | 3565564 |                  |
| Registration Number: | 3538487 | VITAL            |
| Registration Number: | 3538488 | VITAL            |
| Registration Number: | 3791863 | POET             |
| Registration Number: | 3948572 | LOAD TOAD        |
| Registration Number: | 3897994 | INVIZ            |
| Registration Number: | 3799481 | INGREENUITY      |
| Registration Number: | 3955581 |                  |
| Registration Number: | 3831912 | POET TREE        |
| Registration Number: | 4407385 | VOILÁ            |
| Registration Number: | 4380491 | FLEX30           |
| Registration Number: | 2860054 | BROIN            |
| Registration Number: | 3011190 |                  |

**CORRESPONDENCE DATA**

**Fax Number:** 4125621041  
*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*  
**Phone:** 412-562-1637  
**Email:** vicki.cremonese@bipc.com  
**Correspondent Name:** Michael L. Dever  
**Address Line 1:** 301 Grant Street  
**Address Line 2:** 20th Floor  
**Address Line 4:** Pittsburgh, PENNSYLVANIA 15219

|                                |                    |
|--------------------------------|--------------------|
| <b>ATTORNEY DOCKET NUMBER:</b> | 0052987-000054     |
| <b>NAME OF SUBMITTER:</b>      | Michael L. Dever   |
| <b>SIGNATURE:</b>              | /Michael L. Dever/ |
| <b>DATE SIGNED:</b>            | 05/06/2015         |

**Total Attachments: 34**  
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## **RELEASE OF PATENT, TRADEMARK AND COPYRIGHT SECURITY INTEREST**

This Release of Security Agreement (“Release”) is made effective as of May 5, 2015 by BOKF, NA, dba Bank of Oklahoma (the “Administrative Agent”), for itself and as the Administrative Agent for the Lenders, to POET Research, Inc., f/k/a Broin and Associates, Inc.; POET, LLC, f/k/a Broin Companies, LLC; and POET Investments, Inc., f/k/a Broin Enterprises, Inc. (each a “Borrower”), as follows:

WHEREAS, pursuant to that certain Credit Agreement, First Amended and Restated Credit Agreement, and Second Amended and Restated Credit Agreement, now or heretofore entered into among the Borrower, the Administrative Agent, and the Lenders signatory thereto (collectively, the “Credit Agreements”), the Administrative Agent and the Lenders agreed to provide certain loans to the Borrower, and Borrower agreed, among other things, to grant a security interest to the Administrative Agent in certain patents, trademarks, and copyrights as security for such loans and other obligations;

WHEREAS, pursuant to the Credit Agreements, the Administrative Agent and Borrower entered into a series of security agreements including the following:

- Security Agreement dated December 28, 2006 and recorded on January 2, 2007 at Reel 3453, Frame 873 (Trademarks)
- Security Agreement dated December 28, 2006 and recorded on January 2, 2007 at Reel 3453, Frame 883 (Trademarks)
- Security Agreement dated December 28, 2006 and recorded on January 2, 2007 at Reel 18697, Frame 548 (Patents)
- Security Agreement dated December 22, 2010 and recorded on January 25, 2011 at Reel 4460, Frame 156 (Trademarks)
- Security Agreement dated December 31, 2010 and recorded on January 25, 2011 at Reel 4460, Frame 528 (Trademarks)
- Security Agreement dated December 31, 2010 and recorded on January 25, 2011 at Reel 4460, Frame 560 (Trademarks)
- Security Agreement dated December 31, 2010 and recorded on January 27, 2011 at Reel 4462, Frame 71 (Trademarks)
- Security Agreement dated December 31, 2010 and recorded on February 11, 2011 at Reel 25783, Frame 430 (Patents)
- Security Agreement dated August 5, 2014 and recorded on August 7, 2014 at Reel 33494, Frame 16 (Patents)

- Security Agreement dated December 2, 2014 and recorded on December 2, 2014 at Reel 5411, Frame 291 (Trademarks); and

WHEREAS, the Administrative Agent wishes to release its security interest in all of such patents, trademarks, and copyrights to Borrower.

NOW THEREFORE, the Administrative Agent hereby, without warranty as to status of title or priority of the encumbrances being hereby released, releases any security interest it may have in the certain patents, trademarks, and copyrights, if and as applicable, including but not limited to those listed on the attached Schedule A, and retransfers and reassigns any and all right, title, and interest it may have in the foregoing without recourse to Borrower. At the request and expense of Borrower, the Administrative Agent shall perform such other and further acts reasonably necessary to retransfer and reassign any and all right, title, and interest it may have in the foregoing without recourse to Borrower.

IN WITNESS WHEREOF, the Administrative Agent has caused this Release to be executed by its duly authorized officer.

BOKF, NA dba Bank of Oklahoma, as  
Administrative Agent

By: \_\_\_\_\_



Name: Linda Bridges

Title: Vice President

**Schedule A**

[see following pages]

POET Patent Portfolio  
April 2015

| Title   | Filing Date/<br>Priority Date | Sample Independent Claim  | INPADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b> | Inventor  | Category                  | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|---|-------------------------------|---|--|---|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Methods of Compressing Lignocellulosic Feedstock into Discrete Units and Related Methods                | 4/3/2015                      | 1) A method of processing lignocellulosic feedstock comprising: grinding lignocellulosic feedstock to provide ground lignocellulosic feedstock; and compressing at least a portion of the ground lignocellulosic feedstock to form a plurality of discrete units, wherein the plurality of discrete units have a bulk density in the range from 4 pounds per cubic foot to 25 pounds per cubic foot as measured by ASAE S269.4.   | <i>USSN62/142773</i>   | Steve Redford,<br>Todd Peterson   | Biomass Handling          |                              |                             |                              | 1                           |
| High purity starch stream methods and systems   | 12/31/2014                    | 1) A process, comprising: producing from a corn stream a first high-starch composition comprising soft endosperm and at least about 88% starch on a dry basis and a second feedstock composition comprising hard endosperm suitable for further processing in a corn dry mill or wet mill operation, wherein producing comprises processing corn kernels in the corn stream to facilitate separation of soft endosperm from hard endosperm and other corn kernel components.  | <i>USSN62/098654</i>   | Steven Redford  | BioProduct                |                              |                             |                              | 1                           |
| Economical Ethanol Fermentation Sugar Stream, Processes and Systems of Making the Same                  | 12/31/2014                    | 1) A first generation ethanol fermentation process implemented in an ethanol producing facility configured to produce a desired ethanol titer, comprising: preparing a mash from an amount of feedstock; removing a first portion of the mash prior to fermentation by an ethanologen; and, producing ethanol from a second portion of the mash consistent with the desired ethanol titer.  | <i>USSN62/098434</i>   | Steven Redford<br>Todd Peterson   | BioProduct                |                              |                             |                              | 1                           |
| Methods of Removing One or More Compounds from a Lignocellulosic Hydrolysate and Related Systems        | 12/31/2014                    | 1) A method of removing at least a portion of furfural and/or hydroxymethylfurfural from a hydrolysate comprising: a) providing a hydrolysate comprising a liquid component, wherein the liquid component has a pH value less than 6; and wherein the liquid component comprises: i) at least one monosaccharide; and ii) furfural and/or hydroxymethylfurfural; and b) contacting the liquid component with a metal oxide component to remove at least a portion of the furfural and/or hydroxymethylfurfural from the liquid component to provide a treated liquid component, wherein after contacting the metal oxide component comprises the at least a portion of the furfural and/or hydroxymethylfurfural. | <i>USSN62/098567</i>   | Sharil Kirschman-<br>Rollag, John<br>Evans                                | Cellulosic Ethanol Method |                              |                             |                              | 1                           |
| Methods of making one or more biochemical using high oil corn or corn blends that include high oil corn | 11/24/2014                    | 1) A method of producing ethanol using ground corn, the method comprising: providing a first aqueous composition comprising whole ground corn, wherein the whole ground corn comprises starch and is produced from corn grain having a corn oil content of at least 5.5 percent on a dry weight basis of the corn grain; hydrolyzing at least a portion of the starch in the first aqueous composition to produce a second aqueous composition comprising glucose; and fermenting the second aqueous composition to produce ethanol.  | <i>USSN62/083668</i>   | Steve Lewis,<br>Naren<br>Narendranath,<br>Francis Swain,<br>John Grearson | Starch Ethanol Method     |                              |                             |                              | 1                           |



| Title  | Filing Date/<br>Priority Date | Sample Independent Claim   | INFADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b> | Inventor  | Category                     | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|--|-------------------------------|--|--|---|------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Net Wrap and Twine Removal System  | 8/1/2014                      | 1) A method of removing a wrapping material from the outer surface of a bale of material, comprising the steps of: moving the bale of material to a cutting station, wherein an outer surface of the bale of material is at least partially surrounded by the wrapping material; cutting the wrapping material along a length of the bale in a longitudinal direction to form a first end and a second end of the wrapping material; moving a plurality of rollers into contact with the wrapping material; rotating the plurality of rollers relative to the wrapping material until the first and second ends of the wrapping material are free to move relative to an outer surface of the bale; placing a first spear of material wind-up system between the outer surface of the bale and the wrapping material, wherein the material wind-up system further comprises a second spear spaced from the first spear; rotating the material wind-up system to wind up the wrapping material around the first and second spears; positioning the first and second spears in a generally horizontal plane; and stripping the wrapping material from the first and second spears with a fin that extends downwardly from a carriage of a material removal system and between the first and second spears of the material wind-up system by sliding the carriage toward a distal end of the first and second spears. | <i>USSNI 4/449934</i>  | Steve Redford,<br>John Smith,<br>Joshua Dockstader, Todd Peterson | Biomass Handling             |                              |                             | 1                            | 1                           |
| Methods of Determining Enzyme Activity and Related Methods                                 | 8/1/2014                      | 1) A method of determining enzymatic activity comprising providing a first aqueous composition comprising at least one enzyme that can hydrolyze starch; providing one or more starch analog molecules, wherein each starch analog molecule comprising one or more fluorescent moieties, wherein at least one fluorescent moiety fluoresces wherein excited by a wavelength of light; combining the aqueous composition and the one or more starch analog molecules to form a second aqueous composition; and determining a concentration in the second aqueous composition of at least one analyte molecule comprising the one or more starch analog molecules adducted to an active site of the at least one enzyme that can hydrolyze starch by exposing the second aqueous composition to a wavelength that can excite at least one fluorescent moiety and cause the at least one fluorescent moiety to fluoresce.   | <i>USSN62/032131</i>   | John Evans  | Starch Ethanol Method        |                              |                             | 1                            | 1                           |
| Methods of Pitching Yeast for Fermentation and Related Methods of Fermentation and Systems | 6/24/2014                     | 1) A method of pitching yeast for fermentation, the method comprising: providing a first aqueous composition in a first fermentation reactor, wherein the aqueous composition comprises: yeast; a slurry comprising water and a processed plant material comprising an amount of at least one monosaccharide; removing a volume of the first aqueous composition from the first fermentation reactor; and providing the removed volume of the first aqueous composition to a second fermentation reactor.  | <i>USSN62/016481</i>   | Steve Lewis,<br>Naren Narendranath                                | Priming Pitching Propagation |                              |                             | 1                            | 1                           |

| Title  | Filing Date/<br>Priority Date | Sample Independent Claim  | INPADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b> | Inventor   | Category    | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|--|-------------------------------|---|--|--|-------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Methods of Processing Plant Fiber and Related Compositions | 5/1/2014                      | 1) A method of cleaning plant fiber comprising (a) providing a first plant fiber component comprising plant fiber and one or more additional plant constituents; (b) combining the first plant fiber component with at least a first aqueous component comprising water and at least a portion of the one or more additional plant constituents to form a first mixture comprising: (i) a second plant fiber component comprising plant fiber and one or more additional plant constituents; and (ii) a second aqueous component comprising water and one or more additional plant constituents; c) separating at least a portion of the second aqueous component from the first mixture; d) after step (c) combining the first mixture with at least a third aqueous component comprising water to form a second mixture comprising i) a third plant fiber component comprising plant fiber; and (ii) the first aqueous component; (e) separating the first aqueous component from the second mixture; and (f) recycling at least a portion of the first aqueous component so that it can be combined with the first plant fiber component, where the concentration of plant fiber on a dry matter basis in the third plant fiber component is greater than the concentration of plant fiber on a dry matter basis in the first plant fiber component. | USSN61/987200  | Redford, Steven  | BioProduct  |                              |                             | 1                            | 1                           |
| Method for Reducing Impurities and/or Water from Oil       | 4/28/2014                     | 1) A method for reducing an impurity and/or moisture from a vegetable based oil in a hot oil based process, said method including the steps of air-stripping and/or air-floating a layer comprising oil and thereafter the impurity comprising solids from a first layer form the liquid comprising oil from a second layer.  | USSN61/985197  | Bushong, David,<br>Jenks, Casey  | BioProducts |                              |                             | 1                            | 1                           |
| Food Products Containing Zein and Related Processes        | 1/20/2014                     | A food product comprising a structural matrix defining openings between structural matrix walls, the structural matrix comprising zein present as a continuous phase of the structural matrix, the food product containing at least 6 weight percent total zein on a dry basis.   | <i>PCT/US15/11893</i><br><b>USSN14/599776</b>                                | Fosdick, L.,<br>Kindelspire, Julie,<br>Bausch,<br>Christoph,<br>Lawton, John | BioProduct  |                              |                             | 2                            | 1                           |
| Light Phase Product Recovery Methods and Systems           | 1/16/2014                     | A method of recovering oil from an oil containing, grain based feedstock to ethanol fermentation conversion process, comprising: (a) an initial separation comprising separating a fermentation derived stream into a final separation feed stream and a heavy phase discharge stream using at least a first initial separation device, wherein the final separation feed stream comprising more light phase than the heavy phase discharge stream and the heavy discharge stream comprising the more heavy phase than light phase; (b) final separation comprising separating the final separation feed stream into an oil-containing stream and a recycle stream using at least a first oil recovery separation device; and (c) recycling the recycle stream into a feed stream for the initial separation.   | <i>PCTUS2015011666</i><br><b>USSN14/157496</b>                               | Steven Redford   | BioProducts |                              |                             | 2                            | 1                           |

| Title  | Filing Date/<br>Priority Date | Sample Independent Claim   | INFADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b> | Inventor  | Category                           | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|--|-------------------------------|--|--|---|------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Pneumatic Biomass Coring Machine                             | 10/24/2013                    | 1) A core sampling system for removing sample cores of material from biomass bales, the system comprising: a base member; a supporting member extending from and moveable relative to the base member; a rotating corer extending from the supporting member, wherein the corer comprises:<br>a first elongated tube at least partially surrounding a second elongated tube; and a distal tip extending from a distal end of the second elongated tube; and a transport tube in communication with an inner area of the second elongated tube.   | <i>PCT/US14/62004</i><br><i>USSN14/061947</i>                                | Peterson, Todd                                  | Biomass Handling                   |                              |                             | 2                            | 1                           |
| Ethanol Fermentation Methods and Systems                     | 7/11/2013                     | 1) A method to purifying feedstock to ethanol fermentation products, comprising (a) exposing a first mixture chosen from fermentation beer and mixtures derived therefrom to a solvent under a first set of conditions in which the solvent is in a supercritical fluid or liquid gas form thereby generating a second mixture comprising a subset of components of the first mixture and the solvent; (b) separating the second mixture from remaining components of the first mixture; and (c) removing the solvent from the second mixture.   | <i>WO2015006618</i><br><i>US2015065758</i>                                   | Redford, Steven                                 | Bioproducts                        |                              |                             | 2                            | 1                           |
| Systems and Methods for Yeast Propagation                    | 3/14/2013                     | 1) A method of propagating yeast comprising: providing a composition comprising: a propagation medium comprising: a nutrient source; a carbon source comprising a feedstock material having one or more polysaccharides and/or one or more oligosaccharides; and one or more enzymes that can convert at least a portion of the one or more polysaccharides and/or one or more oligosaccharides into one or more monosaccharides; and a first cell mass of the yeast, wherein the yeast can use at least a portion of the one or more monosaccharides to grow the first cell mass of the yeast for a time period to form a second cell mass of the yeast; and growing the first cell mass of yeast for a time period to form a second cell mass of yeast that is greater than the first cell mass of yeast.    | <i>WO2014160184</i><br><i>US2014273167</i>                                   | Narendranath Neelakantam V.<br>Stephen M. Lewis | Priming<br>Propagation<br>Pitching |                              |                             | 1                            | 1                           |
| Propagating an Organism and Related Methods and Compositions | 3/13/2013                     | 1. A method of propagating an organism that can convert one or more monosaccharides into a biochemical, the method comprising: providing a first cell mass of the organism; providing a carbon source that can support growth of the first cell mass of the organism, wherein the carbon source comprises at least xylose; providing a nutrient source that can support growth of the first cell mass of the organism, wherein the nutrient source comprises a stillage component; combining at least the carbon source and the nutrient source to form a medium for propagating the organism; and combining the first cell mass of the organism with the carbon source and the nutrient source to propagate the first cell mass of the organism for a time period to form a second cell mass of the organism. | <i>WO2014159529</i><br><i>US20142073166</i>                                  | Narendranath Neelakantam V.                     | Priming<br>Propagation<br>Pitching |                              |                             | 1                            | 1                           |

| Title  | Filing Date/<br>Priority Date | Sample Independent Claim   | INPADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b>   | Inventor   | Category                     | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|--|-------------------------------|--|--|--|------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| System for Management of yeast to Facilitate the Production of Ethanol     | 5/28/2013                     | 1) A method of propagating ethanol for use in the production of a fermentation product from biomass comprising the steps of: providing a medium for propagation of ethanol; supplying a first cell mass of ethanol to the medium; supplying xylose to the medium as a carbon source for cell mass growth of the ethanol; maintaining the medium comprising the first cell mass of ethanol at a pH of between about 5.0 and 6.0 and at a temperature of between about 26 and about 37 degrees Celsius so that the first cell mass of ethanol is propagated into a second cell mass of ethanol; and wherein the second cell mass of ethanol is larger than the first cell mass of ethanol.   | <b>WO201419334A1</b>   | Narendranath Neelakantam V. Carlson, David Charles | Priming Propagation Pitching |                              |                             | 1                            | 1                           |
| Net Wrap and Twine Removal System  | 4/10/2012                     | 1) A method of removing a wrapping material from the outer surface of a bale of material, comprising the steps of: moving the bale of material to a cutting station, wherein an outer surface of the bale of material is at least partially surrounded by the wrapping material; cutting the wrapping material along a length of the bale in a longitudinal direction to form a first end and a second end of the wrapping material; moving a plurality of roller into contact with the wrapping material; rotating the plurality of roller relative to the wrapping material until the first and second ends of the wrapping material are free to move relative to an outer surface of the bale; placing a first spear of material wind-up system between the outer surface of the bale and the wrapping material, wherein the material wind-up system further comprises a second spear spaced from the first spear; rotating the material wind-up system to wind the wrapping material around the first and second spears; and stripping the wrapping material from the first and second spears. | <b>US2015059145</b><br><i>BR11201402524</i><br><i>CA2870260</i><br><i>CN201380030486.7</i><br><i>EPI3714768.2</i><br><b>WO2015059145</b> | Brandon McLellan, Todd Peterson                    | Biomass Handling             |                              |                             | 5                            | 1                           |
| Compositions Derived from Fermentation products and process of Making Same | 2012-07-17                    | 1) A process, comprising: a. separating a beer composition comprising a solids fraction and a liquids fraction into a first mixture comprising bulk solids and a minority portion of the liquids fraction and a second mixture comprising fine solids and a majority portion of the liquids fraction, wherein the beer composition results from fermenting a starch-based feedstock; and, b. removing at least a portion of the liquid from the second mixture to produce a feed paste composition comprising the fine solids, wherein separating and removing are performed in a manner that reduces the total heat exposure of the fine solids as compared to solely using distillation to separate beer components.   | <b>WO2014014683A1</b>  | Redford, Steven, G.                                | Bioproducts                  |                              |                             | 1                            |                             |

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|--|-------------------------------|--|--|--|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Protein Composition Derived from Fermentation Products and Process of Making   | 2012-07-17                    | 1) A process, comprising: a. separating a fermentation beer composition comprising a solids fraction and a liquids fraction into a first mixture comprising bulk solids and a minority portion of the liquids and a second mixture comprising fine solids and a majority portion of the liquids fraction; b. using a solvent to extract a protein from the first mixture to form an extracted composition; c. separating the extracted composition into an extracted solids fraction and an extracted liquids fraction, wherein the extracted liquids composition comprises the protein; and, d. at least partially de-solventizing the extracted liquids composition to form a protein feed composition comprising the protein, wherein the process is performed in a manner that reduces the total heat exposure of the protein as compared to a process using distillation to initially separate the fermentation beer composition into ethanol and whole stillage. | <i>WO2014014682A1</i>  | REDFORD, Steven, G.  | Starch Ethanol Method     |                              |                             | 1                            | 1                           |
| Methods and Systems for Reducing Level of One or More Impurities in a Pretreated Cellulosic Material and/or Distillate | 2012-06-15                    | 1) A method of reducing the concentration of diacetyl that is present in a pretreated cellulosic material comprising: providing a pretreated cellulosic material comprising: at least one monosaccharide; and diacetyl; and contacting the pretreated cellulosic material with at least one treatment compound so that the at least one treatment compound reacts with the diacetyl to form a reaction product thereby reducing the concentration of the diacetyl, wherein the at least one treatment compound is chosen from an oxidizing agent, an alkali compound, and mixtures thereof.  | <i>US2013033752A1</i>  | Carlson, David<br>Charles Gomer,<br>Blake J. Jenks,<br>Casey C.<br>Kirschman-<br>Rollag, Sharil<br>Plack, Kristine<br>Nicole Reis,<br>Melissa R.<br>Wirt, Adam | Cellulosic Ethanol Method |                              |                             | 1                            | 1                           |
| Self-Strapping Round Bale Trailer  | 3/14/2013                     | 1. A bale retention system for retaining at least one bale on a trailer, the system comprising: a trailer comprising a horizontal trailer bed having first and second ends spaced from each other along its length; a bale retention wall extending upwardly from the trailer bed and extending between the first and second ends of the trailer bed; and a trailer roller system comprising a first arm pivotably attached at its first end to a first structure at a first end of the trailer, a second arm pivotably attached at its first end to a second structure at a second end of the trailer, and a roller extending between and rotatably attached to a second end of the first and second arms; wherein the trailer roller system is actuatable so that the roller is moveable along an arcuate path extending from a point adjacent to a top surface of the bale retention wall to a point adjacent to the horizontal trailer bed.                        | <i>WO2014158971</i><br><b>US20140271093</b>                                  |  | Biomass Handling          |                              |                             | 1                            | 1                           |
| Systems and Methods for Automated Biomass Sampling and Analysis  | 2012-05-16                    | 1) A system for analyzing composition of biomass, the system comprising: an apparatus capable of removing a sample from a collection of biomass; a transportation system capable of transporting the sample from the apparatus to an analysis site; a homogenizer capable of homogenizing the sample to produce a homogeneous sample; and a near infrared analyzer calibrated to analyze the composition of the biomass, wherein the near infrared analyzer is capable of generating a compositional profile of the homogeneous sample.  | <i>WO2013172920A1</i><br><i>CA2873432A1</i><br><b>EP2850408</b>              | Johnson, Alex, C.<br>Wirt, Adam, R.  | Biomass Handling          |                              |                             | 2                            |                             |

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|---|-------------------------------|--|---|--|-----------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Oil Compositions and Methods of Production  | 2012-02-22<br>2013-02-21      | 1) A method of making an oil product comprising: providing a plant material comprising: oil; and one or more oligosaccharides and/or one or more polysaccharides; converting at least a portion of the one or more oligosaccharides and/or one or more polysaccharides into one or more monosaccharides; fermenting at least a portion of the one or more monosaccharides to form a fermentation product comprising the oil and a biochemical; and separating at least a portion of the oil from the fermentation product to form an oil product, wherein the oil product comprises one or more free fatty acids, wherein the one or more free fatty acids are present in an amount in the range of from 0.05 to 2 percent by weight of the oil. | <i>US20150037857A1</i><br><i>EP2817399A1</i><br><b>WO2013126561A1</b>   | Redford, Steven G.   | BioProduct            |                              |                             | 2                            | 1                           |
| Corn Meal Compositions and Methodsof Production   | 2012-02-22<br>2013-02-21      | 1) A composition, comprising: a product derived from a wet solids portion of a beer product of a grain-to-ethanol fermentation process, wherein the product comprises a minimally heat-damaged protein in an amount ranging from about 31 to about 45% of the product on a dry weight basis, wherein the minimally heat-damaged protein is protein that has not been exposed to temperatures exceeding about 180° F.   | <i>US20150056327A1</i><br><i>CN104244729A</i><br><i>EP2816903A1</i><br><b>WO2013126571A1</b>  | Redford, Steven G.   | Starch Ethanol Method |                              |                             | 3                            | 1                           |
| Water Based Prolamin Compositions, Methods of Making Water-Based Prolamin Compositions and Applications Thereof | 2011-07-14<br>2012-07-13      | 1) A method of making a water-based prolamin composition, the method comprising the steps of: (a) providing an acidified prolamin solution comprising: a prolamin; water; alcohol and/or ketone; and acid; and (b) removing at least a portion of the alcohol and/or ketone from the acidified prolamin solution to form the water-based prolamin composition.   | <i>EP2731957A2</i><br><i>AR87198A1</i><br><i>AU2012280966A1</i><br><i>CN103781796A</i><br><i>US20130014673A1</i><br><b>WO2013010119A2</b> | Freeman, Leif S.<br>Lawton, John W., Jr. Mitchell,<br>Marvin L.<br>Mitchell, Melvin G. | BioProduct            |                              |                             | 5                            | 1                           |
| Water Borne Aqueous Alcohol Soluble Protein Compositions, Applications, and Methods                             | 3/6/2013                      | 1) A composition, comprising: a solid portion comprising an amount of an aqueous-alcohol soluble protein, and a liquid portion comprising an amount of water and an amount of acid, wherein the solid portion is dispersible in the liquid portion without the benefit of an alcohol in the liquid portion.  | <i>WO2014138318</i><br><i>US2014251180</i>  | Freeman, Leif S.<br>Lawton, John W., Jr. Mitchell,<br>Marvin L.<br>Mitchell, Melvin G. | BioProduct            |                              |                             | 1                            | 1                           |

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|---|-------------------------------|---|--|--|------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Systems and Method for Acid Recycle   | 2011-07-07<br>2012-07-09      | 1) A method for pretreating lignocellulosic biomass, comprising: a) applying an acid solution to a first portion of biomass; b) maintaining an elevated temperature of the first portion of biomass such that a xylose yield of greater than about 80% of theoretical is achieved, wherein a liquid xylose liquor and a glucan solid are produced from the first portion of biomass while maintaining the elevated temperature; c) separating at least a portion of the liquid xylose liquor from the glucan solid; d) applying the portion of the liquid xylose liquor to a subsequent portion of the biomass; e) applying a makeup acid solution to the subsequent portion of the biomass; f) maintaining an elevated temperature of the subsequent portion of the biomass such that xylose yield of greater than about 80% of theoretical is achieved, wherein a liquid xylose liquor and a glucan solid are produced from the subsequent portion of the biomass while maintaining the elevated temperature; and g) repeating steps c) through f). | <i>US20140209092A1</i><br><i>CA2840995A1</i><br><i>CN103842524A</i><br><i>EP2729585A1</i><br><b>MX2014000245A</b><br><b>WO2013006856A1</b> | McDonald, William F. Urban, Shannon Scott Martin, Jason L. | Cellulosic Ethanol Method    |                              |                             | 5                            | 1                           |
| Composition of Feed Pellet and Methods for Production Systems and Method for producing a Composition of Fiber | 2011-05-26<br>2011-05-24      | 1) A feed pellet, comprising: about 30-50% biomass on a w/w dry matter basis; about 45-65% dried distillers grains on a w/w dry matter basis; less than about 6% distillers solubles on a w/w dry matter basis; and less than about 2.5% binder on a w/w dry matter basis.<br>1) A method for producing food grade fiber, comprising: receiving dry milled raw fiber from a fractionation ethanol production facility; washing the dry milled raw fiber with de-starched water to generate a first wash fiber, wherein the de-starched water is recovered after a second wash; dewatering the first wash fiber; washing the dewatered first wash fiber with process water to generate a second wash fiber; dewatering the second wash fiber; drying the dewatered second wash fiber; and milling the dried second wash fiber to generate processed fiber.   | <i>US20120301598A1</i>   | Karges, Kip Kevin Swain, Francis M.                        | BioProduct                   |                              |                             | 1                            | 1                           |
| Systems and Methods for Stillage Fractionation  | 2011-04-18<br>2012-04-12      | 1) A system for fractionating whole stillage comprising: a first separator configured to separate whole stillage to a solid portion and a thin stillage liquid portion, wherein the solid portion comprises a high fiber wet cake; a three phase separator configured to receive the thin stillage liquid portion and separate the thin stillage liquid portion to a clarified stillage, an oil emulsion and a protein paste; a first dryer configured to dry the high fiber wet cake to generate a high fiber animal feed product; a second dryer configured to dry the protein paste to generate a high protein animal feed product; an evaporator configured to condense the clarified stillage to a syrup; and a second separator configured to separate oil from the oil emulsion.   | <i>US20140242251A1</i><br><i>CA2833025A1</i><br><i>EP2699655A1</i><br><i>MX2013012195A</i><br><b>WO2012145230A1</b>                        | Bootsma, Jason Alan  | BioProduct                   |                              |                             | 4                            | 1                           |
| Systems and Methods for Improving Ethanol Yield   | 2011-03-14<br>2012-03-14      | 1) A method for improving ethanol yield comprising: grinding a feedstock to generate a grind; combining the grind with water and enzymes to produce a slurry, wherein starch in the grind is converted to sugars in the slurry; adjusting the pH of the slurry to facilitate priming; adding an ethanologen to the slurry; priming the slurry by adding a priming agent; and fermenting the slurry to produce ethanol   | <i>US20130344557A1</i><br><i>CA2829635A1</i><br><i>CN103562399A</i><br><i>EP2686433A1</i><br><i>MX2013010267A</i><br><b>WO2012125739A1</b> | Lewis, Stephen M. Narendranath, Neelakantam V.             | Priming Propagation Pitching |                              |                             | 5                            | 1                           |

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|--|-------------------------------|---|--|--|------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Systems and Methods for Improving Stillage                   | 2011-03-08<br>2012-03-08      | 1) A system for improving stillage, comprising: a bioreactor configured to receive a stillage, wherein the bioreactor is further configured to receive an inoculation of a fungi, and wherein the bioreactor is further configured to ferment the fungi and stillage broth to generate a fungal biomass and a treated stillage, and further wherein the fungi is at least one of <i>Aspergillus niger</i> , <i>Phanerochaete chrysosporium</i> and <i>Yarrowia lipolytica</i> ; a separator configured to remove the fungal biomass from the treated stillage; and a dryer configured to dry the fungal biomass   | <i>US20140206058A1</i><br><i>CA2829480A1</i><br><i>EP2683996A2</i><br><i>MX2013010266A</i><br><b>WO2012122393A2</b>                        | Tewalt, Jacob P.<br>Lewis, Stephen M.<br>Bootsma, Jason<br>Alan                      | Priming<br>Propagation<br>Pitching |                              |                             | 4                            | 1                           |
| Systems and Methods for Mitigation of inhibitors using Yeast | 2011-01-27                    | 1) A system for mitigating fermentation inhibitors in a hydrolysate, comprising: a reaction vessel configured to receive the hydrolysate and a volume of yeast, wherein the reaction vessel maintains a temperature of the hydrolysate and the volume of yeast which retards sugar metabolism, wherein the reaction vessel generates clean hydrolysate; a separator for removing the yeast from the clean hydrolysate; and a concentrator for removing water from the clean hydrolysate to generate concentrated hydrolysate.   | <i>WO2012103281A2</i><br><b>USSN61436736</b>   | Kwiatkowski,<br>Jason<br>Narendranath,<br>Neelakantam                                | Cellulosic<br>Ethanol<br>Method    |                              |                             | 2                            | 1                           |
| Systems and Methods for Improving Fermentation               | 2011-01-21<br>2012-01-20      | 1) A system for treating a liquid component separated from biomass to yield a treated liquid component comprising sugars available to be fermented into a fermentation product comprising: a filter configured to remove matter having a particle size of larger than about 25 microns from the liquid component; at least one nanofilter configured to remove acids and concentrate xylose in the filtered liquid component; and an apparatus configured to adjust a pH of the nanofiltered liquid component using a calcium hydroxide composition.  | <i>EP2665824A1</i><br><i>CA2823336A1</i><br><i>CN103502460A</i><br><i>US20140024826A1</i><br><b>WO2012100187A1</b>                         | Narendranath,<br>Neelakantam V.<br>Bly, Steven T.                                    | Cellulosic<br>Ethanol<br>Method    |                              |                             | 4                            | 1                           |
| Systems and Methods for Hydrolysis of Biomass                | 2011-01-18<br>2012-01-18      | 1) A method for treating lignocellulosic biomass to be supplied to a fermentation system for production of a fermentation product comprising: pre-treating the biomass into pre-treated biomass; separating the pre-treated biomass into a liquid component comprising sugars and a solids component comprising cellulose and lignin; treating the solids component of the pre-treated biomass into a treated component; wherein the biomass comprises lignocellulosic material; wherein treating the solids component comprises application of an enzyme formulation and a makeup water to form a slurry; and wherein the enzyme formulation comprises a cellulase enzyme. | <i>EP2665823A1</i><br><i>CA2824993A1</i><br><i>CN103547677A</i><br><i>MX2013008370A</i><br><i>US20140234911A1</i><br><b>WO2012099967A1</b> | Narendranath,<br>Neelakantam V.<br>McDonald,<br>William F.<br>Bootsma, Jason<br>Alan | Cellulosic<br>Ethanol<br>Method    |                              |                             | 5                            | 1                           |
| Systems and Methods for Collecting Biomass                   | 2010-12-09<br>2011-12-08      | 1) A method for collecting biomass, comprising: harvesting biomass with a combine, wherein a first portion of the biomass is substantially forced against the ground and a second portion of the biomass passes through the combine; and forming bales substantially comprising the second portion of the biomass.  | <i>US20130337524A1</i><br><i>CA2820890A1</i><br><i>EP2648498A1</i><br><i>MX2013006561A</i><br><b>WO2012078882A1</b>                        | Schany, William J.<br>Weishaar, Scott<br>A.  | Biomass<br>Handling                |                              |                             | 4                            | 1                           |
| Systems and Methods for Feedstock Quality Assessment         | 2010-12-09<br>2011-12-08      | 1) A method for assessing quality of feedstock comprising: providing a sample containing a flour, wherein the flour is ground feedstock; contacting the sample containing the flour with a molecule that is detectably altered by enzymatic activity of endogenous enzymes within the flour; detecting a total amount of enzymatically altered molecule; and correlating the detected total amount of enzymatically altered molecule to a quality value for the feedstock for ethanol production  | <i>US20130337483A1</i><br><i>CA2820889A1</i><br><i>EP2649195A2</i><br><i>MX2013006563A</i><br><b>WO2012078885A2</b>                        | Lewis, Stephen M.<br>Narendranath,<br>Neelakantam V.                                 | Starch<br>Ethanol<br>Method        |                              |                             | 4                            | 1                           |



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|---|-------------------------------|--|---|--|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Method and Apparatus for Measuring Moisture Content                         | 2010-10-08                    | 1) An apparatus for measuring moisture content of biomass, comprising: a probe apparatus; and a mechanism that inserts the probe apparatus into the biomass, wherein the probe apparatus measures moisture of the biomass.   | <i>US20120086429A1</i>  | Kluin, Julie A.<br>McLellan,<br>Brandon L.   | Biomass Handling          |                              |                             | 1                            | 1                           |
| Method for Producing Ethanol from Biomass                                   | 2010-06-17<br>2011-06-16      | 1) A method for producing a fermentation product in a fermentation system from biomass comprising lignocellulosic material that has been pre-treated and separated into a first component and a second component, the method comprising: preparing a slurry comprising: supplying the first component comprising pentose to the fermentation system, wherein the pentose comprises xylose; providing an ethanologen to the fermentation system, wherein the ethanologen is capable of fermenting xylose into ethanol, further wherein the ethanologen is supplied to the fermentation system in a concentration of less than about 2 grams of ethanologen on a dry basis per liter of slurry; adjusting the pH of the slurry to a range of about 4.5 to about 6.5; maintaining the first component and ethanologen in the fermentation system at a temperature of between about 25 and about 37 degrees Celsius; and recovering the fermentation product from the fermentation system. | <i>EP2582822A1</i><br><i>CA2802865A1</i><br><i>MX2012014906A</i><br><b>WO2011159915A1</b>   | Narendranath,<br>Neelakantam, V.   | Cellulosic Ethanol Method |                              |                             | 3                            | 1                           |
| System for Treatment of Biomass to Facilitate the Production of Ethanol     | 2010-05-18                    | 1) A method for treating fermented lignocellulosic biomass to be supplied to a distillation system for production of ethanol comprising: pre-treating lignocellulosic biomass into pre-treated biomass; separating the pre-treated biomass into a liquid component comprising sugars and a solids component comprising cellulose and lignin; hydrolysing the solids component of the pre-treated biomass into a hydrolysed biomass comprising sugars and lignin; fermenting the hydrolysed solids component of the pre-treated biomass into a fermentation product comprising ethanol and lignin; treating the fermentation product; and distilling the treated fermentation product to recover the ethanol; wherein the lignocellulosic biomass comprises cellulose, hemicellulose and lignin.  | <i>US20120129234A1</i><br><i>CA2762689A1</i><br><i>CN102459617A</i><br><i>EP2432889A1</i><br><i>MX2011012376A</i><br><i>WO2010135366A1</i><br><b>ZA201108496</b><br><i>Chile</i><br><i>Brazil</i> | McDonald,<br>William F.<br>Stutzman,<br>Nicholas Paul<br>Carlson, David<br>Charles | Cellulosic Ethanol Method | 1                            |                             | 7                            | 1                           |
| System for the Treatment of Biomass to Facilitate the Production of Ethanol | 2010-03-19<br>2011-03-18      | 1) A method for treating biomass to be supplied to a fermentation system for production of a fermentation product comprising the steps of: pre-treating the biomass into pre-treated biomass; separating the pre-treated biomass into a first component comprising glucan and a second component comprising sugars; providing a combined component comprising at least a portion of the first component and at least a portion of the second component; treating the combined component of the pre-treated biomass into a treated component comprising glucose by application of an enzyme formulation, wherein the treated component comprises about 2% to about 15% glucose by weight; and wherein the biomass comprises lignocellulosic material comprising at least one of corn cobs, corn plant husks, corn plant leaves, and corn plant stalks.  | <i>US20130143290A1</i><br><i>CA2795503A1</i><br><i>EP254779A1</i><br><b>WO2011116320A1</b>  | Narendranath,<br>Neelakantam V.  | Cellulosic Ethanol Method |                              |                             | 3                            | 1                           |

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|---|-------------------------------|--|---|--|---------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| System for the Treatment of Biomass                                   | 2010-03-19<br>2011-03-18      | 1) A biorefinery for producing a fermentation product from biomass comprising: (a) a system for preparing the biomass into prepared biomass; (b) a system for pre-treating the biomass into pre-treated biomass; (c) a separator for separating the pre-treated biomass into a first component comprising glucan and a second component comprising xylose; (d) a first treatment system for liquefying the first component by application of a first enzyme formulation into a liquefied first component; (e) a second treatment system for treating the liquefied first component into a treated first component by application of a second enzyme formulation so that glucose is made available; and (f) a fermentation system configured to produce the fermentation product from the treated first component; wherein the fermentation product is produced by fermentation of glucose into ethanol; wherein the biomass comprises lignocellulosic material; wherein the lignocellulosic material comprises at least one of corn cobs, corn plant husks, corn plant leaves, and corn plant stalks; and wherein the first enzyme formulation comprises a cellulase enzyme mixture.               | <i>US20130065289A1</i><br><i>CA2795501A1</i><br><i>EP2547778A1</i><br><b>WO2011116317A1</b> | Carlson, David<br>Charles  | Cellulosic<br>Ethanol<br>Method |                              |                             | 3                            | 1                           |
| Apparatus and Method for Treat Wet Solids from a Fermentation Process | 2010-01-29<br>2011-01-28      | 1) An apparatus for treating a layer of wet solids with one or more liquids, the apparatus comprising: (a) a belt having a first major surface and a second major surface and a plurality of pores extending between the first major surface and the second major surface to provide the belt with porosity to the one or more liquids; (b) a drive system for advancing the belt in indexing movements in a downweb direction; (c) a treatment chamber configured for movement between: (i) a first position where the treatment chamber is separated from the belt in order to allow the belt to be advanced by the drive system in indexing movements in a downweb direction; and (ii) a second position where the treatment chamber is in sealing contact with the first major surface of the belt or with the layer of particulate solids positioned on the first major surface of the belt; (d) one or more nozzles in the treatment chamber for applying one or more liquids to the wet solids; and (e) one or more reservoirs for holding one or more liquids for treatment of the wet solids; wherein the one or more reservoirs are in fluid communication with the one or more nozzles. | <i>US20130032175A1</i><br><i>CA2787949A1</i><br><i>EP2528452A1</i><br><b>WO2011094614A1</b> | Redford, Steven<br>G.  | Starch<br>Ethanol<br>Method     |                              |                             | 3                            | 1                           |
| Biomass Pretreatment  | 2009-10-05                    | 1) A method for pre-treating biomass, comprising: (a) supplying biomass to a steaming bin, wherein the biomass includes water; (b) placing the pre-steamed biomass to a first pretreatment reactor, wherein the pre-steamed biomass includes acid, liquids, and solids; (c) removing at least some portion of the liquids from the solids to generate substantial solids; (d) feeding the substantial solids into a second pretreatment reactor; (e) applying a pressure drop to the substantial solids in the second pretreatment reactor, wherein the pressure drop opens up a structure of the solids; and (f) sending the substantial solids to at least one of a saccharification process and a fermentation process for ethanol processing.  | <i>US20140311480A1</i><br><b>US8597431B2</b><br><i>WO2011043935A1</i>                       | McDonald,<br>William F.<br>Carlson, David<br>Charles Bradford,<br>Wiley D. | Cellulosic<br>Ethanol<br>Method | 1                            | 1                           | 1                            | 1                           |

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|--|-------------------------------|---|--|---|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Composition of lignin pellets and system for producing             | 2009-06-30                    | 1) Pellets comprising lignin, wherein the pellets comprise at least 50 percent lignin by dry weight and from 40 to 75 weight percent moisture.  | <b>US8852301B1</b><br><i>US20150037859A1</i>                                 | Bootsma, Jason  | BioProduct                | 1                            | 1                           | 1                            | 1                           |
| Apparatus for unloading bulk materials                             | 2009-04-10                    | 1) An apparatus for unloading bulk material, comprising: a liner positioned against a first sidewall and a floor of a container, wherein the floor comprises an outer edge and an inner edge; wherein the first sidewall comprises an upper edge and a lower edge; wherein the liner comprises an upper edge attached to the upper edge of the first sidewall and a lower edge attached to the outer edge of the floor; wherein the liner can be in a first position or a second position; wherein bulk material is loaded onto the liner in the first position; and wherein the liner is moved into the second position to facilitate the unloading of the bulk material toward a second sidewall that is parallel to the first sidewall.  | <b>US8454095B1</b>   | Dilts, Mark David<br>Geraets, James M.<br>Whitehouse, D.<br>Owen  | Biomass Handling          | 1                            | 1                           | 1                            | 1                           |
| Apparatus for conveying bulk materials                             | 2009-04-10                    | 1) A belt conveyor system, comprising: a belt conveyor comprising a first end and a second end; a first hopper located at the first end for loading bulk material onto the belt conveyor; and a dispersion assembly on the second end, the dispersion assembly projects and radially disperses the bulk material onto a pile, wherein the dispersion assembly moves horizontally in a direction outward from the second end and vertically above the second end and relative to the belt conveyor.  | <b>US8397902B1</b>   | Geraets, James M.   | Biomass Handling          | 1                            | 1                           | 1                            | 1                           |
| System for Recycling Water to Facilitate the Production of Ethanol | 2009-04-10                    | 1) A method of recycling water in an ethanol production process in a biorefinery, wherein the biorefinery comprises a water supply, a cooling tower system, a treatment system and a boiler system, the method comprising the steps of: supplying water from the water supply to the ethanol production process; supplying water from the cooling tower system to the ethanol production process; and supplying water from the treatment system to the ethanol production process.  | <i>US20100261243A1</i><br><b>WO2010118369A1</b>                              | Kloos, Rachel L.  | Starch Ethanol Method     | 1                            | 1                           | 1                            | 1                           |
| Pre-treatment of Biomass for the Production of Ethanol             | 2009-03-03<br>2010-03-03      | A method to pre-treat biomass to be used in a biorefinery to produce a fermentation product comprising the steps of: preparing the biomass into prepared biomass; and pre-treating the prepared biomass into pre-treated biomass by application of a dilute acid having a concentration of about 0.8 to 1)1 percent by weight at a temperature of about 130 to about 170 degrees Celsius for a period of time in a range of about 8 to 12 minutes; wherein the fermentation product can be obtained by separating the pre-treated biomass into a liquid component comprising xylose and a solids component from which glucose can be made available and accessing xylose for fermentation into the fermentation product; wherein the biomass comprises lignocellulosic material; wherein the lignocellulosic material comprises at least one of corn cobs, corn plant husks, corn plant leaves and corn plant stalks. | <i>US20100233771A1</i><br><b>WO2010102060A2</b>                              | McDonald, William, F.<br>Kwiatkowski, Jason, Richard<br>Narendranath, Neelakantam, V.<br><b>BOOTSMA,</b><br>Jason, Alan<br>Carlson, David,<br>Charles | Cellulosic Ethanol Method | 1                            | 1                           | 1                            | 1                           |

| Title  | Filing Date/<br>Priority Date          | Sample Independent Claim   | INPADOC Family Members<br><i>Italics = Pending;</i><br><i>Bold = Granted</i>                     | Inventor  | Category                     | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|--|--|--|--|---|------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| System for fermentation of biomass for the production of ethanol       | 2009-03-03<br>2009-03-03<br>2009-03-03 | 1) A method for producing a fermentation product in a fermentation system from a biomass comprising the steps of: (i) pre-treating the biomass with an aqueous composition comprising an effective concentration of acid for reducing formation of inhibitors at a temperature of about 130° C. to about 170° C. for a period of time sufficient to produce a solids component and an aqueous component, which aqueous component comprises xylose and acetic acid; (ii) supplying the aqueous component to the fermentation system; (iii) providing yeast to the fermentation system in a concentration in the range from 5 to less than 150 grams of yeast on a dry basis per liter of the aqueous component, wherein the yeast can ferment the xylose into the fermentation product; (iv) maintaining the aqueous component and yeast in the fermentation system at a temperature of between about 26° C. and about 37° C. and at a pH of between about 4.5 and about 6.0 for a time of no less than 18 hours; and (v) recovering the fermentation product from the fermentation system; wherein the biomass comprises lignocellulosic material. | US8815552B2<br>USSN/4/465177<br>EP2403954A2<br>MX2011009269A<br>WO2010102063A2<br>WO2010102063A3 | Narendranath, Neelakantam V.<br>Carlson, David<br>Charles                             | Cellulosic Ethanol Method    | 1                            | 1                           | 3                            | 1                           |
| System for management of yeast to facilitate the production of ethanol | 2009-03-03                             | 1) A method of propagating ethanol for use in the production of ethanol from biomass comprising the steps of: providing a medium for propagation of ethanol; supplying a first cell mass of ethanol to the medium; supplying xylose to the medium as a carbon source for cell mass growth of the ethanol; maintaining the medium comprising the first cell mass of ethanol at a pH of between about 5.0 and 6.0 and at a temperature of between about 26 and about 37 degrees Celsius so that the first cell mass of ethanol is propagated into a second cell mass of ethanol, under aerobic conditions with an airflow of at least 1.0 volumes of air per volume of medium per minute; and wherein the second cell mass of ethanol is larger than the first cell mass of ethanol.   | US8450094B1<br>US20140065700A1   | Narendranath, Neelakantam V.<br>Carlson, David<br>Charles                             | Priming Propagation Pitching | 1                            | 1                           | 1                            | 1                           |
| System for conveying biomass for collection, transport, or processing  | 2009-02-05<br>2009-05-19<br>2010-02-05 | 1) A system, comprising: a housing comprising an opening configured for entry of biomass; at least one shoe skid configured to offset the housing in a vertical orientation; and an apparatus at least partially within the housing and comprising at least one rotating blade assembly, the apparatus is configured to project the biomass entering into the housing through a conduit for collection or transport; wherein the housing further comprises a member, the member comprising a first bar comprising a rotating element to dislodge the biomass from a pile for flow into the opening; and wherein the conduit is extendable and comprises articulation segments for vertical movement and is configured to discharge the biomass from the housing.   | US8839947B2<br>US2014033124A1<br>US8505711B2   | Geraets, James M.<br>Stowers, Mark D.<br>Dilts, Mark David<br>Heupel, Mark<br>Herbert | Biomass Handling             | 2                            | 2                           | 1                            | 1                           |

| Title   | Filing Date/<br>Priority Date  | Sample Independent Claim   | INPADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b>   | Inventor           | Category              | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|---|--|--|--|--------------------|-----------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Zein composition and methods of production  | 2008-12-31<br>2008-12-31<br>2009-03-18<br>2009-03-18<br>2009-03-18<br>2009-03-18<br>2009-12-31               | 1) A zein composition comprising beta-zein and gamma-zein in a combined percentage of from about 25 percent to about 60 percent by weight of zein within the zein composition by dry weight. 6. The zein composition claim 5, wherein the fermentation product comprises beer and the zein composition is extracted from the beer. 25. A zein composition comprising beta-zein and gamma-zein in a combined percentage of from about 25 percent to about 60 percent by weight of zein within the zein composition by dry weight, wherein the zein composition comprises alpha zein in a percentage of no more than 80 percent by weight of zein within the zein composition by dry weight.   | <b>US8795760B2</b><br><i>CA2748640A1</i><br><i>CN102368902A</i><br><i>EP2381760A1</i><br><i>JP2012514459A</i><br><i>MX2011007148A</i><br><i>US20140123855A1</i><br><i>US20140303348A1</i><br><b>US8652818B2</b><br><i>WO2010078508A1</i>   | Lawton, Jr., John  | Bioproduct            | 2                            | 2                           | 7                            | 2                           |
| System for production of ethanol and co-products with apparatus for solvent washing of fermentation product | 2008-12-23<br>2009-03-18<br>2009-03-19<br>2009-03-19<br>2009-03-20<br>2009-04-10<br>2009-05-18<br>2009-05-18 | 1) A method for reducing the water content of a solid component prepared from a fermentation product of a fermentation process in a biorefinery that performs distillation of ethanol wherein the fermentation product provides for an aqueous-ethanolic component and a solids component, the method comprising the steps of: (a) partially separating the aqueous-ethanolic component from the solids component to provide a separated solids component having a reduced amount of the aqueous-ethanol component; (b) depositing at least a portion of the separated solids component on an apparatus comprising a belt; (c) transporting the solids component along the apparatus by movement of the belt while conducting at least two separate addition-removal procedures thereto, wherein each procedure comprises: (i) adding an ethanol solution to the separated solids component, wherein the ethanol content of the solution of each procedure is higher than the ethanol content remaining in the separated solids component; and (ii) removing at least a portion of liquid therefrom such that after each addition-removal procedure the water content in the separated solids component is lower than the prior procedure; and (d) at least partially drying the separated solids component. | <b>US8603786B2</b><br><i>CA2747827A1</i><br><i>CN102307485A</i><br><b>CN102307485B</b><br><i>EP2367948A2</i><br><i>MX2011006862A</i><br><i>US20100159071A1</i><br><b>US8449728B2</b><br><b>US8454802B2</b><br><i>US20100159551</i><br><i>US20100159549</i><br><i>WO2010075541A2</i><br><i>WO2010075541A3</i> | Redford, Steven G. | Starch Ethanol Method | 4                            | 3                           | 5                            | 1                           |
| Particulate Loading Device Having S-Shaped Rotational Member  | 8/24/2011  | 1. A loading apparatus for distributing particulate matter during loading of the particulate matter into a transport container, the apparatus comprising: a housing including an inlet and an outlet each configured on a side of the housing so that particulate matter can pass through the housing from the inlet to the outlet and from the outlet along a flow path of the particulate matter into a transport container, the inlet of the housing being configured for connection to a loading spout of a particulate matter conveying system; a rotary drive operatively supported with respect to the housing; and a rotatable member operatively connected with the rotary drive and supported with respect to the housing so as to be rotatable within the flow path of the particulate matter for spreading particulate matter within the transport container in a radial direction away from the flow path of the particulate matter from the housing outlet, the rotatable member comprising a central axis of rotation and at least two curved arms extending radially from the central axis of rotation.  | <b>US2013048145</b>  | Redford Steven     | Other                 |                              |                             |                              | 1                           |

| Title   | Filing Date/<br>Priority Date                                      | Sample Independent Claim  | INPADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b>  | Inventor   | Category              | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|---|--|---|---|--|-----------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| System for Loading Particulate Matter into a Transport Container                        | 2008-11-06<br>2009-06-02<br>2009-09-30<br>2009-10-05<br>2010-06-21 | 1) An apparatus, comprising: a spout configured to convey particulate matter from a first location to a container; a housing comprising: an inlet at a top side of the housing, the inlet is defined by an engagement ring that operatively engages a tapered end of the spout; an outlet at an underside of the housing, the outlet dispenses the particulate matter into the container; a bypass path on a side of the housing, the bypass path provides an alternative route for the particulate matter to flow into the container; one or more guides positioned to control lateral movement of the apparatus within an opening of the container; and a rotatable member that contacts the particulate matter flowing from the outlet and distributes the particulate matter radially away from the rotatable member at a flow angle that is less than an angle of repose of the particulate matter, wherein the rotatable member rotates and exerts an oscillating compressive force on particulate matter between the rotatable member and walls of the container to increase a density of the particulate matter surrounding the rotatable member. | US8469065B2<br>US7762290B2<br>US7946315B2<br>US8136556B2<br>WO2011041002A1  | Schroeder, Ryan<br>Bordewyk, Joel<br>Krueger, Donald<br>Masgai, Michael<br>Redford, Steven | Load Toad             | 4                            | 4                           |                              |                             |
| Oil composition and method of recovering the same                                       | 2008-09-10   | 1) A corn oil composition comprising corn oil characterized by: a free fatty acid content of no greater than 5% w/w based on the total weight of the composition; an iodine value of not greater than 125; a combined moisture and insoluble content of no greater than 1% w/w based on the total weight of the composition; and a further component selected from the group consisting of: a lutein content of at least 50 mcg/g, a cis-lutein/zeaxanthin content of at least 10 mcg/g, an alpha-cryptoxanthin content of at least 5 mcg/g, a beta-cryptoxanthin content of at least 5 mcg/g, an alpha-carotene content of at least 0.5 mcg/g, and a cis-beta-carotene content of at least 0.1 mcg/g.  | US8702819B2<br>CN103153079A<br>EP2613642A1<br>MX2013002603A<br>US20110086149A1<br>US20130109873A1<br>US20140186907A1<br>WO2012033843A1  | Bootsma, Jason   | Bioproduct            | 1                            | 1                           | 6                            | 3                           |
| Methods and systems for producing ethanol using raw starch and selecting plant material | 2005-10-10<br>2006-10-10   | 1) An aqueous corn composition for fermentation comprising: An aqueous corn composition for fermentation comprising: corn which has been dried at a temperature between about room temperature and about 170 ° F. under conditions such that the activity of endogenous enzymes within the corn is maintained; and a fungal acid amylase and a glucoamylase wherein the aqueous composition is maintained at a pH of 3 to 6; wherein the corn has a particle size such that at least about 50% of the particles fit through a sieve with a 0.5 mm mesh.   | US8597919B2<br>US7919289B2  | Lewis, Stephen M.  | Starch Ethanol Method | 2                            | 2                           |                              |                             |
| Biopolymer and methods of making it   | 2003-06-13<br>2003-06-13<br>2003-06-13                             | 1) A composition comprising: from 0.01 to 95 wt % of fermentation solid, based on total weight of the composition, wherein the fermentation solid has a glass transition point (Tg) and a melting point (Tm); and from 0.01 to 95 wt % of thermoactive material, based on total weight of the composition, wherein the thermoactive material is selected from the group of materials consisting of thermoplastic, thermoset, and resin and adhesive polymer, and the thermoactive material has a melting point less than the Tm of the fermentation solid.  | US7625961B2<br>AU2004249706A1<br>BR200411323A<br>CA2528936A1<br>CN1826379A<br>EP1639040A1<br>JP2007517078A<br>KR2006061301A<br>MX2005013451A<br>US7332119B2<br>WO2004113435A1<br>WO2006066041A1<br>ZA200510129A | Riebel, Michael J.   | BioProduct            | 2                            | 2                           |                              |                             |

| Title  | Filing Date/<br>Priority Date  | Sample Independent Claim  | INPADOC Family Members<br><i>Italics = Pending;</i><br><b>Bold = Granted</b>   | Inventor                                       | Category                    | Total Family Members Granted | U.S. Family Members Granted | Total Family Members Pending | U.S. Family Members Pending |
|--|--|---|--|--|-----------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Methods and systems for producing ethanol using raw starch and fractionation | 2003-03-10<br>2004-03-10<br>2004-03-10<br>2004-09-30<br>2004-10-01<br>2005-03-10<br>2007-03-05<br>2010-11-11 | 1) A fermentation method comprising: dry fractionating plant material comprising endosperm into components including fiber, germ and endosperm; separating the germ and fiber components of the fractionated plant material to form a remaining portion which includes the endosperm; reducing the size of particles in the remaining portion to form a reduced portion, wherein more than 50% of the particles fit through a sieve with a 0.5 mm mesh; mixing the reduced portion with liquid comprising stillage; and fermenting the reduced portion in a reaction mixture under acidic conditions to form an aqueous component comprising ethanol and a solid material, wherein the reaction mixture comprises acid stable fungal alpha amylase, glucoamylase and yeast. | AU2004219649A1<br>AU200522426A1<br><i>BR200408215A</i><br><i>BR200508606A</i><br>CA2517920C<br>CA2559015C<br><i>CA2768844A1</i><br><b>CN102210376B</b><br>CN1780560B<br>CN1950514B<br><b>EP1603406B1 (DE, ES, FR, HU, IT)</b><br><i>EP1723248A2</i><br><i>EP2281898A1</i><br><i>EP2534961A1</i><br><b>MX291407</b><br><i>MX20050095</i><br><i>US20140283226A1</i><br><b>US7842484B2</b><br><b>US7919291B2</b><br><b>US8409639B2</b><br><b>US8409640B2</b><br><b>US8470550B2</b><br><b>US8497082B2</b><br><b>US8679793B2</b><br><b>US8748141B2</b><br>WO2004081193A2<br>WO2005087937A2<br>WO2005087938A2<br><b>ZA200507013A</b> | Lewis, Stephen M.<br>Van Hulzen, Shon<br>Erron | Starch<br>Ethanol<br>Method | 19                           | 8                           | 1                            | 1                           |

POET Trademark Portfolio  
April 2015

| Owner Name | Mark                            | Class/Goods and Services Identification   | Application # | Registration # | Country       | Status     |
|------------|---------------------------------|---|---------------|----------------|---------------|------------|
| POET, LLC  | VITAL                           | 16 - publications, namely, magazines and articles in the fields of ethanol, biofuels, renewable fuels, and related co-products Date of first use 04/01/2008 Date of first use in commerce 04/01/2008  | 77/411,840    | 3,538,488      | UNITED STATES | REGISTERED |
| POET, LLC  | VITAL                           | 09 - downloadable electronic publications in the nature of magazines and articles in the field of ethanol, biofuels, renewable fuels, and related co-products Date of first use 07/01/2008 Date of first use in commerce 07/01/2008   | 77/411,793    | 3,538,487      | UNITED STATES | REGISTERED |
| POET, LLC  | Miscellaneous Design (3 Leaves) | 31 - animal feed Date of first use 03/01/2008 Date of first use in commerce 03/01/2008  | 77/289,870    | 3,558,587      | UNITED STATES | REGISTERED |
| POET, LLC  | Miscellaneous Design (3 Leaves) | 05 - animal feed supplements Date of first use 03/00/2008 Date of first use in commerce 03/00/2008  | 77/290,698    | 3,565,564      | UNITED STATES | REGISTERED |
| POET, LLC  | ENERGY INSPIRED                 | 37 - construction of facilities for the processing and/or production of plant materials, ethanol, carbon dioxide (CO2), distillers grain, animal feed, bio-refineries, biomass/ cellulosic ethanol, grain and grain fractionation Date of first use 07/01/2007 Date of first use in commerce 07/01/2007   | 77/134,643    | 3,587,771      | UNITED STATES | REGISTERED |
| POET, LLC  | INGREENUITY                     | 35 - promoting sustainable practices within the ethanol industry and its supply chain, promoting public awareness of environmental issues and initiatives; promoting public awareness of sustainable business practices; promoting public awareness of ethanol and other biofuels as sustainable and renewable energy sources Date of first use 10/14/2009 Date of first use in commerce 10/14/2009 | 77/868,530    | 3,799,481      | UNITED STATES | REGISTERED |



| Owner Name | Mark                | Class/Goods and Services Identification  | Application # | Registration # | Country       | Status     |
|------------|---------------------|--|---------------|----------------|---------------|------------|
| POET, LLC  | ENERGY<br>INSPIRED. | 01 - ethanol; and liquefied carbon dioxide (CO2) Date of first use 06/01/2008 Date of first use in commerce 06/01/2008   | 77/133,951    | 3,693,029      | UNITED STATES | REGISTERED |
| POET, LLC  | ENERGY<br>INSPIRED. | 04 - ethanol fuel and bio-fuels Date of first use 07/01/2007 Date of first use in commerce 07/01/2007  | 77/133,961    | 3,693,030      | UNITED STATES | REGISTERED |
| POET, LLC  | ENERGY<br>INSPIRED. | 29 - corn oil and vegetable oil Date of first use 11/00/2008 Date of first use in commerce 11/00/2008  | 77/134,026    | 3,693,031      | UNITED STATES | REGISTERED |
| POET, LLC  | ENERGY<br>INSPIRED. | 31 - feed for animals; unprocessed distillers grains Date of first use 07/00/2007 Date of first use in commerce 07/00/2007   | 77/134,189    | 3,693,032      | UNITED STATES | REGISTERED |
| POET, LLC  | ENERGY<br>INSPIRED. | 35 - management of facilities for others in the fields of ethanol, bio-refineries, biomass / cellulosic ethanol, grain processing, grain fractionation, and vegetable oil extraction Date of first use 07/00/2007 Date of first use in commerce 07/00/2007   | 77/134,329    | 3,693,033      | UNITED STATES | REGISTERED |
| POET, LLC  | ENERGY<br>INSPIRED. | 42 - engineering and design of plant processing facilities; research and development services in the fields of corn, grains, ethanol and other agricultural product fuels, renewable and alternative energy, and systems, equipment and processes used in production and conversion of ethanol and animal feed products, bio-refining, ethanol and / or feed transportation, grain, stover, fiber, cellulose, biomass, bio-composites, organic acids, plant seeds, corn, starch, plant material, biofuels, ethanologens, fermentation, distillation, grain fractionation, grain processing, enzyme production, enzyme producing agents, equipment and processes related to ethanol, animal feed products, biopolymers, grain fractionation, biomass / cellulosic degradation, and oil extraction Date of first use 07/00/2007 Date of first use in commerce 07/00/2007 | 77/134,722    | 3,693,034      | UNITED STATES | REGISTERED |

| Owner Name | Mark                             | Class/Goods and Services Identification  | Application # | Registration # | Country       | Status     |
|------------|----------------------------------|--|---------------|----------------|---------------|------------|
| POET, LLC  | LOAD TOAD                        | 07 - loading machines for dispensing and loading grain and other particulate matter into rail cars, tractor trailers and other vehicles and containers for transportation or storage Date of first use 03/09/2010 Date of first use in commerce 03/09/2010   | 77/814,540    | 3,948,572      | UNITED STATES | REGISTERED |
| POET, LLC  | Miscellaneous Design (Toad Head) | 07 - loading machines for dispensing and loading grain and other particulate matter into rail cars, tractor trailers, and other vehicles and containers for transportation and storage Date of first use 03/09/2010 Date of first use in commerce 03/09/2010   | 77/907,312    | 3,955,581      | UNITED STATES | REGISTERED |
| POET, LLC  | POET                             | 16 - publications, namely, magazines, newsletters, brochures, leaflets and articles in the fields of ethanol, biofuels, renewable fuels, and related co-products Date of first use 05/01/2008 Date of first use in commerce 05/01/2008   | 77/463,514    | 3,791,863      | UNITED STATES | REGISTERED |
| POET, LLC  | FLEX30                           | 04 - fuels, biofuels and ethanol-blended fuels Date of first use 07/10/2010 Date of first use in commerce 07/10/2010   | 85/049,767    | 4,380,491      | UNITED STATES | REGISTERED |
| POET, LLC  | VOILÁ                            | 04 - vegetable oil for industrial use; corn oil for industrial use Date of first use 01/30/2011 Date of first use in commerce 01/30/2011   | 85/140,734    | 4,407,385      | UNITED STATES | REGISTERED |
| POET, LLC  | INVIZ and Design                 | 01 - zein protein for use in industrial, agricultural, textile, cosmetic and biomedical applications, namely, the manufacture of biodegradable plastic, biodegradable gum base, films for use in packaging, paper films, adhesives, binder for printing inks, biodegradable hay bale wrappers, agricultural mulch film, color absorbent fibers, scaffolding for growing or shaping bone or tissues and pill coatings Date of first use 01/18/2010 Date of first use in commerce 08/17/2010 | 77/850,921    | 3,897,994      | UNITED STATES | REGISTERED |

| Owner Name | Mark           | Class/Goods and Services Identification   | Application # | Registration # | Country       | Status     |
|------------|----------------|---|---------------|----------------|---------------|------------|
| POET, LLC  | POET TREE      | 31 - plant seeds; seeds for horticultural purposes Date of first use 01/27/2010 Date of first use in commerce 01/27/2010  | 77/943,765    | 3,831,912      | UNITED STATES | REGISTERED |
| POET, LLC  | INVIZ          | 01 - zein protein for use in industrial, agricultural, textile, and cosmetic applications, namely, the manufacture of biodegradable plastic, biodegradable gum base, films for use in packaging, paper films, adhesives, binder for printing inks, biodegradable hay bale wrappers, agricultural mulch film, color absorbent fibers, and polymer based edible pill coatings   | 77/785,875    |                | UNITED STATES | ALLOWED    |
| POET, LLC  | HUMAN + NATURE | 42 - engineering and design of plant processing facilities; product research and development services in the fields of corn, grains, ethanol and other agricultural product fuels, renewable and alternative energy, and systems, equipment and processes used in production and conversion of ethanol and animal feed products, bio-refining, ethanol and/or feed transportation, grain, stover, fiber, cellulose, biomass, biocomposites, organic acids, plant seeds, corn, starch, plant material, biofuels, ethanologens, fermentation, distillation, grain fractionation, grain processing, enzyme production, enzyme producing agents, equipment and processes related to ethanol, animal feed products, biopolymers, grain fractionation, biomass/cellulosic degradation, and oil extraction Date of first use 05/05/2013 Date of first use in commerce 05/05/2013 | 86/451,003    |                | UNITED STATES | PENDING    |
| POET, LLC  | POET           | 30 - ferments, yeast, food products of origin vegetal preparations for consumption and preserves; flours of soya (translated)   | 853562        | 1047632        | MEXICO        | REGISTERED |
| POET, LLC  | POET           | 35 - consultancy in address than affairs in plow relating with: ethanol, bio-refineries, ethanol than biomass/cellulosic, biopolymers, organic acids, process than bean, fractionation than bean  | 853564        | 1018738        | MEXICO        | REGISTERED |

| Owner Name | Mark | Class/Goods and Services Identification   | Application # | Registration # | Country | Status     |
|------------|------|---|---------------|----------------|---------|------------|
| POET, LLC  | POET | 42 - engineering and design of facilities to process plants; investigation and development in the corn areas, agricultural product grains, ethanol and other fuels, renewable energy, alternative energy and systems, equipment and processes used in the production and nutritional ethanol conversion and products for animal, ethanol bio-refining, transportation and foods, grains, leaves and trunks of corn, fiber, celluloses, biomass, biopolymers, organic acids, additives foregrounds, seeds of plants, corn, starch, vegetal material, bio-combustibles, ethanologens, grain fermentation, distillation, division, grain processing, producing enzyme agents; investigation and development of equipment and processes related to ethanol, food products for animal, refinement, grain biopolymers, division, degradation of biomass/cellulose, oil extraction and plants for the food production (translated) | 853568        | 1018739        | MEXICO  | REGISTERED |
| POET, LLC  | POET | 36 - brokerage goods and operation than financial risks (services for financial analyses) (translated)  | 853565        | 1014263        | MEXICO  | REGISTERED |
| POET, LLC  | POET | 04 - ethyl alcohol for combustible and bio fuel (translated)  | 853560        | 989282         | MEXICO  | REGISTERED |
| POET, LLC  | POET | 31 - animal foodstuffs, plant seeds refined and seeds for agriculture (translated)  | 853563        | 989283         | MEXICO  | REGISTERED |
| POET, LLC  | POET | 37 - architectural consultation installations for process and/or production of materials vegetables, ethyl alcohol, carbonic acid (CO2), bean distillery, animal foodstuffs, bio refineries, ethyl alcohol biomass/cellulosic, biopolymers, acids organic plant seeds and fractionation plant seeds, bio compounds, and extraction vegetable oil, pipes for building (translated)   | 853566        | 989284         | MEXICO  | REGISTERED |

| Owner Name          | Mark                     | Class/Goods and Services Identification   | Application # | Registration # | Country       | Status     |
|---------------------|--------------------------|---|---------------|----------------|---------------|------------|
| POET, LLC           | POET                     | 39 - supplying of services for transporting ethanol, animal food products and plant seeds, by railway, trucks or pipes; supplying of services for storage and terminal for ethanol, animal foodstuffs and granular products (translated)  | 853567        | 989285         | MEXICO        | REGISTERED |
| POET, LLC           | POET                     | 29 - corn oil, soya oil and vegetable oil (translated)  | 853561        | 989957         | MEXICO        | REGISTERED |
| POET, LLC           | POET                     | 01 - ethyl alcohol, enzymes, agents producing enzyme, agents controllers microbes, microbes; carbonic acid (CO2), organic acids, polymers containing vegetables, for use in manufacture subsequent; compositions polimericas, as well as substitute plasticos or plastics as additive as well as, used in manufacture of articles commercial and industrial; bio compounds; additive/correcting sun(translated) | 853383        | 991641         | MEXICO        | REGISTERED |
| POET, LLC           | POET GRAIN               | 36 - brokerage of commodities and risk management Date of first use 07/25/2012 Date of first use in commerce 07/25/2012   | 86/482,078    |                | UNITED STATES | PENDING    |
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 37 - construction of facilities for the processing and/or production of plant materials, ethanol, carbon dioxide (CO2), distillers grain, animal feed, bio-refineries, biomass/cellulosic ethanol, grain and grain fractionation Date of first use 07/01/2007 Date of first use in commerce 07/01/2007  | 77/052,291    | 3,528,057      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 39 - providing services for transportation of ethanol, animal feed products and grains by rail and truck Date of first use 07/00/2007 Date of first use in commerce 07/00/2007  | 77/052,349    | 3,528,058      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized)          | 37 - construction of facilities for the processing and/or production of plant materials, ethanol, carbon dioxide (CO2), distillers grain, animal feed, bio-refineries, biomass/cellulosic ethanol, grain/grain fractionation  | 77/037,868    | 3,528,015      | UNITED STATES | REGISTERED |

| Owner Name          | Mark                     | Class/Goods and Services Identification  | Application # | Registration # | Country       | Status     |
|---------------------|--------------------------|--|---------------|----------------|---------------|------------|
| POET RESEARCH, INC. | POET                     | 37 - construction of facilities for the processing and/or production of plant materials, ethanol, carbon dioxide (CO2), distillers grain, animal feed, bio-refineries, biomass/ cellulosic ethanol, grain and grain fractionation Date of first use 07/01/2007 Date of first use in commerce 07/01/2007  | 77/024,330    | 3,531,513      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET                     | 39 - providing services for transportation of ethanol, animal feed products and grains by rail, and truck Date of first use 07/00/2007 Date of first use in commerce 07/00/2007  | 77/024,440    | 3,502,198      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized)          | 04 - ethanol fuel and bio-fuels Date of first use 07/01/2007 Date of first use in commerce 07/01/2007  | 77/037,361    | 3,558,032      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized)          | 31 - feed for animals; unprocessed distillers grains Date of first use 07/00/2007 Date of first use in commerce 07/00/2007   | 77/037,701    | 3,565,063      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 01 - ethanol and liquefied carbon dioxide (CO2) Date of first use 06/01/2008 Date of first use in commerce 06/01/2008  | 77/051,811    | 3,568,072      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 31 - feed for animals; unprocessed distillers grains Date of first use 07/01/2007 Date of first use in commerce 07/01/2007   | 77/052,048    | 3,568,073      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 35 - management of facilities for others in the fields of ethanol, bio-refineries, grain processing, grain fractionation, vegetable oil extraction, grain storage, business marketing consulting services in the fields of ethanol, carbon dioxide (CO2), grain, co-products, feed, bio-fuels, vegetable oils and industrial chemicals Date of first use 07/00/2007 Date of first use in commerce 07/00/2007 | 77/052,137    | 3,568,074      | UNITED STATES | REGISTERED |

| Owner Name          | Mark                     | Class/Goods and Services Identification  | Application # | Registration # | Country       | Status     |
|---------------------|--------------------------|--|---------------|----------------|---------------|------------|
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 42 - engineering and design of plant processing facilities; research and development services in the fields of corn, grains, ethanol and other agricultural product fuels, renewable and alternative energy, and systems, equipment and processes used in production and conversion of ethanol and animal feed products, bio-refining, ethanol and / or feed transportation, grain, stover, fiber, cellulose, biomass, bio-composites, organic acids, plant seeds, corn, starch, plant material, biofuels, ethanologens, fermentation, distillation, grain fractionation, grain processing, enzyme production, enzyme producing agents, equipment and processes related to ethanol, animal feed products, biopolymers, grain fractionation, biomass / cellulosic degradation, and oil extraction Date of first use 07/00/2007 Date of first use in commerce 07/00/2007 | 77/052,388    | 3,568,075      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 04 - ethanol fuel and bio-fuels Date of first use 07/01/2007 Date of first use in commerce 07/01/2007  | 77/051,846    | 3,612,895      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | O (Stylized - Leaf Logo) | 29 - corn oil and vegetable oil Date of first use 11/00/2008 Date of first use in commerce 11/00/2008  | 77/051,885    | 3,612,896      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized)          | 29 - corn oil and vegetable oil Date of first use 11/00/2008 Date of first use in commerce 11/00/2008  | 77/037,387    | 3,603,001      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized)          | 35 - management of facilities for others in the fields of ethanol, bio-refineries, biomass / cellulosic ethanol, grain processing, grain fractionation, vegetable oil extraction, and grain storage Date of first use 07/00/2007 Date of first use in commerce 07/00/2007  | 77/037,764    | 3,603,003      | UNITED STATES | REGISTERED |

| Owner Name          | Mark            | Class/Goods and Services Identification  | Application # | Registration # | Country       | Status     |
|---------------------|-----------------|--|---------------|----------------|---------------|------------|
| POET RESEARCH, INC. | POET (Stylized) | 42 - engineering and design of plant processing facilities; research and development services in the fields of corn, grains, ethanol and other agricultural product fuels, renewable and alternative energy, and systems, equipment and processes used in production and conversion of ethanol and animal feed products, bio-refining, ethanol and/or feed transportation, grain, stover, fiber, cellulose, biomass, bio-composites, organic acids, plant seeds, corn, starch, plant material, biofuels, ethanologens, fermentation, distillation, grain fractionation, grain processing, enzyme production, enzyme producing agents, equipment and processes related to ethanol, animal feed products, biopolymers, grain fractionation, biomass/cellulosic degradation, and oil extraction Date of first use 07/00/2007 Date of first use in commerce 07/00/2007 | 77/037,968    | 3,583,789      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET            | 04 - ethanol fuel and bio-fuels Date of first use 07/01/2007 Date of first use in commerce 07/01/2007  | 77/023,677    | 3,591,746      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET            | 29 - corn oil and vegetable oil Date of first use 11/00/2008 Date of first use in commerce 11/00/2008  | 77/023,807    | 3,606,411      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET            | 31 - feed for animals and unprocessed distillers grains Date of first use 07/00/2007 Date of first use in commerce 07/00/2007  | 77/023,864    | 3,591,747      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET            | 35 - management of facilities for others in the fields of ethanol, bio-refineries, biomass / cellulosic ethanol, grain processing, grain fractionation, vegetable oil extraction, and grain storage Date of first use 07/00/2007 Date of first use in commerce 07/00/2007  | 77/023,916    | 3,602,982      | UNITED STATES | REGISTERED |



| Owner Name          | Mark            | Class/Goods and Services-Identification   | Application # | Registration # | Country       | Status     |
|---------------------|-----------------|---|---------------|----------------|---------------|------------|
| POET RESEARCH, INC. | POET            | 42 - engineering and design of plant processing facilities; research and development services in the fields of corn, grains, ethanol and other agricultural product fuels, renewable and alternative energy, and systems, equipment and processes used in production and conversion of ethanol and animal feed products, bio-refining, ethanol and /or feed transportation, grain, stover, fiber, cellulose, biomass, bio-composites, organic acids, plant seeds, corn, starch, plant material, biofuels, ethanologens, fermentation, distillation, grain fractionation, grain processing, enzyme production, enzyme producing agents, equipment and processes related to ethanol, animal feed products, biopolymers, grain fractionation, biomass/cellulosic degradation, and oil extraction Date of first use 07/00/2007 Date of first use in commerce 07/00/2007 | 77/024,451    | 3,583,775      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET            | 01 - ethanol and liquefied carbon dioxide (CO2) Date of first use 06/01/2008 Date of first use in commerce 06/01/2008   | 77/023,565    | 3,505,795      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized) | 01 - ethanol and liquefied carbon dioxide (CO2) Date of first use 06/01/2008 Date of first use in commerce 06/01/2008   | 77/037,271    | 3,502,231      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized) | 36 - brokerage of commodities and risk management Date of first use 07/00/2007 Date of first use in commerce 07/00/2007   | 77/037,822    | 3,431,939      | UNITED STATES | REGISTERED |
| POET RESEARCH, INC. | POET (Stylized) | 39 - providing services for transportation of ethanol, animal feed products and grains by rail, and truck Date of first use 07/00/2007 Date of first use in commerce 07/00/2007   | 77/037,933    | 3,502,233      | UNITED STATES | REGISTERED |

| Owner Name             | Mark                     | Class/Goods and Services Identification  | Application # | Registration # | Country              | Status     |
|------------------------|--------------------------|--|---------------|----------------|----------------------|------------|
| POET RESEARCH, INC.    | POET                     | 36 - brokerage of commodities and risk management<br>Date of first use 07/00/2007 Date of first use in commerce 07/00/2007 | 77/024,314    | 3,436,774      | UNITED STATES        | REGISTERED |
| POET RESEARCH, INC.    | O (Stylized - Leaf Logo) | 36 - brokerage of commodities and risk management<br>Date of first use 07/00/2007 Date of first use in commerce 07/00/2007 | 77/052,197    | 3,528,056      | UNITED STATES        | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD              | 31 - feed for livestock  | IR956128      | IR956128       | BELARUS              | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD              | 31 - feed for livestock  | IR956128      | IR956128       | CHINA                | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD              | 31 - feed for livestock  | IR956128      | IR956128       | EUROPEAN UNION (CTM) | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD              | 31 - feed for livestock  | IR956128      | IR956128       | JAPAN                | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD              | 31 - feed for livestock  | IR956128      | IR956128       | SOUTH KOREA          | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD              | 05 - animal feed supplements<br>31 - feed for livestock  | IR956128      | IR956128       | MOLDOVA              | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD              | 31 - feed for livestock  | IR956128      | IR956128       | SINGAPORE            | REGISTERED |

| Owner Name             | Mark        | Class/Goods and Services Identification  | Application # | Registration # | Country       | Status     |
|------------------------|-------------|--|---------------|----------------|---------------|------------|
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements<br>31 - feed for livestock  | IR956128      | IR956128       | UKRAINE       | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals Date of first use 01/05/1995 Date of first use in commerce 01/05/1995  | 74/590,03     | 1,994,116      | UNITED STATES | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements<br>31 - feed for livestock  | IR956128      | IR956128       | VIETNAM       | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements<br>31 - feed for livestock  | IR956128      | IR956128       | WIPO          | REGISTERED |
| POET INVESTMENTS, INC. | BPX         | 31 - feed for animals Date of first use 07/00/2006 Date of first use in commerce 07/00/2006            | 77/073,395    | 3,322,683      | UNITED STATES | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA BRAN | 31 - feed for animals Date of first use 04/00/2005 Date of first use in commerce 04/00/2005            | 77/144,927    | 3,361,609      | UNITED STATES | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements Date of first use 00/00/1993 Date of first use in commerce 00/00/1993     | 77/355,066    | 3,476,057      | UNITED STATES | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - animal feed; grain Date of first use 06/07/1993 Date of first use in South Dakota 06/07/1993      | 2199783       | 2199783        | SOUTH DAKOTA  | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements Date of first use 06/07/1993 Date of first use in South Dakota 06/07/1993 | 2199784       | 2199784        | SOUTH DAKOTA  | REGISTERED |

| Owner Name             | Mark        | Class/Goods and Services Identification   | Application #     | Registration # | Country       | Status     |
|------------------------|-------------|---|-------------------|----------------|---------------|------------|
| POET INVESTMENTS, INC. | HP          | 31 - feed for animals Date of first use 07/00/2006 Date of first use in commerce 07/00/2006                       | 77/073,378        | 3,322,682      | UNITED STATES | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals   | 1336655           | 718734         | CANADA        | REGISTERED |
| POET INVESTMENTS, INC. | BPX         | 31 - feed for animals   | 771040            | 771040         | NEW ZEALAND   | REGISTERED |
| POET INVESTMENTS, INC. | BPX         | 31 - feed for animals   | 1183614           | 1183614        | AUSTRALIA     | REGISTERED |
| POET INVESTMENTS, INC. | BPX         | 05 - feed for animals and animal feed supplements Date of first use in Canada 12/31/2003<br>31 - feed for animals | 1377807           | 744584         | CANADA        | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements  | 111111            | 111111         | BANGLADESH    | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements  | 2008-002845       | 160796         | GUATEMALA     | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements  | D0020080039<br>84 | IDM000216836   | INDONESIA     | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements  | 08000213          | 08000213       | MALAYSIA      | REGISTERED |
| Owner Name             | Mark        | Class/Goods and Services Identification   | Application #     | Registration # | Country       | Status     |

|                        |             |                                 |             |             |             |             |            |
|------------------------|-------------|---------------------------------|-------------|-------------|-------------|-------------|------------|
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals | 1183615     | 1183615     | 1183615     | AUSTRALIA   | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals | 11112       | 11112       | 11112       | BANGLADESH  | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals | 2008-2844   | 159787      | 159787      | GUATEMALA   | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals | 08000212    | 08000212    | 08000212    | MALAYSIA    | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals | 771039      | 771039      | 771039      | NEW ZEALAND | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals | 097004371   | 01347124    | 01347124    | TAIWAN      | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 05 - animal feed supplements    | 2008-210    | 186767      | 186767      | COSTA RICA  | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals | 42008000299 | 42008000299 | 42008000299 | PHILIPPINES | REGISTERED |
| POET INVESTMENTS, INC. | DAKOTA GOLD | 31 - feed for livestock animals |             |             |             |             |            |

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