

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4609836

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	SECURITY INTEREST	
CONVEYING PARTY DATA		
Name		Execution Date
TRONOX LLC		09/22/2017
RECEIVING PARTY DATA		
Name:	WELLS FARGO BANK, NATIONAL ASSOCIATION	
Street Address:	100 PARK AVENUE	
Internal Address:	14TH FLOOR	
City:	NEW YORK	
State/Country:	NEW YORK	
Postal Code:	10017	
PROPERTY NUMBERS Total: 63		
Property Type	Number	
Patent Number:	RE39068	
Patent Number:	6010672	
Patent Number:	6022516	
Patent Number:	6102053	
Patent Number:	6139617	
Patent Number:	6214198	
Patent Number:	6228335	
Patent Number:	6248477	
Patent Number:	6284005	
Patent Number:	6350427	
Patent Number:	6419832	
Patent Number:	6419893	
Patent Number:	6428759	
Patent Number:	6527941	
Patent Number:	6558844	
Patent Number:	6576206	
Patent Number:	6589497	
Patent Number:	6638401	
Patent Number:	6835361	

PATENT

Property Type	Number
Patent Number:	6946028
Patent Number:	6958091
Patent Number:	6962434
Patent Number:	6981666
Patent Number:	6994117
Patent Number:	7011703
Patent Number:	7114533
Patent Number:	7115157
Patent Number:	7138011
Patent Number:	7150416
Patent Number:	7175821
Patent Number:	7182931
Patent Number:	7183114
Patent Number:	7238231
Patent Number:	7238450
Patent Number:	7250080
Patent Number:	7250144
Patent Number:	7285225
Patent Number:	7638109
Patent Number:	7854917
Patent Number:	7935753
Patent Number:	7943103
Patent Number:	8128127
Patent Number:	8387901
Patent Number:	8454840
Patent Number:	8528989
Patent Number:	8663518
Patent Number:	8691167
Patent Number:	8840719
Patent Number:	8858902
Patent Number:	8951607
Patent Number:	9315615
Patent Number:	9327233
Patent Number:	9353266
Patent Number:	9422177
Patent Number:	9433894
Patent Number:	9745405
Application Number:	14851634

Property Type	Number
Application Number:	14762148
Application Number:	14691185
Application Number:	14528910
Application Number:	15471922
Application Number:	14205711
Application Number:	15150027

CORRESPONDENCE DATA

Fax Number: (800)494-7512

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: 800-494-5225

Email: ipteam@cogencyglobal.com

Correspondent Name: STEWART WALSH

Address Line 1: 1025 VERMONT AVE NW, SUITE 1130

Address Line 2: COGENCY GLOBAL INC.

Address Line 4: WASHINGTON, D.C. 20005

ATTORNEY DOCKET NUMBER: F172815 PAT IPSA

NAME OF SUBMITTER: ANDREW NASH

SIGNATURE: /Andrew Nash/

DATE SIGNED: 09/25/2017

Total Attachments: 31

source=FINAL -- Patent Security Agreement -- Tronox#page1.tif
source=FINAL -- Patent Security Agreement -- Tronox#page2.tif
source=FINAL -- Patent Security Agreement -- Tronox#page3.tif
source=FINAL -- Patent Security Agreement -- Tronox#page4.tif
source=FINAL -- Patent Security Agreement -- Tronox#page5.tif
source=FINAL -- Patent Security Agreement -- Tronox#page6.tif
source=FINAL -- Patent Security Agreement -- Tronox#page7.tif
source=FINAL -- Patent Security Agreement -- Tronox#page8.tif
source=FINAL -- Patent Security Agreement -- Tronox#page9.tif
source=FINAL -- Patent Security Agreement -- Tronox#page10.tif
source=FINAL -- Patent Security Agreement -- Tronox#page11.tif
source=FINAL -- Patent Security Agreement -- Tronox#page12.tif
source=FINAL -- Patent Security Agreement -- Tronox#page13.tif
source=FINAL -- Patent Security Agreement -- Tronox#page14.tif
source=FINAL -- Patent Security Agreement -- Tronox#page15.tif
source=FINAL -- Patent Security Agreement -- Tronox#page16.tif
source=FINAL -- Patent Security Agreement -- Tronox#page17.tif
source=FINAL -- Patent Security Agreement -- Tronox#page18.tif
source=FINAL -- Patent Security Agreement -- Tronox#page19.tif
source=FINAL -- Patent Security Agreement -- Tronox#page20.tif
source=FINAL -- Patent Security Agreement -- Tronox#page21.tif

source=FINAL -- Patent Security Agreement -- Tronox#page22.tif
source=FINAL -- Patent Security Agreement -- Tronox#page23.tif
source=FINAL -- Patent Security Agreement -- Tronox#page24.tif
source=FINAL -- Patent Security Agreement -- Tronox#page25.tif
source=FINAL -- Patent Security Agreement -- Tronox#page26.tif
source=FINAL -- Patent Security Agreement -- Tronox#page27.tif
source=FINAL -- Patent Security Agreement -- Tronox#page28.tif
source=FINAL -- Patent Security Agreement -- Tronox#page29.tif
source=FINAL -- Patent Security Agreement -- Tronox#page30.tif
source=FINAL -- Patent Security Agreement -- Tronox#page31.tif

PATENT SECURITY AGREEMENT

This **PATENT SECURITY AGREEMENT**, dated as of September 22, 2017 (as it may be amended, restated, supplemented or otherwise modified from time to time, this “**Agreement**”), is made by Tronox LLC, a Delaware limited liability company with offices located at One Stamford Plaza, 263 Tresser Boulevard, Stamford, CT 06901 (the “**Grantor**”) in favor of Wells Fargo Bank, National Association, a national banking association with offices located at 100 Park Avenue, New York, NY 10017, as collateral agent for the Secured Parties (in such capacity, together with its successors and permitted assigns, the “**Collateral Agent**”).

WHEREAS, the Grantor is party to a Pledge and Security Agreement dated as of September 22, 2017 (the “**Pledge and Security Agreement**”) between the Grantor and the other grantors party thereto and the Collateral Agent pursuant to which the Grantor granted a security interest to the Collateral Agent in the Patent Collateral (as defined below) and is required to execute and deliver this Agreement.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Grantor hereby agrees with the Collateral Agent as follows:

SECTION 1. Defined Terms

Unless otherwise defined herein, terms defined in the Pledge and Security Agreement and used herein have the meaning given to them in the Pledge and Security Agreement.

SECTION 2. Grant of Security Interest

The Grantor hereby grants to the Collateral Agent, for the benefit of the Secured Parties, a security interest in and continuing Lien on all of the Grantor’s right, title and interest in, to and under the following, in each case whether now owned or existing or hereafter acquired, developed, created or arising and wherever located (collectively, the “**Patent Collateral**”):

all United States and foreign patents and certificates of invention, or similar industrial property rights, and applications for any of the foregoing, including, but not limited to: (i) each patent and patent application listed or required to be listed on Schedule A attached hereto, (ii) all reissues, divisionals, continuations, continuations-in-part, extensions, renewals and reexaminations thereof, (iii) all patentable inventions and improvements thereto, (iv) the right to sue or otherwise recover for any past, present and future infringement or other violation thereof, (v) all Proceeds of the foregoing, including, without limitation, license fees, royalties, income, payments, claims, damages and proceeds of suit now or hereafter due and/or payable with respect thereto, and (vi) all other rights of any kind accruing thereunder thereto throughout the world.

SECTION 3. Security Agreement

IN WITNESS WHEREOF, each Grantor has caused this Agreement to be executed and delivered by its duly authorized officer as of the date first set forth above.

TRONOX LLC, as a Grantor

By: _____

Name: Steven A. Kaye

Title: Vice President and Assistant Secretary

Signature Page to Patent Security Agreement

PATENT
REEL: 043993 FRAME: 0345

Accepted and Agreed:
WELLS FARGO BANK, NATIONAL ASSOCIATION,
as Collateral Agent

By: 
Authorized Signatory

Signature Page to Patent Security Agreement

PATENT
REEL: 043993 FRAME: 0346

SCHEDULE A

to

PATENT SECURITY AGREEMENT**PATENTS AND PATENT APPLICATIONS**

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
AP	METHOD OF EXTENDING TAILINGS POND LIFE	201206459	2/3/2011	201206459	10/31/2012	TRONOX LLC
AT	VERFAHREN ZUR HERSTELLUNG VON TITANOXID	20040713732T	2/23/2004	AT541815	2/15/2012	TRONOX LLC
AT	VERBESSERTER STRAHL FUER EINE FEINSTSTRAHLMUEHLE	20060845418T	12/14/2006	AT543569	2/15/2012	TRONOX LLC
AU	PROCESS FOR PRODUCING AND COOLING TITANIUM DIOXIDE	2001295046	9/17/2001			TRONOX LLC
AU	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	2004242111	5/12/2004			TRONOX LLC
AU	PIPING ELBOW LINERS	2004280457	8/31/2004			TRONOX LLC
AU	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	2004324174	10/15/2004			TRONOX LLC
AU	SCOUR MEDIA FOR TITANIUM DIOXIDE PRODUCTION	2005245362	4/29/2005			TRONOX LLC
AU	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE CHLORIDE PROCESS	2005336980	9/16/2005			TRONOX LLC
AU	SCOUR MEDIUM FOR TITANIUM DIOXIDE PRODUCTION	2006295235	8/25/2006			TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
AU	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	2006351884	12/14/2006			TRONOX LLC
AU	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM- BEARING ORES	2007243591	4/4/2007			TRONOX LLC
AU	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	2007322294	10/15/2007			TRONOX LLC
AU	INJECTOR ASSEMBLY, CHEMICAL REACTOR AND CHEMICAL PROCESS	2008246295	3/20/2008			TRONOX LLC
AU	IMPROVED PROCESS FOR MANUFACTURING CO-PRECIPIATED MIXED OXIDE- TREATED TITANIUM DIOXIDE PIGMENTS	2008248294	4/25/2008			TRONOX LLC
AU	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	2012226282	1/10/2012			TRONOX LLC
AU	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	2012362497	12/26/2012			TRONOX LLC
AU	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	2013290653	6/14/2013			TRONOX LLC
AU	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	2013377013	2/1/2013			TRONOX LLC
AU	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	2014228204	3/14/2014			TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
AU	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	2014237463	3/10/2014			TRONOX LLC
AU	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	2015213321	9/3/2015			TRONOX LLC
AU	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	2015213321	8/13/2015			TRONOX LLC
AU	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	2015243109	10/19/2015			TRONOX LLC
AU	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	2016252010	4/14/2016			TRONOX LLC
AU	PROCESS FOR SEPARATING RADIOACTIVE AND HAZARDOUS METAL CONTAMINANTS FROM SOILS	19990041069	7/22/1999	744012	2/14/2002	TRONOX LLC
AU	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	20000066088	7/26/2000	756041	1/2/2003	TRONOX LLC
AU	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	20000022006	12/20/1999	765967	7/12/2000	TRONOX LLC
AU	CATHODE INTERCALATION COMPOSITIONS, PRODUCTION METHODS AND RECHARGEABLE LITHIUM BATTERIES CONTAINING THE SAME	20000077204	9/26/2000	766225	10/9/2003	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
BR	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	PI9917004	12/20/1999	PI9917004	11/13/2001	TRONOX LLC
CA	FLY ASH AND FLY ASH LEACHATE TREATMENT	2,874,325	5/10/2013	2,874,325	11/20/2014	TRONOX LLC
CA	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	2,846,641	12/26/2012	2,846,641	7/18/2017	TRONOX LLC
CA	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	2,864,185	6/14/2013	2,864,185	12/22/15	TRONOX LLC
CA	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	2,871,790	3/14/2014	2,871,790	3/28/2017	TRONOX LLC
CA	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	2,899,125	2/1/2013	2,899,125	7/23/2015	TRONOX LLC
CA	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	2,904,016	3/10/2014	2,904,016	9/3/2015	TRONOX LLC
CA	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	2,910,522	10/29/2015	2,910,522	4/30/2016	TRONOX LLC
CA	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	2,948,920	4/14/2016	2,948,920	11/10/2016	TRONOX LLC
CL	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	1999003031	12/17/1999	1999003031	12/15/2000	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
CL	METODO DE TRATAMIENTO DE PARTICULAS DE ESPINELA QUE TIENE LA FORMULA $Li_1 + X_{MN2} - X_{O4}$ PARA PRODUCIR SOBRE LAS PARTICULAS UN REVESTIMIENTO PROTECTOR DE OXIDO DE LITIOMETAL INACTIVO EN UNA BATERIA Y MATERIAL CATODICO A BASE DE ESPINELA ESTABILIZADA	20020000179	1/30/2002	20020000179	11/11/2002	TRONOX LLC
CN	PROCESS FOR PRODUCING AND COOLING TITANIUM DIOXIDE	20018015773	9/17/2001	1197779	4/20/2005	TRONOX LLC
CN	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	20008010857	7/26/2000	1364143	8/14/2002	TRONOX LLC
CN	PROCESS FOR PRODUCING AND COOLING TITANIUM DIOXIDE	20018015773	9/17/2001	1458906	11/26/2003	TRONOX LLC
CN	PROCESS FOR MAKING TITANIUM DIOXIDE	200480003812	2/23/2004	1747901	3/15/2006	TRONOX LLC
CN	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	200480013506	5/12/2004	1791783	6/21/2006	TRONOX LLC
CN	CHANGING FLUID FLOW DIRECTION	200480027695	8/30/2004	1856655	11/1/2006	TRONOX LLC
CN	PIPING ELBOW LINERS	200480027921	8/31/2004	1856677	11/1/2006	TRONOX LLC
CN	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	200480013506	5/12/2004	100368768	2/13/2008	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
CN	METHOD FOR ADDING LINER IN PIPING ELBOW, AND PIPE OR CONTAINER WITH LINERS	200480027921	8/31/2004	100386557	5/7/2008	TRONO X LLC
CN	PROCESS FOR MAKING TITANIUM DIOXIDE	200480003812	2/23/2004	100390071	5/28/2008	TRONO X LLC
CN	ELBOW AND METHOD FOR CHANGING FLUID FLOW DIRECTION	200480027695	8/30/2004	100497966	6/10/2009	TRONO X LLC
CN	SCOUR MEDIA FOR TITANIUM DIOXIDE PRODUCTION	200580014014	4/29/2005	100534912	9/2/2009	TRONO X LLC
CN	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	200480044605	10/15/2004	101080263	11/28/2007	TRONO X LLC
CN	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE CHLORIDE PROCESS	200580052053	9/16/2005	101304948	11/12/2008	TRONO X LLC
CN	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM- BEARING ORES	200780015020	4/04/2007	101432454	5/13/2009	TRONO X LLC
CN	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	200780042447	10/15/2007	101589115	11/25/2009	TRONO X LLC
CN	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	200680056641	12/14/2006	101631622	1/20/2010	TRONO X LLC
CN	MAKING CO-PRECIPITATED MIXED OXIDE-TREATED TITANIUM DIOXIDE PIGMENTS	200880014618	4/25/2008	101675119	3/17/2010	TRONO X LLC
CN	METHOD OF EXTENDING TAILINGS POND LIFE	201180012758	2/3/2011	102791639	11/21/2012	TRONO X LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
CN	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	201280012287	1/10/2012	103459518	12/18/2013	TRONOX LLC
CN	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	201280045530	12/26/2012	103814090	5/21/2014	TRONOX LLC
CN	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	201380019943	6/14/2013	104245589	12/24/2014	TRONOX LLC
CN	REMOVAL OF HYDROGEN SULFIDE FROM GAS STREAMS	201410190876	5/7/2014	104261407	1/7/2015	TRONOX LLC
CN	TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	201480001505	3/14/2014	104619787	5/13/2015	TRONOX LLC
CN	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	201380072063	2/1/2013	105050960	11/11/2015	TRONOX LLC
CN	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	201480024374	3/10/2014	105164053	12/16/2015	TRONOX LLC
CN	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	201510716287	10/29/2015	105566609	5/11/2016	TRONOX LLC
CN	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	201680002979	4/14/2016	106715604	5/24/2017	TRONOX LLC
CZ	DURABLE PIGMENT AND PROCESS FOR PRODUCING THEREOF	19980003158	2/25/1998	9803158	1/13/1999	TRONOX LLC
CZ	REACTION PROCESS OF GASEOUS REACTANTS	20020000304	7/26/2000	20020304	8/14/2002	TRONO

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	CONTAINING SOLID PARTS AND APPARATUS FOR MAKING THE SAME					X LLC
CZ	PROCESS FOR PRODUCING AND COOLING OF TITANIC OXIDE AND TUBULAR HEAT-EXCHANGE APPARATUS	20030000747	9/17/2001	20030747	9/17/2003	TRONO X LLC
DE	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	20006045599	7/26/2000	60045599	3/17/2011	TRONO X LLC
DE	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	200460004651	5/12/2004	602004004651	3/22/2007	TRONO X LLC
DE	CHANGING FLUID FLOW DIRECTION	200460014515	8/30/2004	602004014515	7/31/2008	TRONO X LLC
DE	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	200460038957	10/15/2004	602004038957	10/18/2012	TRONO X LLC
DE	A METHOD OF MAKING A LINER JOINT AND A LINED PIPE OR VESSEL	200460043944	8/31/2004	602004043944	1/23/2014	TRONO X LLC
DE	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE CHLORIDE PROCESS	200560024723	9/16/2005	602005024723	12/23/2010	TRONO X LLC
DE	SCOUR MEDIUM FOR TITANIUM DIOXIDE PRODUCTION	200660006203	8/25/2006	602006006203	5/20/2009	TRONO X LLC
DE	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	200660027485	12/14/2006	602006027485	3/29/2012	TRONO X LLC
DE	PROCESS FOR MANUFACTURING ZIRCONIA-TREATED	200760012143	10/15/2007	602007012143	3/3/2011	TRONO X LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	TITANIUM DIOXIDE PIGMENTS					
DE	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM-BEARING ORES	200760017534	4/04/2007	602007017534	11/24/2011	TRONOX LLC
DE	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	201360004799	6/14/2013	602013004799	3/10/2016	TRONOX LLC
EP	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	99/966482	12/20/1999	1144729	10/17/2001	TRONOX LLC
EP	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	00/953679	7/26/2000	1228002	8/7/2002	TRONOX LLC
EP	PROCESS FOR MAKING TITANIUM DIOXIDE	04/713732	2/23/2004	1597201	11/23/2005	TRONOX LLC
EP	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	04/752003	5/12/2004	1625351	2/15/2006	TRONOX LLC
EP	CHANGING FLUID FLOW DIRECTION	04/782590	8/30/2004	1668258	6/14/2006	TRONOX LLC
EP	A METHOD OF MAKING A LINER JOINT AND A LINED PIPE OR VESSEL	04/782688	8/31/2004	1685347	8/2/2006	TRONOX LLC
EP	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	04/795306	10/15/2004	1799333	6/27/2007	TRONOX LLC
EP	METHOD FOR MAKING A SCOUR MEDIUM AND USE OF SUCH MEDIUM IN A METHOD FOR PRODUCING RUTILE TITANIUM	06/802364	8/25/2006	1940743	7/9/2008	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	DIOXIDE					
EP	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE CHLORIDE PROCESS	05/796757	9/16/2005	1943190	7/16/2008	TRONOX LLC
EP	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM-BEARING ORES	07/754900	4/4/2007	2010684	1/7/2009	TRONOX LLC
EP	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	06/845418	12/14/2006	2094392	9/2/2009	TRONOX LLC
EP	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	07/839595	10/15/2007	2094791	9/2/2009	TRONOX LLC
EP	PROCESS FOR MAKING TITANIUM DIOXIDE	10/013090	2/23/2004	2272798	1/12/2011	TRONOX LLC
EP	PROCESS FOR MAKING TITANIUM DIOXIDE	10/013091	2/23/2004	2272799	1/12/2011	TRONOX LLC
EP	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	12/754405	1/10/2012	2683776	1/15/2014	TRONOX LLC
EP	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	12/862558	12/26/2012	2751209	7/9/2014	TRONOX LLC
EP	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	13/819459	6/14/2013	2802536	11/19/2014	TRONOX LLC
EP	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	14/763359	3/14/2014	2864424	4/29/2015	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
EP	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	13/873744	2/1/2013	2951129	12/09/2015	TRONOX LLC
EP	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	14/767623	3/10/2014	2969958	1/20/2016	TRONOX LLC
EP	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	15/192172	10/29/2015	3015511	5/4/2016	TRONOX LLC
EP	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	16/783621	4/14/2016	3140357	3/15/2017	TRONOX LLC
ES	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	4795306.2	10/15/2004	1799333	08/15/2012	TRONOX LLC
ES	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	6845418	12/14/2006	2094392	2/1/2012	TRONOX LLC
ES	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	7839595.1	10/15/2007	2094791	1/19/2011	TRONOX LLC
ES	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	99/966482	12/20/1999	2532830	3/4/2015	TRONOX LLC
ES	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	14763359.8	3/14/2014	2864424	5/3/2017	TRONOX LLC
FI	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	4795306.2	10/15/2004	1799333	08/15/2012	TRONOX LLC
FI	AN IMPROVED JET FOR USE IN A JET MILL	6845418	12/14/2006	2094392	2/1/2012	TRONOX

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	MICRONIZER					X LLC
FI	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	7839595.1	10/15/2007	2094791	1/19/2011	TRONOX LLC
FI	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	14763359.8	3/14/2014	2864424	5/3/2017	TRONOX LLC
FR	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	04752003-6	5/12/2004	1625351	2/7/2007	TRONOX LLC
FR	SCOUR MEDIUM FOR TITANIUM DIOXIDE PRODUCTION	06802364-7	8/25/2006	1940743	4/8/2009	TRONOX LLC
FR	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	14763359.8	3/14/2014	2864424	5/3/2017	TRONOX LLC
GB	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	953679.8	7/26/2000	1228002	2/2/2011	TRONOX LLC
GB	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	04752003-6	5/12/2004	1625351	2/7/2007	TRONOX LLC
GB	CHANGING FLUID FLOW DIRECTION	4782590.6	8/30/2004	1668258	6/18/2008	TRONOX LLC
GB	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	4795306.2	10/15/2004	1799333	08/15/2012	TRONOX LLC
GB	SCOUR MEDIUM FOR TITANIUM DIOXIDE	06802364-7	8/25/2006	1940743	4/8/2009	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	PRODUCTION					
GB	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE CHLORIDE PROCESS	5796757.2	9/16/2005	1943190	11/9/2010	TRONOX LLC
GB	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM- BEARING ORES	7754900.4	4/04/2007	2010684	9/28/2011	TRONOX LLC
GB	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	6845418	12/14/2006	2094392	2/1/2012	TRONOX LLC
GB	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	7839595.1	10/15/2007	2094791	1/19/2011	TRONOX LLC
GB	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	13819459.2	6/14/2013	2802536	1/20/2016	TRONOX LLC
GB	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	14763359.8	3/14/2014	2864424	5/3/2017	TRONOX LLC
GE	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	2001004437	12/20/1999	20043412	07/12/2004	TRONOX LLC
IN	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	1105/KOL/2015	10/23/2015			TRONOX LLC
IN	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	1268/CHENP/2014	12/26/2012			TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
IN	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	2848/KOLNP/2015	2/1/2013			TRONOX LLC
IN	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	3318/KOLNP/2015	3/10/2014			TRONOX LLC
IN	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	6122/CHENP/2014	6/14/2013			TRONOX LLC
IN	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	8192/CHENP/2014	3/14/2014			TRONOX LLC
IN	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	201617040637	4/14/2016			TRONOX LLC
IT	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	14763359.8	3/14/2014	2864424	5/3/2017	TRONOX LLC
IT	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	7839595.1	10/15/2007	502011901929218	1/19/2011	TRONOX LLC
IT	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	6845418	12/14/2006	502012902035134	2/1/2012	TRONOX LLC
IT	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	4795306.2	10/15/2004	502012902094431	08/15/2012	TRONOX LLC
JP	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT	2016-567812	4/4/2016			TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	FORMULATION					
JP	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	2013-557714	1/10/2012			TRONO X LLC
JP	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	2015-555981	2/1/2013			TRONO X LLC
JP	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	2014-550432	12/26/2012			TRONO X LLC
JP	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	2016-500939	3/10/2014			TRONO X LLC
JP	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	2016-229203	1/10/2012			TRONO X LLC
JP	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	2015-206102	10/20/2015			TRONO X LLC
JP	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM- BEARING ORES	2009-507695	4/4/2007	4819157	9/9/2011	TRONO X LLC
JP	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	2000-589762	12/20/1999	5066313	11/7/2012	TRONO X LLC
JP	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	2009-541277	12/14/2006	5087636	9/14/2012	TRONO X LLC
JP	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE	2008-531067	9/16/2005	5155865	12/14/2012	TRONO X LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	CHLORIDE PROCESS					
JP	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	2009-537146	10/15/2007	5250558	4/19/2013	TRONOX LLC
JP	SCOUR MEDIUM FOR TITANIUM DIOXIDE PRODUCTION	2008-532238	8/25/2006	5323483	07/26/13	TRONOX LLC
JP	IMPROVED PROCESS FOR MANUFACTURING CO-PRECIPIATED MIXED OXIDE- TREATED TITANIUM DIOXIDE PIGMENTS	2010-506281	4/25/2008	5363459	09/13/2013	TRONOX LLC
JP	PROCESS FOR MAKING PIGMENTARY TITANIUM DIOXIDE	2009-528229	8/20/2007	5536453	5/9/2014	TRONOX LLC
JP	INJECTOR ASSEMBLY, CHEMICAL REACTOR AND CHEMICAL PROCESS	2012-267149	12/6/2012	5668045	12/19/2014	TRONOX LLC
JP	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	2014-561199	6/14/2013	5883955	2/12/2016	TRONOX LLC
JP	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	2015-517503	3/14/2014	5966084	7/8/2016	TRONOX LLC
MX	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	MX/A/2015/009739	2/1/2013			TRONOX LLC
MX	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	MX/A/2015/012667	3/10/2014			TRONOX LLC
MX	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	MX/A/2015/013321	09/17/2015			TRONOX LLC
MX	POLYMER, POLYMER	MX/A/2016/01537	4/4/2016			TRONO

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	5				X LLC
MX	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	PA/A/2002/000904	7/26/2000	251655	11/21/2007	TRONOX LLC
MX	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	MX/A/2014/007599	12/26/2012	334160	10/19/2015	TRONOX LLC
MX	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	MX/A/2014/010086	6/14/2013	336573	1/25/2016	TRONOX LLC
MX	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	MX/A/2014/013509	3/14/2014	345073	1/16/2017	TRONOX LLC
MY	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	PI20092000	10/15/2007	MY-156013-A	12/31/2015	TRONOX LLC
MY	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	PI20092366	12/14/2006	MY-149104-A	07/15/2013	TRONOX LLC
MY	IMPROVED PROCESS FOR MANUFACTURING CO-PRECIPITATED MIXED OXIDE- TREATED TITANIUM DIOXIDE PIGMENTS	PI20094359	4/25/2008	MY-148939-A	6/14/2013	TRONOX LLC
MY	INJECTOR ASSEMBLY, CHEMICAL REACTOR AND CHEMICAL PROCESS	PI20094596	3/20/2008	MY-150007-A	11/15/2013	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
MY	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	PI 2013003277	1/10/2012	MY-158733-A	11/15/2016	TRONOX LLC
MY	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	PI 2014001879	12/26/2012			TRONOX LLC
MY	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	PI 2014003056	3/14/2014			TRONOX LLC
MY	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	PI 2015002139	3/10/2014			TRONOX LLC
MY	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	PI 2015002953	01/10/2012			TRONOX LLC
MY	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	PI 2015702922	09/02/2015			TRONOX LLC
MY	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	PI 2016001974	4/14/2016			TRONOX LLC
NL	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	953679.8	7/26/2000	1228002	2/2/2011	TRONOX LLC
NL	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	04752003-6	5/12/2004	1625351	2/7/2007	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
NL	CHANGING FLUID FLOW DIRECTION	4782590.6	8/30/2004	1668258	6/18/2008	TRONO X LLC
NL	A METHOD OF MAKING A LINER JOINT AND A LINED PIPE OR VESSEL	4782688.8	8/31/2004	1685347	12/4/2013	TRONO X LLC
NL	IMPROVED METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	4795306.2	10/15/2004	1799333	08/15/2012	TRONO X LLC
NL	SCOUR MEDIUM FOR TITANIUM DIOXIDE PRODUCTION	06802364-7	8/25/2006	1940743	4/8/2009	TRONO X LLC
NL	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE CHLORIDE PROCESS	5796757.2	9/16/2005	1943190	11/9/2010	TRONO X LLC
NL	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM- BEARING ORES	7754900.4	4/04/2007	2010684	9/28/2011	TRONO X LLC
NL	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	6845418	12/14/2006	2094392	2/1/2012	TRONO X LLC
NL	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	7839595.1	10/15/2007	2094791	1/19/2011	TRONO X LLC
NL	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	13819459.2	6/14/2013	2802536	1/20/2016	TRONO X LLC
NL	MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS USING ULTRASONICATION	14763359.8	3/14/2014	2864424	5/3/2017	TRONO X LLC
PC T	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A	PCT/US16/27428	4/14/2016			TRONO X LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	PIGMENTED PAINT FORMULATION					
PC T	INORGANIC PIGMENTS SURFACE-TREATED WITH POLYOL ESTERS	PCT/US16/45178	08/02/2016			TRONOX LLC
PC T	CENTRIFUGAL ALUMINUM CHLORIDE GENERATOR	PCT/US17/24706	03/29/2017			TRONOX LLC
RU	CHANGING FLUID FLOW DIRECTION	2006113368	8/30/2004			TRONOX LLC
SG	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	200903242-6	10/15/2007	152532	11/15/2011	TRONOX LLC
SG	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	200903961-1	12/14/2006	153278	8/31/2012	TRONOX LLC
SG	IMPROVED PROCESS FOR MANUFACTURING CO-PRECIPITATED MIXED OXIDE- TREATED TITANIUM DIOXIDE PIGMENTS	200906865-1	4/25/2008	156276	5/31/2012	TRONOX LLC
SG	INJECTOR ASSEMBLY, CHEMICAL REACTOR AND CHEMICAL PROCESS	200906878-4	3/20/2008	156284	4/13/2012	TRONOX LLC
TW	CENTRIFUGAL ALUMINUM CHLORIDE GENERATOR					
TW	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	89114920	7/26/2000	NI156462	6/1/2002	TRONOX LLC
TW	PROCESS FOR PRODUCING AND COOLING TITANIUM DIOXIDE	90122995	9/19/2001	NI203768	6/21/2004	TRONOX LLC
TW	PROCESS FOR MAKING TITANIUM DIOXIDE	93103923	2/18/2004	NI255295	5/21/2006	TRONOX LLC
TW	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM	93111367	4/23/2004	I241403	10/11/2005	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	TETRACHLORIDE FLUIDIZED BED REACTOR					
TW	SCOUR MEDIA FOR TITANIUM DIOXIDE PRODUCTION	94114322	5/3/2005	I378075	12/1/2012	TRONO X LLC
TW	SCOUR MEDIUM FOR TITANIUM DIOXIDE PRODUCTION	95131903	8/30/2006	I378074	12/1/2012	TRONO X LLC
TW	IMPROVED HANDLING OF WASTE SOLIDS FROM THE CHLORINATION OF TITANIUM- BEARING ORES	96110816	3/28/2007	I410376	10/1/2013	TRONO X LLC
TW	SURFACE TREATED PIGMENT	96141482	11/2/2007	I470040	1/21/2015	TRONO X LLC
TW	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	96141871	11/6/2007	I404769	08/11/2013	TRONO X LLC
TW	AN IMPROVED JET FOR USE IN A JET MILL MICRONIZER	96145433	11/29/2007	I409108	09/21/2013	TRONO X LLC
TW	INJECTOR ASSEMBLY, CHEMICAL REACTOR AND CHEMICAL PROCESS	97112890	4/9/2008	I439318	6/1/2014	TRONO X LLC
TW	IMPROVED PROCESS FOR MANUFACTURING CO-PRECIPITATED MIXED OXIDE- TREATED TITANIUM DIOXIDE PIGMENTS	97116402	4/25/2008	I405823	8/21/2013	TRONO X LLC
TW	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	101107937	3/08/2012	I550031	9/21/2016	TRONO X LLC
TW	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	101148128	12/18/2012	I492901	7/21/2015	TRONO X LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
TW	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	102120788	6/11/2013	I456069	10/11/2014	TRONOX LLC
TW	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	103105707	2/20/2014	I537344	6/11/2016	TRONOX LLC
TW	PROCESS FOR MANUFACTURING TITANIUM DIOXIDE USING ULTRASONICATION	103109772	3/14/2014	I1500712	09/21/2015	TRONOX LLC
TW	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	104131014	09/18/2015			TRONOX LLC
TW	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	105107958	3/15/2016			TRONOX LLC
TW	INORGANIC PIGMENTS SURFACE-TREATED WITH POLYOL ESTERS	105121639	07/07/2016			TRONOX LLC
TW	PIPING ELBOW LINERS	93127044	9/7/2004	I-1328662	8/11/2010	TRONOX LLC
TW	HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE AND METHODS OF	90126180	10/23/2001	NI-172943	3/1/2003	TRONOX LLC
TW	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	88122117	12/16/1999	483949	4/21/2002	TRONOX LLC
UK	A METHOD OF MAKING A LINER JOINT AND A LINED PIPE OR VESSEL	4782688.8	8/31/2004	1685347	12/4/2013	TRONOX LLC
US	INORGANIC PIGMENTS SURFACE-TREATED WITH POLYOL ESTERS	14/851,634	9/11/2015			TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
US	IMPROVED LITHIUM MANGANESE OXIDE COMPOSITIONS	14/762,148	7/20/2015			TRONOX LLC
US	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	14/691,185	4/20/2015			TRONOX LLC
US	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	14/528,910	10/30/2014			TRONOX LLC
US	CENTRIFUGAL ALUMINUM CHLORIDE GENERATOR	15/471,922	3/28/2017			TRONOX LLC
US	SOLUTION MINING USING SUBTERRANEAN DRILLING TECHNIQUES	14/205,711	3/12/2014			TRONOX LLC
US	METHOD FOR PREPARING ELECTROLYTIC MANGANESE DIOXIDE	15/150,027	5/9/2016			TRONOX LLC
US	METHOD AND APPARATUS FOR PRODUCING TITANIUM DIOXIDE	10/389,636	3/14/2003	RE39,068	4/18/2006	TRONOX LLC
US	PROCESS FOR PRODUCING SODIUM CARBONATE FROM TRONA ORE	09/061,363	4/15/1998	6,010,672	1/4/2000	TRONOX LLC
US	METHOD OF REDUCING THE FORMATION OF SCALE IN THE PRODUCTION OF SODA ASH FROM TRONA AND NAHCOLITE ORES	09/099,887	6/17/1998	6,022,516	2/8/2000	TRONOX LLC
US	PROCESS FOR SEPARATING RADIOACTIVE AND HAZARDOUS METAL CONTAMINANTS FROM SOILS	09/131,259	8/7/1998	6,102,053	8/15/2000	TRONOX LLC
US	TITANIUM DIOXIDE PIGMENTS	08/926,167	9/9/1997	6,139,617	10/31/2000	TRONOX LLC
US	METHOD OF PRODUCING	09/217,168	12/21/1999	6,214,198	4/10/2001	TRONOX

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE		8			X LLC
US	PROCESS FOR THE PRODUCTION OF SODIUM CARBONATE CRYSTALS	08/987,978	12/10/1997	6,228,335	5/8/2001	TRONOX LLC
US	CATHODE INTERCALATION COMPOSITIONS, PRODUCTION METHODS AND RECHARGEABLE LITHIUM BATTERIES CONTAINING THE SAME	09/408,043	9/29/1999	6,248,477	6/19/2001	TRONOX LLC
US	SODIUM CARBONATE RECRYSTALLIZATION	09/239,441	1/28/1999	6,284,005	9/4/2001	TRONOX LLC
US	PROCESSES FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	09/361,003	7/27/1999	6,350,427	2/26/2002	TRONOX LLC
US	PROCESS FOR REMOVING DISSOLVED URANIUM FROM WATER	09/519,538	3/6/2000	6,419,832	7/16/2002	TRONOX LLC
US	PROCESS FOR PRODUCING AND COOLING TITANIUM DIOXIDE	09/664,334	9/18/2000	6,419,893	7/16/2002	TRONOX LLC
US	PRODUCTION OF FEED LIQUORS FOR SODIUM CARBONATE CRYSTALLIZATION PROCESSES	09/563,485	5/2/2000	6,428,759	8/6/2002	TRONOX LLC
US	HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE AND METHODS OF PRODUCING THE SAME	09/745,519	12/22/2000	6,527,941	3/4/2003	TRONOX LLC
US	STABILIZED SPINEL BATTERY CATHODE MATERIAL	09/774,441	1/31/2001	6,558,844	5/6/2003	TRONOX LLC
US	BICARBONATE CONVERSION IN A CARBONATE MONOHYDRATE PROCESS	09/880,342	6/13/2001	6,576,206	6/10/2003	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
US	PROCESS FOR PREPARING SODA ASH FROM SOLUTION MINED BICARBONATE BRINES	09/880,566	6/13/2001	6,589,497	7/8/2003	TRONO X LLC
US	HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE AND METHODS OF PRODUCING THE SAME	09/610,821	7/6/2000	6,638,401	10/28/2003	TRONO X LLC
US	PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES	09/822,565	3/30/2001	6,835,361	12/28/2004	TRONO X LLC
US	SURFACE-TREATED PIGMENTS	10/934,983	9/7/2004	6,946,028	9/20/2005	TRONO X LLC
US	SURFACE-TREATED PIGMENTS	10/935,003	9/7/2004	6,958,091	10/25/2005	TRONO X LLC
US	LINER WEAR DETECTION	10/670,586	9/25/2003	6,962,434	11/8/2005	TRONO X LLC
US	TITANIUM DIOXIDE SLURRIES	10/614,424	7/7/2003	6,981,666	1/3/2006	TRONO X LLC
US	PIPING ELBOW LINERS	10/670,653	9/25/2003	6,994,117	2/7/2006	TRONO X LLC
US	SURFACE-TREATED PIGMENTS	11/166,472	6/24/2004	7,011,703	3/14/2006	TRONO X LLC
US	DENSIFICATION OF AERATED POWDERS USING POSITIVE PRESSURE	10/949,691	9/23/2004	7,114,533	10/3/2006	TRONO X LLC
US	GAS SEPARATION APPARATUS AND METHODS	10/789,212	2/27/2004	7,115,157	10/3/2006	TRONO X LLC
US	SURFACE TREATED PIGMENTS	10/935,001	9/7/2004	7,138,011	11/21/2006	TRONO X LLC
US	LIQUID FUEL INJECTION	10/821,641	4/9/2004	7,150,416	12/19/2006	TRONO X LLC
US	REACTOR AND PROCESS FOR REDUCING EMISSIONS OF CO AND	10/261,617	9/30/2002	7,175,821	2/13/2007	TRONO X LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
	NOX					
US	IMPROVED PROCESS FOR MAKING TITANIUM DIOXIDE	10/374,266	2/25/2003	7,182,931	2/27/2007	TRONOX LLC
US	METHOD FOR THE ANALYSIS OF GAS PRODUCED BY A TITANIUM TETRACHLORIDE FLUIDIZED BED REACTOR	10/440,702	5/19/2003	7,183,114	2/27/2007	TRONOX LLC
US	PROCESS FOR MANUFACTURING ZIRCONIA- TREATED TITANIUM DIOXIDE PIGMENTS	11/600,643	11/16/2006	7,238,231	7/3/2007	TRONOX LLC
US	HIGH VOLTAGE LAMINAR CATHODE MATERIALS FOR LITHIUM RECHARGEABLE BATTERIES	10/743,077	12/23/2003	7,238,450	7/3/2007	TRONOX LLC
US	PROCESS FOR THE MANUFACTURE OF ORGANOSILICON COMPOUND TREATED PIGMENTS	11/516,157	9/6/2006	7,250,080	7/31/2007	TRONOX LLC
US	PERCHLORATE REMOVAL FROM SODIUM CHLORATE PROCESS (ELECTROLYTIC/HAMILTON)	11/126,941	5/11/2005	7,250,144	7/31/2007	TRONOX LLC
US	METHOD AND APPARATUS FOR CONCENTRATING A SLURRY	10/590,090	10/15/2004	7,285,225	10/23/2007	TRONOX LLC
US	PRODUCTION OF SODIUM SESQUICARBONATE AND SODIUM CARBONATE MONOHYDRATE	11/640,791	12/18/2006	7,638,109	12/29/2009	TRONOX LLC
US	METHODS OF CONTROLLING THE PARTICLE SIZE OF TITANIUM DIOXIDE PRODUCED BY THE CHLORIDE PROCESS	12/067,091	3/17/2008	7,854,917	12/21/2010	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
US	SURFACE TREATED PIGMENT	11/598,309	11/13/2006	7,935,753	5/3/2011	TRONOX LLC
US	WASTE SOLIDS HANDLING ORES	11/412,816	4/27/2006	7,943,103	5/17/2011	TRONOX LLC
US	CHANGING FLUID FLOW DIRECTION	10/670,981	9/25/2003	8,128,127	3/6/2012	TRONOX LLC
US	JET FOR USE IN A JET MILL MICRONIZER	12/518,867	6/11/2009	8,387,901	3/5/2013	TRONOX LLC
US	SELECTIVE REMOVAL OF SULFIDE FROM AQUEOUS ALKALI SOLUTIONS	13/407,258	2/28/2012	8,454,840	6/4/2013	TRONOX LLC
US	METHOD FOR SIMULTANEOUSLY MINING VERTICALLY DISPOSED BEDS	12/711,282	2/24/2010	8,528,989	9/10/2013	TRONOX LLC
US	METHODS OF PRODUCING A TITANIUM DIOXIDE PIGMENT AND IMPROVING THE PROCESSABILITY OF TITANIUM DIOXIDE PIGMENT PARTICLES	13/337,839	12/27/2011	8,663,518	3/04/2014	TRONOX LLC
US	PROCESS FOR CONTROLLING CARBONYL SULFIDE PRODUCED DURING CHLORINATION OF ORES	13/553,613	7/19/2012	8,691,167	4/8/2014	TRONOX LLC
US	TITANIUM DIOXIDE PIGMENTS AND MANUFACTURING METHOD	13/044,297	3/9/2011	8,840,719	09/23/2014	TRONOX LLC
US	SELECTIVE REMOVAL OF SULFIDE FROM AQUEOUS ALKALI SOLUTIONS	13/896,503	5/17/2013	8,858,902	10/14/2014	TRONOX LLC
US	MAKING CO-PRECIPIATED MIXED OXIDE- TREATED TITANIUM DIOXIDE PIGMENTS	11/799,876	5/3/2007	8,951,607	02/10/2015	TRONOX LLC
US	TITANIUM DIOXIDE PIGMENT AND MANUFACTURING METHOD	13/840,520	3/15/2013	9,315,615	04/19/2016	TRONOX LLC

C/J	Title	Application No.	Filing Date	Patent No.	Issue Date	Owner
US	METHOD OF BENEFICIATING AND DRYING TRONA ORE USEFUL FOR FLUE GAS DESULFURIZATION	13/025,700	2/11/2011	9,327,233	5/3/2016	TRONOX LLC
US	PROCESS FOR MANUFACTURING TITANIUM DIOXIDE USING ULTRASONICATION	14/206,899	3/12/2014	9,353,266	5/31/2016	TRONOX LLC
US	REMOVAL OF ORGANIC IMPURITIES FROM WATER	14/506,375	10/3/2014	9,422,177	08/23/2016	TRONOX LLC
US	REMOVAL OF HYDROGEN SULFIDE FROM GAS STREAMS	14/261,550	4/25/2014	9,433,894	9/6/2016	TRONOX LLC
US	POLYMER, POLYMER MODIFIED TITANIUM DIOXIDE PIGMENT, AND METHOD OF FORMING A PIGMENTED PAINT FORMULATION	14/691,185	4/20/2015	9,745,405	8/29/2017	TRONOX LLC
ZA	METHOD OF PRODUCING HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE	2001/3667	12/20/1999	2001/3667	12/20/1999	TRONOX LLC