

Form PTO-1595 (Rev. 03-11)
OMB No. 0651-0027 (exp. 03/31/2015)

U.S. DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

RECORDATION FORM COVER SHEET PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

1. Name of conveying party(ies):
 Dong-Hyun Ko (01/27/2011), Sung-Shik Eom
 (01/26/2011), Yong-Jin Choe (01/26/2011), Chan-
 Hong Lee (02/01/2011),
 Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies)
 Name: LG Chem, Ltd.
 Internal Address: _____
 Street Address: _____

3. Nature of conveyance/Execution Date(s):
 Execution Date(s): in parentheses after inventor name
 Assignment Merger Change of Name
 Security Agreement Joint Research Agreement
 Government Interest Assignment
 Executive Order 9424, Confirmatory License
 Other _____

LG Twin Towers
 20, Yeouido-dong
 Yeongdeungpo-gu
 City: Seoul
 State: _____
 Country: Republic of Korea Zip: 150-721
 Additional name(s) & address(es) attached? Yes No


4. Application or patent number(s):
 A. Patent Application No.(s)
14/061,045
 Additional numbers attached? Yes No

This document is being filed together with a new application.
 B. Patent No.(s)
 Yes No

5. Name and address to whom correspondence concerning document should be mailed:
 Name: Kelly Y. Hwang
LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK, LLP
 Internal Address: Atty. Dkt.:
 Street Address: 600 South Avenue West
 City: Westfield
 State: NJ Zip: 07090
 Phone Number: 908-654-5000
 Fax Number: 908-654-7866
 Email Address: mcormier@ldlkm.com

6. Total number of applications and patents involved: 1
7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00
 Authorized to be charged to deposit account
 Enclosed
 None required (government interest not affecting title)

8. Payment Information
 Deposit Account Number 12-1095
 Authorized User Name Kelly Y. Hwang

9. Signature:


 Signature

 Date November 6, 2013

 Name of Person Signing Kelly Y. Hwang - 51,831
 Total number of pages including cover sheet, attachments, and documents: 10

CH \$40.00 121095 14061045

RECORDATION FORM COVER SHEET (PTO-1595)
(supplemental sheet)

Additional Conveying Party(ies)/Execution Date(s) (1. Continued):

Moo-Ho Hong (01/26/2011), O-Hak Kwon (02/01/2011), Dae-Chul Kim (01/27/2011), and Jae-Hui Choi (01/26/2011)

Additional Assignees (2. Continued):

Assignee Name: _____

Internal Address:

Street Address:

City: _____ State: _____ Country: _____ Zip: _____

Assignee Name: _____

Internal Address:

Street Address:

City: _____ State: _____ Country: _____ Zip: _____

Assignee Name: _____

Internal Address:

Street Address:

City: _____ State: _____ Country: _____ Zip: _____

Additional Applications and/or Patents (4. Continued):

Additional Patent Application Numbers
4A. Continued:

Additional Patent Numbers
4B. Continued:

Additional numbers attached?

Yes

No

former PTO/SB/15 (8-00) Modified LDLKEM


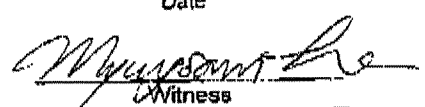
ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
<p>Whereas, I, <u>Dong-Hyun Ko</u> of <u>601-1601, Songnimmaeul Apt., Hagi-dong, Yuseong-gu, Daejeon 305-759, Republic of Korea</u> hereafter referred to as assignor, have with others invented certain new and useful improvements in <u>APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS</u></p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was filed on <u>Currently Herewith</u> Application Number _____</p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was executed by me on _____</p> <p><input checked="" type="checkbox"/> for which an International Application was filed on <u>January 15, 2010</u>, as <u>PCT/KR2010/000283</u>, designating the United States.</p> <p>And Whereas, <u>LG Chem, Ltd.</u> a corporation of <u>Korea, Republic of</u> herein referred to as "assignee" whose mailing address is <u>LG Twin Towers; 20, Yeouido-dong; Yeongdeungpo-gu; Seoul; REPUBLIC OF KOREA 150-721</u> is desirous of acquiring the entire right, title and interest in the same;</p> <p>NOW, THEREFORE, in consideration of the sum of <u>one</u> dollars (\$ <u>1.00</u>), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, release and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.</p> <p>And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.</p> <p><u>Jan. 27, 2011</u> Date <u>Donghyun Ko</u> Dong-Hyun Ko</p> <p><u>Mungsam LEE</u> Witness <u>Mungsam LEE</u> Typed Name of Witness</p>	

*Total of 8 forms are submitted.

LD-513

ASSIGNMENTS.DOC

former PTO/SB/15 (8-00) Modified LDI KAM

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
<p>Whereas, I, <u>Sung-Shik EOM</u> of</p> <p><u>602, The PoM-1, Doryong-dong, Yusung-gu, Daejeon 305-340, Republic of Korea</u></p> <p>hereafter referred to as assignor, have with others invented certain new and useful improvements in</p> <p><u>APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS</u></p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was filed on <u>Currently Herewith</u></p> <p>Application Number _____</p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was executed by me on _____</p> <p><input checked="" type="checkbox"/> for which an International Application was filed on <u>January 15, 2010</u>, as</p> <p><u>PCT/KR2010/000283</u>, designating the United States.</p> <p>And</p> <p>Whereas, <u>LG Chem, Ltd.</u></p> <p>a corporation of <u>Korea, Republic of</u> herein referred to as "assignee" whose mailing address is</p> <p><u>LG Twin Towers; 20 Yeouido-dong; Yeongdeungpo-gu, Seoul; REPUBLIC OF KOREA 150-721</u></p> <p>is desirous of acquiring the entire right, title and interest in the same;</p> <p>NOW, THEREFORE, in consideration of the sum of <u>one</u> dollars (\$ <u>1.00</u>), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.</p> <p>And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.</p> <p style="text-align: center;"> <u>2011 1/26</u> Date </p> <p style="text-align: center;">  _____ Sung-Shik EOM </p> <p style="text-align: center;">  _____ Witness </p> <p style="text-align: center;"> <u>MUNGSAM LEE</u> _____ Typed Name of Witness </p>	

*Total of 8 forms are submitted.

LDJ-5155

ASSIGNMENT'S DOC

former PTO/SO/15 (8-00) Modified LDLKM

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
<p>Whereas, I, <u>Yong-Jin Choe</u> of</p> <p><u>207-302, Expo Apt., Jeonmin-dong, Yuseong-gu, Daejeon 305-761, Republic of Korea</u></p> <p>hereafter referred to as assignor, have with others invented certain new and useful improvements in</p> <p><u>APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS</u></p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was filed on <u>Currently Herewith</u> Application Number _____</p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was executed by me on _____</p> <p><input checked="" type="checkbox"/> for which an International Application was filed on <u>January 15, 2010</u>, as <u>PCT/KR2010/000283</u>, designating the United States.</p> <p>And</p> <p>Whereas, <u>LG Chem, Ltd.</u> a corporation of <u>Korea, Republic of</u> herein referred to as "assignee" whose mailing address is <u>LG Twin Towers, 20, Yeouido-Dong, Yeongdeungpo-gu, Seoul, REPUBLIC OF KOREA 150-721</u> is desirous of acquiring the entire right, title and interest in the same;</p> <p>NOW, THEREFORE, in consideration of the sum of <u>one</u> dollars (\$ <u>1.00</u>), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.</p> <p>And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.</p> <p><u>Jan 26 2011</u> _____ Date Yong-Jin Choe</p> <p><u>Myun Sam Lee</u> Witness <u>Myun Sam LEE</u> Typed Name of Witness</p>	
<p><input checked="" type="checkbox"/> *Total of 8 forms are submitted.</p>	

1.D-3135

ASSIGNMENTS.DOC

former PTO/SB/15 (8-00) Modified LDLKSM

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
<p>Whereas, I, <u>Chan-Hong Lee</u> of <u>201-705, Kyungnam Hornorsvill, Daejeok Techno Valley 12-Danji Apt., Yongsan-dong, Yuseong-gu, Daejeon 305-792, Republic of Korea</u></p> <p>hereafter referred to as assignor, have with others invented certain new and useful improvements in <u>APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS</u></p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was filed on <u>Currently Herewith</u> Application Number _____</p> <p><input type="checkbox"/> for which an application for a United States Letters Patent was executed by me on _____</p> <p><input checked="" type="checkbox"/> for which an International Application was filed on <u>January 15, 2010</u>, as <u>PCT/KR2010/000283</u>, designating the United States.</p> <p>And</p> <p>Whereas, <u>LG Chem, Ltd.</u> a corporation of <u>Korea, Republic of</u> herein referred to as "assignee" whose mailing address is <u>LG Twin Towers, 20, Yeouido-dong, Yeongdeungpo-gu, Seoul, REPUBLIC OF KOREA 150-721</u> is desirous of acquiring the entire right, title and interest in the same;</p> <p>NOW, THEREFORE, in consideration of the sum of <u>one</u> dollars (\$ <u>1.00</u>), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.</p> <p>And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.</p> <p><u>2011/2/11</u> Date <u>Chan-Hong Lee</u> Chan-Hong Lee</p> <p><u>Myungsam Lee</u> Witness <u>Myungsam LEE</u> Typed Name of Witness</p>	
<input checked="" type="checkbox"/> *Total of 8 forms are submitted.	

1.D-515)

ASSIGNMENT'S DOC

PATENT 
REEL: 031663 FRAME: 0223

former PTO/SB/15 (9-09) Modified LDUKAM

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
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Whereas, I, Moo-Ho Hong of 304-602, Paragon Apt., Taepyeong 2(i)-dong, Jung-gu, Daejeon 301-784, Republic of Korea hereafter referred to as assignor, have with others invented certain new and useful improvements in APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS

for which an application for a United States Letters Patent was filed on Currently Herewith Application Number _____

for which an application for a United States Letters Patent was executed by me on _____

for which an International Application was filed on January 15, 2010 as PCT/KR2010/000283, designating the United States.

And
Whereas, LG Chem, Ltd. a corporation of Korea, Republic of herein referred to as "assignee" whose mailing address is LG Twin Towers, 20, Yeoukdo-dong, Yeongdeungpo-gu, Seoul, REPUBLIC OF KOREA 150-721 is desirous of acquiring the entire right, title and interest in the same;

NOW, THEREFORE, in consideration of the sum of one dollars (\$ 1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.

And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.

2011 1/26 Date [Signature] Moo-Ho Hong

[Signature] Witness
Myungsam Lee Typed Name of Witness

*Total of 8 forms are submitted.

LD-515

ASSIGNMENT'S DOC

former PTO/SB/15 (8-00) Modified LDLK&M

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
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Whereas, I, O-Hak Kwon of 108-102, Sang-a Apt., Mannyeon-dong, Seo-gu, Daejeon 302-739, Republic of Korea hereafter referred to as assignor, have with others invented certain new and useful improvements in APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS

for which an application for a United States Letters Patent was filed on Currently Herewith Application Number _____

for which an application for a United States Letters Patent was executed by me on _____

for which an International Application was filed on January 15, 2010, as PCT/KR2010/000283, designating the United States.

And

Whereas, LG Chem, Ltd. a corporation of Korea, Republic of herein referred to as "assignee" whose mailing address is LG Twin Towers, 20, Yeouido-dong, Yeongdeungpo-gu, Seoul, REPUBLIC OF KOREA 150-721 is desirous of acquiring the entire right, title and interest in the same:

NOW, THEREFORE, in consideration of the sum of one dollars (\$ 1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.

And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.

Feb. 01. 2011 Date Kwon O-Hak Kwon

Munghwan Lee Witness
Munghwan Lee Typed Name of Witness

 *Total of 8 forms are submitted.

LD-515

ASSIGNMENTS.DOC

former PTO/BB/15 (8-00) Modified LDLKM

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
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Whereas, I, Dac-Chul Kim of 108-803, Sang-a Apt., Mannyeon-dong, Seo-gu, Daejeon 302-739, Republic of Korea hereafter referred to as assignor, have with others invented certain new and useful Improvements in APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS

for which an application for a United States Letters Patent was filed on Currently Herewith Application Number _____

for which an application for a United States Letters Patent was executed by me on _____

for which an International Application was filed on January 15, 2010, as PCT/KR2010/000283, designating the United States.

And

Whereas, LG Chem, Ltd. a corporation of Korea, Republic of herein referred to as "assignee" whose mailing address is LG Twin Towers, 20, Yeouido-dong, Yeongdeungpo-gu, Seoul, REPUBLIC OF KOREA 150-721 is desirous of acquiring the entire right, title and interest in the same;

NOW, THEREFORE, in consideration of the sum of one dollars (\$ 1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.

And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.

Jan 27 2011 Date Kim Dac-Chul Kim

Myung Sam Lee Witness
Myung Sam LEE Typed Name of Witness

*Total of 8 forms are submitted.

1.D-515

ASSIGNMENT DOC

PATENT
REEL: 031663 FRAME: 0226



former PTO/BB/15 (8-00) Modified LTR-KAM

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) LGCHEM 3.9-160 CON
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Whereas, I, Jae-Hui Choi of

205-1405, Expo Apt., Jeonjuin-dong, Yuseong-gu, Daejeon 305-761, Republic of Korea
hereafter referred to as assignor, have with others invented certain new and useful improvements in
APPARATUS FOR PRODUCING ALCHOLS FROM OLEFINS

- for which an application for a United States Letters Patent was filed on Currently Herewith
Application Number _____
- for which an application for a United States Letters Patent was executed by me on _____
- for which an International Application was filed on January 15, 2010, as
PCT/KR2010/000283, designating the United States.

And

Whereas, LG Chem, Ltd.
a corporation of Korea, Republic of herein referred to as "assignee" whose mailing address is
LG Twin Towers, 20 Yeouido-dong, Yeongdeungpo-gu, Seoul, REPUBLIC OF KOREA 150-721
is desirous of acquiring the entire right, title and interest in the same:

NOW, THEREFORE, in consideration of the sum of one dollars (\$ 1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses incident to said applications to be borne and paid by said assignee.

And I do hereby authorize my attorneys to insert on this deed the filing date and application number of said application when known.

Jan 26 2011
Date

[Signature]
Jae-Hui Choi

[Signature]
Witness
MUNGSAM LEE
Typed Name of Witness

Total of 8 forms are submitted.

LD-513