503692556 02/15/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3739194

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

CONVEYING PARTY DATA

| Name | Execution Date |
|---------------------------------------|----------------|
| DOW CHECMICAL INTERNATIONAL PVT. LTD. | 11/21/2012 |

RECEIVING PARTY DATA

| Name: | DOW INTERNATIONAL TECHNOLOGY CORPORATION |
|-----------------|--|
| Street Address: | 2030 DOW CENTER |
| City: | MIDLAND |
| State/Country: | MICHIGAN |
| Postal Code: | 48674 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14426867 |

CORRESPONDENCE DATA

Fax Number: (989)636-3237

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: 9896331963
Email: fglmfrr@dow.com
Correspondent Name: BARB STIEVE
Address Line 1: 2040 DOW CENTER

Address Line 4: MIDLAND, MICHIGAN 48674

| ATTORNEY DOCKET NUMBER: | 72470-US-PCT |
|-------------------------|---------------|
| NAME OF SUBMITTER: | BARB STIEVE |
| SIGNATURE: | /Barb Stieve/ |
| DATE SIGNED: | 02/15/2016 |

Total Attachments: 4

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PATENT 503692556 REEL: 037735 FRAME: 0001

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This Assignment 440 is in the ENGLISH language and has the same meaning in other languages with the same 440 number FORM 440.

ASSIGNMENT

(with Priority Rights)

INVENTORSHIP DECLARATION

We, ASSIGNOR, of:

DOW CHEMICAL INTERNATIONAL PVT. LTD.

1st Floor, Block B, 02, Godrej IT Park

Godrej Business District Pirojshanagar, L.B.S Marg Vikhroli-Mumbai 400 079

India

a corporation organized and existing under the laws of INDIA do hereby claim and declare that we hold the invention and all patent and other rights and powers obtainable or exercisable in respect thereof from the sole, true and first inventor(s): Deepak Akolekar. Sri Sri Guru Gauranga Niwas, 56 Girish Society. Behind Old Warje Jakat naka, Warje, Maharastra, Pune 411052, India, Citizen of India; M.J. Yanjarappa, Flat Number T-42, A-3 Block, Mahaveer Varna, Kannamangala Whitefield, Bangalore-67, India, Citizen of India; and Phani Kiran Bollapragada, 22. Buena Monte, NCL Society, Pashan Road, Pune-411008, India. Citizen of India

by an Assignment dated: November 15, 2012; November 16, 2012 and November 14, 2012 and , respectively of an invention relating to and entitled:

IONIC LIQUID GRAFTED MESOPOROUS SILICA COMPOSITIONS FOR POLAR GAS/NON-POLAR GAS AND OLEFIN/PARAFFIN SEPARATIONS

We do hereby declare, for good and valuable consideration effective as of October 1, 2012, received, sell, assign, and transfer unto:

WE, the ASSIGNEE:

Application Number

DOW INTERNATIONAL TECHNOLOGY CORPORATION

2030 Dow Center

Midland, Michigan 48674 United States of America

Filing Date

a corporation organized and existing under the laws of the State of Delaware, United States of America our entire right, title and interest throughout the world, in and to the invention and all rights and powers to make application for Letters Patent in its own name, or in the name of its nominee; and all rights and powers to file any reissue, divisional, continuing or substitute application and any corresponding applications in any and all countries, including all rights to claim priority under all International Conventions and Treaties in the name of said Assignee, and do hereby authorize said Assignee to insert here the Priority Number. Filing Date, and Filing Country

| Priority Number | Filing Date | Filing Country |
|-----------------|-----------------|--------------------------|
| 61/708.219 | October 1, 2012 | United States of America |

of the application on which the priority will be based; and in and to any Letters Patent that may be issued for said invention in any and all countries; and we do hereby agree to assist said Assignee in the prosecution of the said applications and in any interference, conflict, opposition or litigation which may arise involving said invention or the patent or patents thereon, and to execute any reissue, divisional, continuing or substitute application and assent to their making any applications in other countries corresponding to the above and below specifically identified application, as may be requested by said Assignee; and we do hereby authorize said Assignee in insert here the corresponding Application Number, Filing Date, and Filing Country

| and we do hereby authorize and reque consent to the recordal of this Assigna that such assigned rights are not encu | y country where that patent property must be entered for recordal of this Assignment; st that any such Letters Patent be issued to said Assignee in accordance herewith, and nent being under covenant, not only that we have full power to make the same, but also abered by any grant, license, or other right heretofore given. |
|---|---|
| Subscribed and Swom by us at this 215t day of Nove | Mumbai India |
| CORP. SEAL | DOW CHEMICAL INTERNATIONAL PVT. LTD. By: VIPUL S. SHAH |

PRESIDENT

PATENT REEL: 037735 FRAME: 0002

Filing Country

SUBSCRIBING WITNESS

AFFIDAVIT OF EXECUTION

(CORPORATE OFFICER)

Print or Type Name and Address of Subscribing Witness

i, Ramolla Karnani

Whose full post office address is:

DOW CHEMICAL INTERNATIONAL PVT. LTD. 1st Floor, Block B, 02, Godrej IT Park, Godrej Business District, Pirojshanagar, L.B.S Marg, Vikhroli (W), Mumbai – 400 079 India

Print or Type Name of Corporation Officer and Title Make Oath and say that I was personally present and did see:

Vipul S. Shah President

of

DOW CHEMICAL INTERNATIONAL PVT. LTD. Ist Floor, Block B, 02, Godrej IT Park Godrej Business District Pirojshanagar, L.B.S Marg Vikhroli-Mumbai 400 079 India

known or identified to me to be the individual(s) described and who executed the foregoing document and that said individual has full authority to sign the document on behalf of the said limited liability company and that the purposes for which said document is granted are within the scope of the objectives or activities of said limited liability company and acknowledge the same as a free act and deed for uses and purposes therein expressed.

| Signed at: Mimhai India | |
|-------------------------------|---------------------|
| On this 21 st day of November | <u>2012</u> |
| | N. smar |
| | Subscribing Witness |

PATENT REEL: 037735 FRAME: 0003 This Assignce Acceptance 660 is in the ENGLISH language and has the same meaning in other languages with the same 660 number FORM 660

ASSIGNEE ACCEPTANCE

WE, the ASSIGNEE:

DOW CHEMICAL INTERNATIONAL PVT. LTD.

1st Floor, Block B, 02, Godrej IT Park

Godrej Business District Pirojshanagar, L.B.S Marg Vikhroli-Mumbai 400 079

India

hereby accept the ASSIGNMENT attached hereto which is dated: November 15, 2012; November 16, 2012 and November 14, 2012; effective as of October 1, 2012

From, the ASSIGNOR: Deepak Akolekar, Sri Sri Guru Gauranga Niwas, 56 Girish Society, Behind Old Warje Jakat naka, Warje, Maharastra, Pune 411052, India, Citizen of India; M J. Yanjarappa, Flat Number T-42, A-3 Block, Mahaveer Varna, Kannamangala Whitefield, Bangalore-67, India, Citizen of India; and Phani Kiran Bollapragada, 22, Buena Monte, NCL Society, Pashan Road, Pune-411008, India, Citizen of India

of the invention entitled:

IONIC LIQUID GRAFTED MESOPOROUS SILICA COMPOSITIONS FOR POLAR GAS/NON-POLAR GAS AND OLEFIN/PARAFFIN SEPARATIONS

without any restrictions and with all rights and obligations deriving therefrom and declare that this confirmation of acceptance shall be deemed a part of the said ASSIGNMENT.

| Signed at _ | Mumbai India | |
|------------------------------------|-------------------------|-----------------|
| this <u>& I ^{SI-}</u> | _day of <u>November</u> | , 20 <u>L</u> 2 |

DOW CHEMICAL INTERNATIONAL PVT. LTD.

CORP. SEAL

> VIPUL S! SHAH PRESIDENT

> > PATENT REEL: 037735 FRAME: 0004

€600 € 660

This Assignee Acceptance 660 is in the ENGLISH language and has the same meaning in other languages with the same 660 number. **FORM 660**

ASSIGNEE ACCEPTANCE

WE, the ASSIGNEE:

DOW INTERNATIONAL TECHNOLOGY CORPORATION

2030 Dow Center

Midland, Michigan 48674 United States of America

hereby accept the ASSIGNMENT attached hereto which is dated: November 21, 2012; effective as of October 1, 2012

From, the ASSIGNOR:

DOW CHEMICAL INTERNATIONAL PVT. LTD.

1st Floor, Block B, 02, Godrej IT Park

Godrej Business District Pirojshanagar, L.B.S Marg Vikhroli-Mumbai 400 079

India

of the invention entitled:

IONIC LIQUID GRAFTED MESOPOROUS SILICA COMPOSITIONS FOR POLAR GAS/NON-POLAR GAS AND OLEFIN/PARAFFIN SEPARATIONS

without any restrictions and with all rights and obligations deriving therefrom and declare that this confirmation of acceptance shall be deemed a part of the said ASSIGNMENT.

| Signed at _ | Midland, Michigan 48674, USA |
|-------------|------------------------------|
| this | 2 day of November, 20 12 |
| COR SEAI | |

NOTARIAL CERTIFICATE (Corporation)

| UNITED STATES OF AMERICA |) |
|-----------------------------------|---|
| STATE OF MICHIGAN |) SS |
| County/Parish of Midland |) |
| On this 26 day of Novem | ber, 2012, personally appeared |
| before me, DARRYL P. FRICKEY, Sec | cretary, |
| | ual described in and who executed the foregoing documen |
| | ual described in and who executed the foregoing document of deed for uses and purposes therein expressed by |

ent authority of the said Corporation incorporated under the laws of the State of Delaware, United States of America.

I further certify that said authority, dated April 1, 2011, is based on

an Authorization Policy of the said Corporation

which I have seen, appointing the said individual Secretary with full power to sign the foregoing document on behalf of the said corporation and that the purposes for which said document is granted are within the scope of the objects or activities of said corporation.

SEAL

RECORDED: 02/15/2016

Kathy Sue Wertz notary públic, mióland county, michigan

MY COMMISSION EXPIRES APRIL 07, 2018

PATENT

REEL: 037735 FRAME: 0005