PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3710615

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|---|----------------|
| WOUTER KOOT | 01/22/2016 |
| SIPKE HIDDE WADMAN | 09/11/2015 |
| JEAN PAUL ANDRE MARIE JOSEPH GISHLAIN LANGE | 09/15/2015 |
| KAI JURGEN FISCHER | 09/10/2015 |

RECEIVING PARTY DATA

| Name: | SHELL OIL COMPANY |
|-------------------|-------------------|
| Street Address: | P O BOX 2463 |
| Internal Address: | ONE SHELL PLAZA |
| City: | HOUSTON |
| State/Country: | TEXAS |
| Postal Code: | 77252-2463 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14892436 |

CORRESPONDENCE DATA

Fax Number: (713)241-6617

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: 7132413529

Email: USPatents@Shell.com
Correspondent Name: SHELL OIL COMPANY

Address Line 1: P O BOX 2463
Address Line 2: ONE SHELL PLAZA

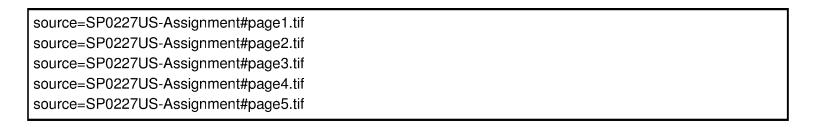
Address Line 4: HOUSTON, TEXAS 77252-2463

| ATTORNEY DOCKET NUMBER: | SP0227-US-PCT |
|-------------------------|-----------------|
| NAME OF SUBMITTER: | SEJAL GOSALIA |
| SIGNATURE: | /Sejal Gosalia/ |
| DATE SIGNED: | 01/26/2016 |
| | · |

Total Attachments: 5

PATENT REEL: 037582 FRAME: 0212

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PATENT REEL: 037582 FRAME: 0213

ASSIGNMENT

WHEREAS, we, KOOT, Wouter, WADMAN, Sipke Hidde, LANGE, Jean Paul Andre Marie Joseph Gishlain, FISCHER, Kai Jürgen, have made a certain improvement in PROCESS FOR THE SEPARATION OF 1,4-BUTANEDIOL AND CO-PRODUCTS for which application papers for United States Patent thereon, identified as have been executed by us, and,

WHEREAS, SHELL OIL COMPANY, a Delaware Corporation, has equitable rights in and to this invention and desires to confirm such rights and to acquire all right, title and interest in and to said invention:

NOW THEREFORE, for valuable consideration received, we hereby sell, assign, and transfer to said SHELL OIL COMPANY, its successors and assigns, all right, title and interest in and to said invention in the United States and in all other countries throughout the world; including without limitation those in and to the above-named application and any continuation, substitute or division application thereof and the patent or patents which may be issued thereon in the United States and any reissue of any such patent, and those in and to any application or patent or utility model in any and all such other countries of the world, and further including the right to file further applications in all countries throughout the world in the name of SHELL OIL COMPANY or whomsoever that company may nominate, and to claim the priority of the above-named United States application under the International Convention of Paris of 1883.

With respect to any country where for the filing of such an application and/or the transfer of priority rights a separate deed of sale, assignment or transfer is required, we will undertake at the request of SHELL OIL COMPANY to execute such separate deed to SHELL OIL COMPANY or to whomsoever that company may nominate.

And we hereby agree that we will upon request execute any instrument which SHELL OIL COMPANY desires to carry this assignment in effect, and perfect the title transferred hereby, or to prosecute any of the above-mentioned United States applications or any foreign application on this invention.

And the Commissioner of Patents of the United States is hereby authorized to issue Letters Patent on said above-named application and on any continuation, substitute or division thereof to SHELL OIL COMPANY.

IN TESTIMONY WHEREOF, we have hereunto subscribed our names.

Witnesses:

Aleksanda Dombile

(Witness)

Name WADMAN, Sipke Hidde

(Witness)

Date

(Witness)

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PATENT REEL: 037582 FRAME: 0214

| Name LANGE, Jean Paul Andre Marie Joseph Gishlain | Fuddey (Witness) |
|---|------------------|
| 15 Sept 2015. Date | (Witness) |
| Name FISCHER, Kai Jürgen | (Witness) |
| Date | (Witness) |

ASSIGNMENT

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WHEREAS, SHELL OIL COMPANY, a Delaware Corporation, has equitable rights in and to this invention and desires to confirm such rights and to acquire all right, title and interest in and to said invention:

NOW THEREFORE, for valuable consideration received, we hereby sell, assign, and transfer to said SHELL OIL COMPANY, its successors and assigns, all right, title and interest in and to said invention in the United States and in all other countries throughout the world; including without limitation those in and to the above-named application and any continuation, substitute or division application thereof and the patent or patents which may be issued thereon in the United States and any reissue of any such patent, and those in and to any application or patent or utility model in any and all such other countries of the world, and further including the right to file further applications in all countries throughout the world in the name of SHELL OIL COMPANY or whomsoever that company may nominate, and to claim the priority of the above-named United States application under the International Convention of Paris of 1883.

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And the Commissioner of Patents of the United States is hereby authorized to issue Letters Patent on said above-named application and on any continuation, substitute or division thereof to SHELL OIL COMPANY.

IN TESTIMONY WHEREOF, we have hereunto subscribed our names. Witnesses:

| Name KOOT, Wouter | (Witness) |
|--------------------------|-------------|
| Date | (Witness) |
| M. | Jost Samile |
| Name WADMAN, Sipke Hidde | (Witness) |
| 11/9/2015 | · . |
| Date | (Witness) |

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ASSIGNMENT

WHEREAS, we, KOOT, Wouter, WADMAN, Sipke Hidde, LANGE, Jean Paul Andre Marie Joseph Gishlain, FISCHER, Kai Jürgen, have made a certain improvement in PROCESS FOR THE SEPARATION OF 1,4-BUTANEDIOL AND CO-PRODUCTS for which application papers for United States Patent thereon, identified as have been executed by us, and,

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Witnesses:

IN TESTIMONY WHEREOF, we have hereunto subscribed our names.

| Name | KOOT, Wouter | (Witness) |
|------|---------------------|-----------|
| Date | | (Witness) |
| Name | WADMAN, Sipke Hidde | (Witness) |
| Date | | (Witness) |

PATENT REEL: 037582 FRAME: 0217

| Name LANGE, Jean Paul Andre Marie Joseph Gishlain | (Witness) |
|---|---------------------------|
| Date | (Witness) |
| Mil | 9/h |
| Name FISCHER, Kai Jürgen | (Witness) ERIC MENDRIUS |
| 10. Sept. 2015 Date | (Witness) Ausic Work hour |

PATENT REEL: 037582 FRAME: 0218