

## TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

ETAS ID: TM416434

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT		
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST		
<b>CONVEYING PARTY DATA</b>			
<b>Name</b>	<b>Formerly</b>	<b>Execution Date</b>	<b>Entity Type</b>
Electro-Science Laboratories, LLC		02/14/2017	Limited Liability Company: PENNSYLVANIA
<b>RECEIVING PARTY DATA</b>			
<b>Name:</b>	PNC Bank, National Association, as Collateral Agent		
<b>Street Address:</b>	500 First Avenue		
<b>City:</b>	Pittsburgh		
<b>State/Country:</b>	PENNSYLVANIA		
<b>Postal Code:</b>	15219		
<b>Entity Type:</b>	National Association: UNITED STATES		
<b>PROPERTY NUMBERS Total: 2</b>			
<b>Property Type</b>	<b>Number</b>	<b>Word Mark</b>	
<b>Registration Number:</b>	2655640	ESL	
<b>Registration Number:</b>	906551	ESL	
<b>CORRESPONDENCE DATA</b>			
<b>Fax Number:</b>	2127514864		
<i>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.</i>			
<b>Phone:</b>	212-906-1216		
<b>Email:</b>	angela.amaru@lw.com		
<b>Correspondent Name:</b>	Latham & Watkins LLP c/o Angela M. Amaru		
<b>Address Line 1:</b>	885 Third Avenue		
<b>Address Line 2:</b>	Suite 1000		
<b>Address Line 4:</b>	New York, NEW YORK 10022		
<b>ATTORNEY DOCKET NUMBER:</b>	030786-0429		
<b>NAME OF SUBMITTER:</b>	Angela M. Amaru		
<b>SIGNATURE:</b>	/S/ Angela M. Amaru		
<b>DATE SIGNED:</b>	02/16/2017		
<b>Total Attachments: 8</b>			
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TRADEMARK SECURITY AGREEMENT

This TRADEMARK SECURITY AGREEMENT, dated as of February 14, 2017 (this "Agreement"), is made by FERRO CORPORATION, an Ohio corporation, FERRO ELECTRONIC MATERIALS, INC., a Delaware corporation and ELECTRO-SCIENCE LABORATORIES, LLC, a Pennsylvania limited liability company (each a, "Grantor" and collectively, the "Grantors"), in favor of PNC BANK NATIONAL ASSOCIATION as the collateral agent (together with its successor(s) thereto in such capacity, the "Collateral Agent") for each of the Secured Parties. Terms used herein but not defined herein shall have the meaning ascribed to such terms in the Security Agreement or in the Credit Agreement, as applicable.

W I T N E S S E T H:

WHEREAS, this Agreement is made pursuant to the Credit Agreement, dated as of February 14, 2017 (as amended, restated, amended and restated, supplemented or otherwise modified from time to time, the "Credit Agreement"), among Ferro Corporation, an Ohio corporation (the "Company"), the Designated Borrowers from time to time party thereto, the lenders from time to time party thereto, PNC Bank, National Association, as administrative agent for the Lenders and as collateral agent for the Secured Parties and as an Issuer, Deutsche Bank AG New York Branch, as syndication agent and as Issuer, and the various financial institutions and other Persons from time to time party thereto as lenders;

WHEREAS, in connection with the Credit Agreement, the Grantors have executed and delivered a Pledge and Security Agreement, dated as of February 14, 2017 (as amended, restated, amended and restated, supplemented or otherwise modified from time to time, the "Security Agreement");

WHEREAS, pursuant to the Credit Agreement and pursuant to clause (e) of Section 4.5 of the Security Agreement, the Grantors are required to execute and deliver this Agreement and to grant to the Collateral Agent a continuing security interest in all of the Trademark Collateral (as defined below) to secure all Obligations; and

WHEREAS, the Grantors have duly authorized the execution, delivery and performance of this Agreement; and

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantors agree, for the benefit of each Secured Party, as follows:

SECTION 1. Definitions. Unless otherwise defined herein or the context otherwise requires, terms used in this Agreement, including its preamble and recitals, have the meanings provided in the Security Agreement.

SECTION 2. Grant of Security Interest. The Grantors hereby assign, pledge, hypothecate, charge, mortgage, deliver, and transfer to the Collateral Agent, for its benefit and the ratable benefit of each other Secured Party, and hereby grant to the Collateral Agent, for its benefit and the ratable benefit of each other Secured Party, a continuing security interest in all of

the following property, whether now or hereafter existing or acquired by the Grantors (the "Trademark Collateral"):

(a) (i) all of their trademarks, trade names, corporate names, company names, business names, fictitious business names, trade styles, service marks, certification marks, collective marks, logos and other source or business identifiers, and all goodwill of the business associated therewith, now existing or hereafter adopted or acquired including those referred to in Item A of Schedule I hereto, whether currently in use or not, all registrations and recordings thereof and all applications in connection therewith, whether pending or in preparation for filing, including registrations, recordings and applications in the United States Patent and Trademark Office or in any office or agency of the United States of America or any State thereof or any other country or political subdivision thereof or otherwise, and all common-law rights relating to the foregoing, and (ii) the right to obtain all reissues, extensions or renewals of the foregoing (collectively referred to as the "Trademark");

(b) all Trademark licenses for the grant by or to the Grantors of any right to use any Trademark, including each Trademark license referred to in Item B of Schedule I hereto;

(c) all of the goodwill of the business connected with the use of, and symbolized by the items described in, clause (a), and to the extent applicable clause (b);

(d) the right to sue third parties for past, present and future infringements of any Trademark Collateral described in clause (a) and, to the extent applicable, clause (b); and

(e) all Proceeds of, and rights associated with, the foregoing, including any claim by the Grantors against third parties for past, present or future infringement or dilution of any Trademark, Trademark registration or Trademark license, or for any injury to the goodwill associated with the use of any such Trademark or for breach or enforcement of any Trademark license and all rights corresponding thereto throughout the world.

Notwithstanding the foregoing, the Trademark Collateral shall not include any intent-to-use United States Trademark applications for which an amendment to allege use or statement of use has not been filed under 15 U.S.C. § 1501(c) or 15 U.S.C. § 1501(d), respectively, with the United States Patent and Trademark Office, solely to the extent, if any, that, and solely during the period, if any, in which, the grant of a security interest therein would impair the validity or enforceability of any registration that issues from such intent-to-use application under applicable federal law, and provided that upon such filing, such intent-to-use applications shall be included in the Trademark Collateral.

**SECTION 3. Security Agreement.** This Agreement has been executed and delivered by the Grantors for the purpose of registering the security interest of the Collateral Agent in the Trademark Collateral with the United States Patent and Trademark Office and corresponding offices in other countries of the world. The security interest granted hereby has been granted as a

supplement to, and not in limitation of, the security interest granted to the Collateral Agent for its benefit and the ratable benefit of each other Secured Party under the Security Agreement. The Security Agreement (and all rights and remedies of the Collateral Agent and each Secured Party thereunder) shall remain in full force and effect in accordance with its terms.

SECTION 4. Release of Liens. Upon (i) the Disposition of Trademark Collateral in accordance with the Credit Agreement or (ii) the occurrence of the Termination Date, the security interests granted herein shall automatically terminate with respect to (A) such Trademark Collateral (in the case of clause (i)) or (B) all Trademark Collateral (in the case of clause (ii)). Upon any such Disposition or termination, the Collateral Agent will, at the Grantors' sole expense, deliver to the Grantors, without any representations, warranties or recourse of any kind whatsoever, all Trademark Collateral held by the Collateral Agent hereunder, and execute and deliver to the Grantors such Documents as the Grantors shall reasonably request to evidence such termination.

SECTION 5. Acknowledgment. The Grantors do hereby further acknowledge and affirm that the rights and remedies of the Collateral Agent with respect to the security interest in the Trademark Collateral granted hereby are more fully set forth in the Security Agreement, the terms and provisions of which (including the remedies provided for therein) are incorporated by reference herein as if fully set forth herein. To the extent any conflict exists, the Security Agreement shall control.

SECTION 6. Loan Document. This Agreement is a Loan Document executed pursuant to the Credit Agreement and shall (unless otherwise expressly indicated herein) be construed, administered and applied in accordance with the terms and provisions thereof, including Article X thereof.

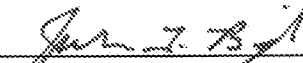
SECTION 7. Governing Law, Entire Agreement. THIS AGREEMENT SHALL BE DEEMED TO BE A CONTRACT MADE UNDER AND GOVERNED BY THE INTERNAL LAWS OF THE STATE OF NEW YORK (INCLUDING FOR SUCH PURPOSE SECTIONS 5-1401 AND 5-1402 OF THE GENERAL OBLIGATIONS LAW OF THE STATE OF NEW YORK) AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER (INCLUDING, WITHOUT LIMITATION, ANY CLAIMS SOUNDING IN CONTRACT OR TORT LAW ARISING OUT OF THE SUBJECT MATTER HEREOF AND ANY DETERMINATIONS WITH RESPECT TO POST-JUDGMENT INTEREST) SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF NEW YORK. This Agreement and the other Loan Documents constitute the entire understanding among the parties hereto with respect to the subject matter hereof and thereof and supersede any prior agreements, written or oral, with respect thereto.

SECTION 8. Counterparts. This Agreement may be executed by the parties hereto in several counterparts, each of which shall be deemed to be an original and all of which shall constitute together but one and the same agreement.

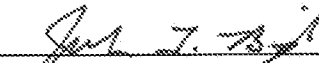
*Signature page follows*

IN WITNESS WHEREOF, each of the parties hereto has caused this Agreement to be duly executed and delivered of the date first written above.

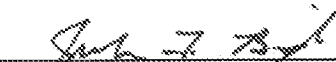
FERRO CORPORATION, as Grantor

By:   
Name: John T. Bingle  
Title: Treasurer

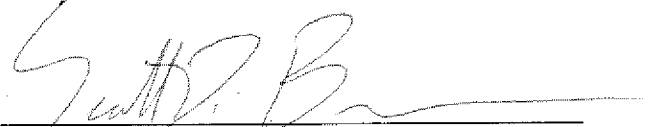
FERRO ELECTRONIC MATERIALS INC., as Grantor

By:   
Name: John T. Bingle  
Title: Treasurer

ELECTRO-SCIENCE LABORATORIES, LLC, as Grantor

By:   
Name: John T. Bingle  
Title: Manager

PNC BANK, NATIONAL ASSOCIATION, as  
Collateral Agent





By:   
Name: Scott D. Beran  
Title: Senior Vice President

Signature page to Ferro Trademark Security Agreement (2017)


**TRADEMARK**  
**REEL: 005990 FRAME: 0941**

**SCHEDULE I**  
to Trademark Security Agreement

Item A. Issued Trademarks, Pending Trademark Applications and Trademark Applications in Preparation

Trademark/Image if any	Application Number Application Date	Registration Number Registration Date	Status	Owner
TICON	71511116 10/18/1946	433994 11/4/1947	Registered	Ferro Electronic Materials, Inc.
ESL	76155032 10/27/2000	2655640 12/3/2002	Registered	Electro-Science Laboratories, LLC
ESL 	72325961 4/30/1969	906551 1/26/1971	Registered	Electro-Science Laboratories, LLC
ACE	78264616 6/19/2003	2988075 8/23/2005	Registered	Ferro Corporation
ALOX	73562656 10/10/1985	1393723 5/20/1986	Registered	Ferro Corporation
AMERICAL 	73309699 5/11/1981	1221372 12/28/1982	Registered	Ferro Corporation
AQUARELEASE	85521355 1/20/2012	4325446 4/23/2013	Registered	Ferro Corporation
CE-RITE	72252139 8/10/1966	839806 12/5/1967	Registered	Ferro Corporation
CERMARK 	76185458 12/21/2000	2581488 6/18/2002	Registered	Ferro Corporation
CERMARK	76185459 12/21/2000	2597392 7/23/2002	Registered	Ferro Corporation
CERMARK 	75405646 12/15/1997	2444691 4/17/2001	Registered	Ferro Corporation
CERMARK	75393958 11/21/1997	2438817 3/27/2001	Registered	Ferro Corporation



Trademark/Image if any	Application Number Application Date	Registration Number Registration Date	Status	Owner
CONDUCTROX	73030870 8/30/1974	1004166 2/11/1975	Registered	Ferro Corporation
COOL COLORS	76220988 3/7/2001	2711906 4/29/2003	Registered	Ferro Corporation
Design Only 	71473776 8/31/1944	419066 2/5/1946	Registered	Ferro Corporation
Design Only 	72200837 8/28/1964	794281 8/17/1965	Registered	Ferro Corporation
Design Only 	72063815 12/8/1958	710108 1/24/1961	Registered	Ferro Corporation
ECLIPSE	76096129 7/25/2000	2845284 5/25/2004	Registered	Ferro Corporation
EVOLUTION	77031862 10/30/2006	3664035 8/4/2009	Registered	Ferro Corporation
FERRO	72063300 11/28/1958	684616 9/8/1959	Registered	Ferro Corporation
FERRO 	71585520 9/29/1949	549848 10/23/1951	Registered	Ferro Corporation
FERRO 	71585519 9/29/1949	545912 7/31/1951	Registered	Ferro Corporation
FERRO WHERE INNOVATION DELIVERS PERFORMANCE  Where innovation delivers performance	86620893 5/6/2015	---	Pending ITU	Ferro Corporation
FERRO WHERE INNOVATION DELIVERS PERFORMANCE  Where innovation delivers performance	86621131 5/6/2015	---	Pending ITU	Ferro Corporation
FERROFLEX	73365359 5/19/1982	1280330 6/5/1984	Registered	Ferro Corporation

Trademark/Image if any	Application Number Application Date	Registration Number Registration Date	Status	Owner
FERROFLO	73551682 8/5/1985	1382918 2/18/1986	Registered	Ferro Corporation
FERROPAK	73642159 1/30/1987	1455961 9/8/1987	Registered	Ferro Corporation
GEODE	74348352 1/14/19993	1836504 5/17/1994	Registered	Ferro Corporation
LENSMAX	78719112 9/23/2005	3207819 2/13/2007	Registered	Ferro Corporation
MIRAMAX	72371841 9/24/1970	923047 11/2/1971	Registered	Ferro Corporation
PDI	74315490 9/21/1992	1779957 7/6/1993	Registered	Ferro Corporation
PERC	73146902 11/2/1977	1105842 11/14/1978	Registered	Ferro Corporation
SPECTRAFLO	73160727 3/3/1978	1112060 1/30/1979	Registered	Ferro Corporation
SURESTOP	77928132 2/4/2010	3844868 9/7/2010	Registered	Ferro Corporation
SURESTOP	77205209 6/13/2007	3655259 7/14/2009	Registered	Ferro Corporation
THERMARK	87232454 11/10/2016	---	Pending	Ferro Corporation
TIZOX	72195174 6/8/1964	812789 8/16/1966	Registered	Ferro Corporation
TRUPLANE	77205214 6/13/2007	3655260 7/14/2009	Registered	Ferro Corporation
VIBROXIDE	72188680 3/13/1964	781180 12/8/1964	Registered	Ferro Corporation
WHERE INNOVATION DELIVERS PERFORMANCE	86619915 5/5/2015	---	Pending ITU	Ferro Corporation
ZOX	72091881 2/29/1960	708245 12/13/1960	Registered	Ferro Corporation

Item B. Trademark Licenses

1. Licensor: Ferro South Africa (Proprietary)Limited  
Licensee: Ferro Corporation  
Territory: South Africa and other African Territories  
Effective Date: January 1, 2017  
Expiration Date: December 31, 2021  
Ferro's use of FIP trademarks in territory