502348943 05/15/2013

PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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

CONVEYING PARTY DATA

| Name | Execution Date |
|--------------------|----------------|
| Hong-Xin LI | 05/13/2013 |
| William E. CORMIER | 05/13/2013 |
| Bjorn MODEN | 05/13/2013 |

RECEIVING PARTY DATA

| Name: | PQ CORPORATION |
|-----------------|----------------|
| Street Address: | P.O. Box 840 |
| City: | Valley Forge |
| State/Country: | PENNSYLVANIA |
| Postal Code: | 19482-0840 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------|--------------|
| PCT Number: | US2013031989 |

CORRESPONDENCE DATA

Fax Number: 2022924691

Correspondence will be sent via US Mail when the fax attempt is unsuccessful.

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PATENT REEL: 030421 FRAME: 0190 OP \$40.00 US201

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| Date: | 05/15/2013 |
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| Total Attachments: 2 source=2013-05-15 Executed Assignment#page1.tif source=2013-05-15 Executed Assignment#page2.tif | |

PATENT REEL: 030421 FRAME: 0191

JOINT INVENTION (Worldwide Rights) Attorney Docket No. 10545.0012-00304

ASSIGNMENT

WHEREAS We, the below named inventors, [hereinafter referred to as Assignors], have made an invention entitled:

FE-SAPO-34 CATALYST AND METHODS OF MAKING AND USING THE SAME

for which We filed an international application on April 03, 2012 (International Application No. PCT/US2013/031989); and

WHEREAS, PQ Corporation, a corporation of Pennsylvania whose post office address is P.O. Box 840, Valley Forge, PA 19482-0840 (hereinafter referred to as Assignee), is desirous of securing the entire right, title, and interest in and to this invention in all countries throughout the world, and in and to the application for United States Letters Patent on this invention and the Letters Patent to be issued upon this application;

NOW THEREFORE, be it known that, for good and valuable consideration the receipt of which from Assignee is hereby acknowledged, We, as Assignors, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, our entire right, title, and interest in and to this invention, this provisional Application No. 61/471,488 filed April 04, 2011, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of the above provisional application, as well as all rights to claim priority on the basis of this application, and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, and all extensions, renewals, and reissues thereof; and We hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, WE HEREBY covenant that We have the full right to convey the interest assigned by this Assignment, and We have not executed and will not execute any agreement in conflict with this Assignment;

AND, WE HEREBY further covenant and agree that We will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid Assignee, its successors and assigns, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee, its successors and assigns.

IN TESTIMONY WHEREOF, We have hereunto set our hands.

| Name: | Hong-Xin LI |
|--------------|-------------------------|
| Address: | 1048 Charter Oaks Drive |
| | Lansdale, PA 19446 |
| By: Date: | 327 |
| Date: | May 13 2013 |
| | 7 |

JOINT INVENTION (Worldwide Rights) Attorney Docket No. 10545.0012-00304

Name: William E. CORMIER
Address: 930 Masters Way Harleysville, PA 19438 Ву: ames Date:
 Name:
 Bjorn MODEN

 Address:
 232 S. Azalea Ct.

 Glen Mills, PA 19342
 By: Date:

may 13,201

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RECORDED: 05/15/2013