

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4585457

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
CERAMATEC, INC.		08/22/2017
RECEIVING PARTY DATA		
Name:	FIELD UPGRADING LIMITED	
Street Address:	1ST STREET SE	
Internal Address:	201-1100	
City:	CALGARY, ALBERTA	
State/Country:	CANADA	
Postal Code:	T2G 1B1	
PROPERTY NUMBERS Total: 97		
Property Type	Number	
Patent Number:	8771879	
Patent Number:	8147663	
Patent Number:	9297084	
Application Number:	15061427	
Patent Number:	9222148	
Application Number:	14812888	
Application Number:	15449159	
Application Number:	62406490	
Application Number:	15356235	
Patent Number:	7918986	
Patent Number:	7824536	
Patent Number:	7959784	
Patent Number:	8506790	
Patent Number:	8268159	
Patent Number:	8075758	
Patent Number:	8262872	
Patent Number:	8382974	
Patent Number:	8916731	
Patent Number:	8247585	

Property Type	Number
Patent Number:	9611555
Patent Number:	9011650
Patent Number:	8506789
Patent Number:	8647492
Application Number:	14098000
Patent Number:	9051656
Patent Number:	9057137
Application Number:	14704783
Patent Number:	8916123
Patent Number:	9206515
Patent Number:	8821710
Application Number:	14322037
Application Number:	14469878
Patent Number:	9689078
Application Number:	13935035
Patent Number:	8853463
Patent Number:	9039918
Application Number:	14196893
Application Number:	13790744
Patent Number:	9493882
Application Number:	15290864
Application Number:	14495642
Application Number:	14730413
Application Number:	15273367
Patent Number:	8075746
Patent Number:	9631285
Patent Number:	8338038
Patent Number:	9475998
Patent Number:	8246863
Patent Number:	8728295
Patent Number:	8764965
Application Number:	13742184
Application Number:	13466844
Application Number:	15279926
Application Number:	15393717
Application Number:	15446299
Application Number:	61145423
Application Number:	62257111

Property Type	Number
Application Number:	61432117
Application Number:	61408332
Application Number:	61781557
Application Number:	62030434
Application Number:	62272224
Application Number:	62303231
Application Number:	60528612
Application Number:	60753191
Application Number:	60970182
Application Number:	60949802
Application Number:	61103973
Application Number:	61234957
Application Number:	61225465
Application Number:	61234694
Application Number:	61225437
Application Number:	61390961
Application Number:	61391496
Application Number:	61258557
Application Number:	61260961
Application Number:	61228078
Application Number:	61353724
Application Number:	61327477
Application Number:	61371113
Application Number:	61436979
Application Number:	61587044
Application Number:	61466531
Application Number:	61773610
Application Number:	61431356
Application Number:	61436088
Application Number:	61513825
Application Number:	61773616
Application Number:	61667854
Application Number:	61577496
Application Number:	61587039
Application Number:	61772356
Application Number:	61778037
Application Number:	61881821
Application Number:	62012053

Property Type	Number
Application Number:	62222064
Application Number:	61888933

CORRESPONDENCE DATA

Fax Number:

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.

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ATTORNEY DOCKET NUMBER:	111147-0101
NAME OF SUBMITTER:	JOSEPH P. MEARA
SIGNATURE:	/Joseph P. Meara/
DATE SIGNED:	09/08/2017

Total Attachments: 13

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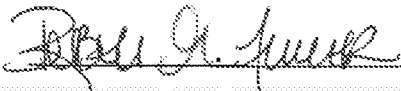
ASSIGNMENT

We, Ceramatec, Inc., whose full post office address is, 2425 South 900 West, Salt Lake City, Utah 84119, United States of America, in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, do hereby sell and assign to Field Upgrading Limited, its successors and assigns, whose full post office address is 201 – 1100 1st Street SE, Calgary, Alberta, T2G 1B1, effective August 22, 2017, all our right, title and interest in the United States of America in and to the United States Patent applications and issued patents attached as Schedule 1 and the inventions claimed therein, including any and all priority rights derived therefrom, and the right, where such right can be legally exercised, in its own name to apply for and obtain Letters Patent, re-examinations, reissues, divisions, renewals, extensions, provisionals, continuations and continuations-in-part thereof in the United States, and the entire interest in any Letters Patent, re-examinations, reissues, divisions, renewals, extensions, provisionals, continuations and continuations-in-part thereof which may be granted on any such applications, including any and all divisionals and continuations of said applications, in the United States of America, including any reissues and extensions thereof, inclusive of the right to sue for past infringements, the same to be held and enjoyed by Field Upgrading Limited as fully and entirely as the same would have been held and enjoyed by Ceramatec Inc. had the assignment, transfer and conveyance not been made.

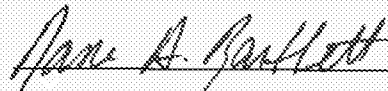
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SIGNED at Denver, Colorado, United States of America, this 22 day of August, 2017.

Ceramatec, Inc.

A handwritten signature in cursive script, appearing to read "Dane A. Bartlett", written over a horizontal line.

Signature of Witness

A handwritten signature in cursive script, appearing to read "Dane A. Bartlett", written over a horizontal line.

By: Dane A. Bartlett

Title: Secretary

SCHEDULE 1

8000.2.8	NaSICON	Lithium-Sulfur Battery with a substantially Non-Porous Membrane and Enhanced Cathode Utilization	United States of America	Issued	12/205,759 8,771,879
1000.2.192	NaSICON	SCAFFOLD FOR AN ION-CONDUCTIVE MEMBRANE	United States of America	Issued	12/689,985 8,147,663
1000.2.200	NaSICON	Electrochemical Production of Hydrogen	United States of America	Issued	13/349,269 9,297,084
1000.2.200.3C IP	NaSICON	Electrochemical Production of Hydrogen	United States of America	Pending	15/061,427 2016/0222524
1000.2.202	NaSICON	DEVICE AND METHOD FOR RECOVERY OF EXTRACTION OF LITHIUM	United States of America	Issued	13/285,721 9,222,148
1000.2.231	NaSICON	Novel Process for Removal of Nitrogen from Natural Gas	United States of America	Published	14/812,888 2016/0032207
1000.2.234	NaSICON	Intercalation Membrane	United States of America	Pending	15/449,159
1000.2.237p	NaSICON	Method of Extraction and Concentration of Rare Earth Elements from Ores and Mining Streams	United States of America	Pending	62/406,490
1000.2.238	NaSICON	ELECTROCHEMICAL PRODUCTION OF HYDROGEN WITH DYE-SENSITIZED SOLAR CELL-BASED ANODE	United States of America	Pending	15/356,235 2017/0137950
5000.2.15	NaSICON	ELECTROLYTIC METHOD TO MAKE ALKALI ALCOHOLATES USING CERAMIC ION CONDUCTING SOLID MEMBRANES	United States of America	Issued	11/010,822 7,918,986
5000.2.15.1	NaSICON	ELECTROLYTIC METHOD TO MAKE ALKALI ALCOHOLATES USING CERAMIC ION CONDUCTING SOLID MEMBRANES	United States of America	Issued	11/449,953 7,824,536
5000.2.15.2	NaSICON	ELECTROLYTIC METHOD TO MAKE ALKALI ALCOHOLATES USING CERAMIC ION CONDUCTING SOLID MEMBRANES	United States of America	Issued	11/396,057 7,959,784
5000.2.15.3	NaSICON	ELECTROLYTIC METHOD TO MAKE ALKALI ALCOHOLATES USING CERAMIC ION CONDUCTING SOLID MEMBRANES	United States of America	Issued	13/079,692 8,506,790
5000.2.16	NaSICON	ELECTROLYTIC PROCESS TO PRODUCE SODIUM HYPOCHLORITE USING ALKALI-CATION CONDUCTIVE CERAMIC MEMBRANES	United States of America	Issued	11/613,857 8,268,159

5000.2.24	NaSICON	Electrolytic Method to Make Alkali Alcohols Using Ion Conducting Alkali Electrolyte/ Separator	United States of America	Issued	11/611,054 8,075,758
5000.2.28	NaSICON	Cleansing Agent Generator and Dispenser	United States of America	Issued	12/172,954 8,262,872
5000.2.39	NaSICON	SENSOR TO MEASURE A CONCENTRATION OF ALKALI ALCOHOLATE	United States of America	Issued	12/706,125 8,382,974
5000.2.40	NaSICON	DIALKYL AND DIARYL ETHER PRODUCTION FROM METAL ALCOHOLATE	United States of America	Issued	12/834,679 8,916,731
5000.2.41	NaSICON	SYSTEMS AND METHODS FOR REMOVING CATALYST AND RECOVERING FREE FATTY ACIDS AFTER TRANSESTERIFICATION REACTION	United States of America	Issued	12/836,224 8,247,585
5000.2.43	NaSICON	CHEMICAL SYSTEMS AND METHODS FOR OPERATING AN ELECTROCHEMICAL CELL WITH AN ACIDIC ANOLYTE	United States of America	Issued	13/253,771 9,611,555
5000.2.44	NaSICON	ELECTROCHEMICAL SYSTEMS AND METHODS FOR OPERATING AN ELECTROCHEMICAL CELL WITH AN ACIDIC ANOLYTE	United States of America	Issued	13/269,412 9,011,650
5000.2.45.1	NaSICON	METHOD OF PRODUCING COUPLED RADICAL PRODUCTS	United States of America	Issued	12/840,508 8,506,789
5000.2.45.2	NaSICON	METHOD OF PRODUCING COUPLED RADICAL PRODUCTS FROM BIOMASS	United States of America	Issued	12/840,913 8,647,492
5000.2.45.2.1 DIV	NaSICON	METHOD OF PRODUCING COUPLED RADICAL PRODUCTS FROM BIOMASS	United States of America	Allowed	14/098,000 2014/0154766
5000.2.49	NaSICON	ELECTROCHEMICAL SYNTHESIS OF ARYL-ALKYL SURFACTANT PRECURSOR (2010-IRD-5)	United States of America	Issued	13/092,685 9,051,656
5000.2.50	NaSICON	METHOD AND DEVICE FOR CARBOXYLIC ACID PRODUCTION	United States of America	Issued	13/103,716 9,057,137
5000.2.50.1DI V	NaSICON	METHOD AND DEVICE FOR CARBOXYLIC ACID PRODUCTION	United States of America	Pending	14/704,783 2015/0233002
5000.2.53	NaSICON	Ammonia Synthesis Using Lithium Ion Conductive Membrane	United States of America	Issued	13/428,214 8,916,123
5000.2.54.2	NaSICON	Method of Producing Coupled Radical Products Via Desulfoxylation	United States of America	Issued	14/198,026 9,206,515
5000.2.55	NaSICON	Production of Fuel from Chemicals Derived from Biomass	United States of America	Issued	13/357,463 8,821,710
5000.2.55.1DI V	NaSICON	Production of Fuel from Chemicals Derived from Biomass	United States of America	Pending	14/322,037 2014/0336418

5000.2.55.2DI V	NaSICON	Production of Fuel from Chemicals Derived from Biomass	United States of America	Allowed	14/469,878 2014/0360866
5000.2.57	NaSICON	Production of Valuable Chemicals by Electroreduction of Carbon Dioxide in a NaSICON Cell	United States of America	ISSUED 9,689,078	14/198,289 2014/0251822
5000.2.59	NaSICON	Apparatus and Method of Producing Titanium Metal in a NaSICON Electrolytic Cell	United States of America	Pending	13/935,035 2014/0008239
5000.2.60	NaSICON	Decarboxylation of Levulinic Acid to Ketone Solvents	United States of America	Issued	13/717,129 8,853,463
5000.2.62	NaSICON	Lithium-Ion-Conducting Materials	United States of America	Issued	13/742,989 9,039,918
5000.2.63	NaSICON	Alkali Metal Intercalation Material as an Electrode in an Electrolytic Cell	United States of America	Pending	14/196,893 2014/0199577
5000.2.67	NaSICON	DEVICE AND METHOD OF OBTAINING DIOLS AND OTHER CHEMICALS USING DECARBOXYLATION	United States of America	Pending	13/790,744 2013/0186770
5000.2.69	NaSICON	Custom Ionic Liquid Electrolytes for Electrolytic Decarboxylation	United States of America	Issued	14/206,981 9,493,882
5000.2.69.1DI V	NaSICON	Custom Ionic Liquid Electrolytes for Electrolytic Decarboxylation	United States of America	Pending	15/290,864 2017/0088962
5000.2.70	NaSICON	Molten Carboxylate Electrolytes for Electrochemical Decarboxylation Processes	United States of America	Pending	14/495,642 2015/0083606
5000.2.71	NaSICON	Conversion of Carboxylic Acids to Alpha-Olefins	United States of America	Pending	14/730,413 2015/0361565
5000.2.72	NaSICON	Multi-Stage Sodium Heat Engine for Electricity and Heat Production	United States of America	Pending	15/273,367 2017/0084970
6000.2.13	NaSICON	Electrochemical Cell for Production of Synthetic Gas Using Atmospheric Air and Water	United States of America	Issued	11/467,524 8,075,746
6000.2.13.1DI V	NaSICON	Electrochemical Cell for Production of Synthetic Gas Using Atmospheric Air and Water	United States of America	Issued	13/286,908 9,631,285
8000.2.23	NaSICON	Electrochemical Cell Comprising Ionically Conductive Ceramic Membrane and Porous Multiphase Electrode	United States of America	Issued	12/699,396 8,338,038
1000.2.219	Upgrading	Process for Recovering Alkali Metals and Sulfur from Alkali Metal Sulfides and Polysulfides	United States of America	Issued	14/210,891 9,475,998
5000.2.17	Upgrading	ALKALI METAL SUPER IONIC CONDUCTING CERAMIC	United States of America	Issued	12/492,834 8,246,863
5000.2.36	Upgrading	Apparatus and Method for Reducing an Alkali Metal Electrochemically at a Temperature Below the Metal Melting Temperature from Alkali Metal Polysulfides or Hydrosulfides	United States of America	Issued	12/576,977 8,728,295

5000.2.51	Upgrading	ELECTROCHEMICAL CHEMICAL CONVERSION OF ALKALI SULFATE INTO USEFUL CHEMICAL PRODUCTS	United States of America	Issued	13/360,653 8,764,965
5000.2.52	Upgrading	Composite Solid Electrolyte for Electrolysis of Acid Anolyte	United States of America	Allowed	13/742,184 2013/0183546
8000.2.31	Upgrading	ALKALI METAL ION BATTERY USING ALKALI METAL CONDUCTIVE CERAMIC SEPARATOR	United States of America	Pending	13/466,844 2012/0235644
1000.2.219.3D IV	Upgrading	Process for Recovering Alkali Metals and Sulfur from Alkali Metal Sulfides and Polysulfides	United States of America	Pending	15/279,926
1000.2.233	Upgrading	Method and Apparatus for Recovering Metals and Sulfur from Feed Streams Containing Metal Sulfides and Polysulfides	United States of America	Pending	15/393,717
1000.2.235	Upgrading	Method for Recovering Alkali Metal from Hydrocarbon Feedstocks Treated with Alkali Metal	United States of America	Pending	15/446,299
1000.2.192p	Selective Ion Transport Membrane Based Electrolytic Cell	Prov - ORG	United States of America	Completed	61/145,423
1000.2.200.2C IPp	Low-cost, Solar- driven Power and Fuel Generation	Prov - ORG	United States of America	Completed	62/257,111
1000.2.200p	Electroche mical Production of Hydrogen	Prov - ORG	United States of America	Completed	61/432,117
1000.2.202p	DEVICE AND METHOD FOR RECOVER Y OF EXTRACT ION OF LITHIUM	Prov - ORG	United States of America	Completed	61/408,332
1000.2.219p	A Process for Removing Nitrogen, Sulfur, and Heavy Metals from Sulfur-, Nitrogen...	Prov - ORG	United States of America	Completed	61/781,557

1000.2.231p	Novel Process for Removal of Nitrogen from Natural Gas	Prov - ORG	United States of America	Completed	62/030,434
1000.2.233p	Process for Recovering Alkali Metals, Heavy Metals and Sulfur from Alkali Metal	Prov - ORG	United States of America	Completed	62/272,224
1000.2.235p	Removal of Alkali Metal from Oil Treated with Alkali Metal	Prov - ORG	United States of America	Completed	62/303,231
1000.2.51p	Sodium Sulfate Conversion into NaOH and Syngas	Prov - ORG	United States of America	Unfiled	
1000.2.53p	ELECTROLYTIC AMONIA SYNTHESIS METHOD USING LISICON	Prov - ORG	United States of America	Unfiled	
5000.2.15P	ELECTROLYTIC METHOD TO MAKE ALKALI ALCOHOLATES USING CERAMIC ION CONDUCTING SOLI...	Prov - ORG	United States of America	Completed	60/528,612
5000.2.16p (2005-US-0011PV)	ELECTROLYTIC PROCESS TO PRODUCE SODIUM HYPOCHLORITE USING ALKALI-CATION CONDUCT I...	Prov - ORG	United States of America	Completed	60/753,191

5000.2.26p (1000.2.153p)	Apparatus and Method for Producing Biodiesel Using an Alkali Donating Catalyst	Prov - ORG	United States of America	Completed	60/970,182
5000.2.28p	Cleansing Agent Generator and Dispenser	Prov - ORG	United States of America	Completed	60/949,802
5000.2.36P	APPARAT US AND METHOD FOR REDUCIN G ALKALI METAL ELECTRO CHEMICA LLY AT A TEMPERA TUR...	Prov - ORG	United States of America	Completed	61/103,973
5000.2.39p	SENSOR TO MEASURE A CONCENT RATION OF ALKLI ALCOHOL ATE	Prov - ORG	United States of America	Completed	61/234,957
5000.2.40p	DIMETHY LETH ER PRODUCT ION FROM SODIUM METHOXI DE (2009- IRD-4)	Prov - ORG	United States of America	Completed	61/225,465
5000.2.41 1p	FREE FATTY ACID RECOVER Y AFTER BIO-FUEL PRODUCT ION	Prov - ORG	United States of America	Completed	61/234,694
5000.2.41P	CATALYS T REMOVA L AFTER BIO-FUEL PRODUCT ION (2009- IRD-9)	Prov - ORG	United States of America	Completed	61/225,437

5000.2.43p	CHEMICAL SYSTEMS AND METHODS FOR OPERATING AN ELECTROCHEMICAL CELL WITH AN ACID...	Prov - ORG	United States of America	Completed	61/390,961
5000.2.44p	ELECTROCHEMICAL SYSTEMS AND METHODS FOR OPERATING AN ELECTROCHEMICAL CELL WITH A...	Prov - ORG	United States of America	Completed	61/391,496
5000.2.45.1p	Production of Hydrocarbon Fuel from Biomass	Prov - ORG	United States of America	Completed	61/258,557
5000.2.45.2p	METHOD OF PRODUCING COUPLED RADICAL PRODUCT FROM BIOMASS	Prov - ORG	United States of America	Completed	61/260,961
5000.2.45p (1000.2.195p)	Production of Hydrocarbon Fuel from Biomass (decarboxylation)	Prov - ORG	United States of America	Completed	61/228,078
5000.2.49.1p	ELECTROCHEMICAL SYNTHESIS OF ARYL-ALKYL SURFACTANT PRECURSOR	Prov - ORG	United States of America	Completed	61/353,724

5000.2.49p	ELECTROCHEMICAL SYNTHESIS OF ARYL-ALKYL SURFACTANT PRECURSOR	Prov - ORG	United States of America	Completed	61/327,477
5000.2.50P	METHOD AND DEVICE FOR CARBOXYLIC ACID PRODUCTION (lactic acid production - 2-pha...	Prov - ORG	United States of America	Completed	61/371,113
5000.2.51p	ELECTROCHEMICAL CHEMICAL CONVERSION OF ALKALI SULFATE INTO USEFUL CHEMICAL PRODU...	Prov - ORG	United States of America	Completed	61/436,979
5000.2.52p	Composite Solid Electrolyte for Electrolysis of Acid Anolyte	Prov - ORG	United States of America	Completed	61/587,044
5000.2.53p	Ammonia Synthesis Using Lithium Ion Conductive Membrane	Prov - ORG	United States of America	Completed	61/466,531
5000.2.54.1p	Recovery of Useful Chemicals from Alkyl Sulfonate stream	Prov - ORG	United States of America	Unfiled	

5000.2.54.2p	Method of Producing Coupled Radical Products Via Desulfoxylation (split out from...	Prov - ORG	United States of America	Completed	61/773,610
5000.2.54p	Recovery of Useful Chemicals from Alkyl Sulfonate stream	Prov - ORG	United States of America	Completed	61/431,356
5000.2.55p	Production of Fuel from Chemicals Derived from Biomass (Sugars to Fuels)	Prov - ORG	United States of America	Completed	61/436,088
5000.2.56p	ELECTROLYTIC PROCESS TO SEPARATE ALKALI METAL IONS FROM ALKALI ALUMINATE AQUEOUS ...	Prov - ORG	United States of America	Completed	61/513,825
5000.2.57p	Production of Valuable Chemicals by Electroreduction of CO ₂ in a NaSICON Cell (2...	Prov - ORG	United States of America	Completed	61/773,616
5000.2.59p	Apparatus and Method of Producing Titanium Metal in a Nasicon Electrolytic Cell	Prov - ORG	United States of America	Completed	61/667,854

5000.2.60p	Decarboxylation of Levulinic Acid to Make Solvent (2011-IRD-5 and 2011-IRD-13)	Prov - ORG	United States of America	Completed	61/577,496
5000.2.62p	Lithium-Ion-Conducting Materials	Prov - ORG	United States of America	Completed	61/587,039
5000.2.63p	Alkali Metal Intercalation Material as an Electrode in an Electrolytic Cell.	Prov - ORG	United States of America	Completed	61/772,356
5000.2.69p	Custom Ionic Liquid Electrolytes for Electrolytic Decarboxylation (2013-IRD-1)	Prov - ORG	United States of America	Completed	61/778,037
5000.2.70p	Molten Carboxylate Electrolytes for Electrochemical Decarboxylation Processes (G...)	Prov - ORG	United States of America	Completed	61/881,821
5000.2.71p	Conversion of Biomass into Alpha Olefins (Government Funding - USDA, NIFA Contra...)	Prov - ORG	United States of America	Completed	62/012,053
5000.2.72p	Dual Stage Sodium Heat Engine for Electricity and Heat Production (2015-IRD-4)	Prov - ORG	United States of America	Completed	62/222,064

5000.2.65p	Lisicon Ceramic Combination Membrane (65c and 10b lisicon)	Prov - ORG	United States of America	Unfiled	
8000.2.42p	NaSICON Membrane Based Na- Cu (I or II) Hallide Battery (No Govt Funding) - decid...	Prov - ORG	United States of America	Unfiled	
8000.2.36.2CI Pp	NaSICON Membrane Based NA- I2 Battery (Governme nt Funding Contract No. 1189875...	Prov-ORG	United States of America	Completed	61/888,933