

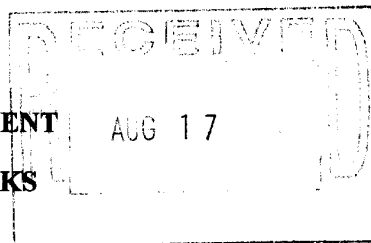
08-21-1998



100798358

IEET  
ASSIGNMENT

AUG 17



TO THE COMMISSIONER OF PATENTS AND TRADEMARKS  
BOX ASSIGNMENTS  
WASHINGTON, DC 20231

Re: Registration Numbers:

1,824,109	1,235,929
1,822,500	1,243,348
1,822,507	1,476,418
1,822,508	1,454,252
1,822,499	1,961,073
1,874,507	1,238,806

MRA  
8-17-98

1. The name of the party conveying the interest is:

Advanced Refractory Technologies, Inc. (Corporation)  
4041 North Central Avenue  
699 Hertel Avenue, Suite 310  
Buffalo, New York 14207  
Attn: Michael J. Drennan

2. The name and address of the party receiving the interest is:

Petra Capital, LLC (Limited Liability Company)  
c/o Petra Capital Management, LLC  
172 2nd Avenue North, Suite 112  
Nashville, TN 37201

3. The nature of conveyance is: Security Agreement.

4. Each trademark number against which the Trademark Assignment is to be filed is:

Trademark Registration No.(s):

1,824,109	1,235,929
1,822,500	1,243,348
1,822,507	1,476,418
1,822,508	1,454,252
1,822,499	1,961,073
1,874,507	1,238,806

5. The name and address of the party to whom correspondence concerning the request to record the document should be mailed is:

Sherrard & Roe, PLC  
424 Church Street, Suite 2000  
Nashville, TN 37219  
Attn: Michael D. Roberts

08/20/1998 DNGUYEN 00000001 1824109

01 FC:481  
02 FC:482

40.00 OP  
275.00 OP

5. There are twelve (12) registrations identified in this cover sheet and the fee for recording the Trademark Assignment is \$315.00 and such fee is enclosed.
6. The Trademark Assignment that gave rise to the interest being granted in the above-referenced trademarks was executed by Advanced Refractory Technologies, Inc. on June 10, 1998.
7. The assignee of the trademark is domiciled in the United States.
8. To the best of the undersigned's knowledge and belief, the information contained in this cover sheet is true and correct and any copy submitted is a true copy of the original document.

Advanced Refractory Technologies, Inc.

By: 

Title: President

**TRADEMARK, COPYRIGHT AND PATENT  
SECURITY AGREEMENT**

THIS TRADEMARK, COPYRIGHT AND PATENT SECURITY AGREEMENT, dated as of June 10, 1998, is made by ADVANCED REFRACTORY TECHNOLOGIES, INC., a New York corporation (the "Grantor"), in favor of PETRA CAPITAL, LLC, a Georgia limited liability company (the "Lender").

**WITNESSETH:**

WHEREAS, Lender is making a loan (the "Loan") in the amount of \$3,000,000 to Grantor, pursuant to that certain Loan and Security Agreement of even date herewith by and between Grantor and Lender (the "Loan Agreement"); and

WHEREAS, in connection with the making of the Loan, Lender desires to obtain from Grantor and Grantor desires to grant to Lender a security interest in certain collateral more particularly described below;

**AGREEMENT:**

NOW, THEREFORE, in consideration of the premises and to induce Lender to enter into the Loan Agreement and to induce Lender to make the Loan to Grantor under the Loan Agreement, Grantor hereby agrees with Lender, as follows:

1. **Defined Terms.** Unless otherwise defined herein, terms which are defined in the Loan Agreement and used herein are so used as so defined, and the following terms shall have the following meanings:

"**Collateral**" has the meaning assigned to it in Section 2 of this Security Agreement.

"**Copyrights**" means all copyrights in and to all software, user documentation and other works of authorship of Grantor (including registrations, recordings and applications in the United States Copyright Office or in any office or agency of the United States, any state thereof, any other country or political subdivision thereof, or any international body), and applications for copyright registrations, and any renewals, reissues or extensions thereof, including without limitation, each copyright and computer program listed on Exhibit A hereto.

"**Copyright Licenses**" means all license or use agreements with any other party in connection with any of the Copyrights or such other party's works of authorship, whether Grantor is a licensor or licensee under any such license agreement, including, without limitation, the license and use agreements listed on Exhibit A hereto.

"**Event of Default**" has the same meaning as provided in the Loan Agreement.

"**Patents**" means all types of exclusionary or protective rights granted (or applications therefor) for inventions in any country of the world (including, without limitation, letters patent, plant patents, utility models, breeders' right certificates, inventor's certificates and the like), and all reissues and extensions thereof and all divisions, continuations and continuations-in-part thereof, including, without limitation, any thereof referred to in Exhibit A hereto.

"**Patent Licenses**" means all agreements material to the operation of Grantor's businesses, whether written or oral, providing for the grant by or to Grantor of any right to manufacture, use or

sell any invention covered by a Patent, including, without limitation, any thereof referred to in Exhibit A hereto.

"Proceeds" means "proceeds," as such term is defined in Section 9-306(1) of the Uniform Commercial Code in effect in the State of Georgia as of the date hereof and, to the extent not included in such definition, shall include, without limitation, (a) any and all proceeds of any insurance, indemnity, warranty, guaranty or letter of credit payable to Grantor from time to time with respect to any of the Collateral, (b) all payments (in any form whatsoever) paid or payable to Grantor from time to time in connection with any taking of all or any part of the Collateral by any governmental authority or any person acting under color of governmental authority, (c) all judgments in favor of Grantor in respect of the Collateral, and (d) all other amounts from time to time paid or payable or received or receivable under or in connection with any of the Collateral.

"Security Agreement" means this Trademark, Copyright and Patent Security Agreement, as amended, supplemented or otherwise modified from time to time.

"Secured Obligations" has the same meaning as provided in the Loan Agreement.

"Trademarks" means (a) all trademarks, trade names, corporate names, company names, business names, fictitious business names, trade styles, service marks, logos and other source of business identifiers used in any country in the world, whether registered or unregistered, and the goodwill associated therewith, now existing or hereafter acquired and material to the businesses of Grantor, and (b) all registrations, recordings and renewals thereof, and all applications in connection therewith, issued by or filed with a national, state or local governmental authority of any country, including, without limitation, all such rights referred to in Exhibit A hereto.

"Trademark Licenses" means any agreement, material to the businesses of Grantor, written or oral, providing for the grant by or to Grantor of any right to use any Trademark, including, without limitation, any thereof referred to in Exhibit A hereto.

2. Grant of Security Interest. As collateral security for the prompt and complete payment and performance when due (whether at the stated maturity, by acceleration or otherwise) of the Secured Obligations, Grantor hereby assigns and grants to Lender for the benefit of Lender a security interest in all of Grantor's right, title and interest in and to the following property now owned or at any time hereafter acquired by Grantor or in which Grantor now has or at any time in the future may acquire any right, title or interest (collectively, the "Collateral"):

- a. all Trademarks;
- b. all Trademark Licenses;
- c. all Copyrights;
- d. all Copyright Licenses;
- e. all Patents;
- f. all Patent Licenses; and
- g. to the extent not otherwise included, all Proceeds and products of any and all of the foregoing;

that are material to the business of Grantor, and whether or not included in Exhibit A.

3. Representations and Warranties. Grantor represents and warrants that Exhibit A hereto includes all Trademarks, Trademark Licenses, Copyrights, Copyright Licenses, Patents and Patent Licenses owned by Grantor as of the date hereof. To the best of Grantor's knowledge, each Trademark, Patent and Copyright is valid, subsisting, unexpired, enforceable and has not been abandoned. Except as set forth in Exhibit A, none of the Trademarks, Patents or Copyrights is the subject of any licensing or franchise agreement. All licenses of the Trademarks, Patents and Copyrights are in force and effect, and, to the best knowledge of Grantor, not in default, except for matters that in the aggregate would not give rise to a Material Adverse Event. No holding, decision or judgment has been rendered by any governmental authority which would limit or cancel the validity of any Trademark, Copyright or Patent. No action or proceeding is pending (i) seeking to limit or cancel the validity of any Trademark, Copyright or Patent or Grantor's ownership thereof, or (ii) which, if adversely determined, would have a material adverse effect on any Trademark, Copyright or Patent.

4. Covenants. Grantor covenants and agrees with Lender that, from and after the date of this Security Agreement until the Secured Obligations are paid in full:

a. Further Documentation. From time to time, upon the written request of Lender, and at the sole expense of Grantor, Grantor will promptly and duly execute and deliver such further instruments and documents and take such further action as Lender may reasonably request for the purpose of obtaining or preserving the full benefits of this Security Agreement and the rights and powers herein granted, including, without limitation, the filing of any financing or continuation statements under the Uniform Commercial Code as in effect in any jurisdiction with respect to the liens created hereby. Grantor also hereby authorizes Lender to file any such financing or continuation statement without the signature of Grantor to the extent permitted by applicable law. A carbon, photographic or other reproduction of this Security Agreement shall be sufficient as a financing statement for filing in any jurisdiction.

b. Limitation on Lien or Collateral. Grantor will not create, incur or permit to exist, and Grantor will take all commercially reasonable actions to defend the Collateral against, and will take such other commercially reasonable action as is necessary to remove, any lien or claim on or to the Collateral or any portion thereof, other than the security interests created hereby, and other than as permitted pursuant to the Loan Agreement, and will take all commercially reasonable actions that are necessary to defend the right, title and interest of Lender in and to any of the Collateral against the claims and demands of all persons whomsoever.

c. Limitations on Dispositions of Collateral. Grantor will not sell, transfer or otherwise dispose of any of the Collateral, or attempt, offer or contract to do so except as permitted in the Loan Agreement. Licensing or sublicensing of intellectual property rights included within the Collateral shall not be deemed to constitute a sale, transfer or other disposition of such Collateral.

d. Notices. Grantor will advise Lender promptly, in reasonable detail, at Lender's address set forth in the Loan Agreement, (i) of any lien (other than liens created hereby or permitted under the Loan Agreement) on, or claim asserted against, the Collateral or any portion thereof, and (ii) of the occurrence of any other event which could reasonably be expected to have a material adverse effect on the aggregate value of the Collateral or on the liens created hereunder.

e. Patents, Copyrights and Trademarks.

(i) Grantor (either itself or through licensees) will, except with respect to any Trademark that Grantor shall reasonably determine is of immaterial economic value to it or otherwise reasonably determines not to do so, (A) continue to use such Trademark on each and every

trademark class of goods applicable to its current line as reflected in its current catalogs, brochures and price lists in order to maintain such Trademark in full force and effect, free from any claim of abandonment for non-use, (B) maintain as in the past the quality of products and services offered under such Trademark, (C) employ such Trademark with the appropriate notice of registration, (D) not adopt or use any mark which is confusingly similar to or a colorable imitation of such Trademark unless within 30 days after such use or adoption, Lender, for its benefit, shall obtain a perfected security interest in such mark pursuant to this Security Agreement, and (E) not (and not knowingly permit any licensee or sublicensee thereof to) do any act or knowingly omit to do any act whereby any Trademark may become invalidated.

(ii) Grantor will not, except with respect to any Patent or Copyright that Grantor shall reasonably determine is of immaterial economic value to it, do any act, or omit to do any act, whereby any Patent or Copyright may become abandoned.

(iii) Grantor will promptly notify Lender if Grantor knows that any application relating to any Patent, Copyright or any Trademark may become abandoned or dedicated, or of any materially adverse determination or material adverse development (including, without limitation, the institution of, or any such determination or development in, any proceeding in the United States Patent and Trademark office, the United States Copyright Office or any court or tribunal in any country) regarding Grantor's ownership of any Patent, Copyright or Trademark or its right to register the same or to keep and maintain the same.

(iv) Whenever Grantor, either by itself or through any agent, employee, licensee or designee, shall file an application for any Patent or for the registration of any Trademark with the United States Patent and Trademark Office or for the registration of any Copyright with the United States Copyright Office or any similar office or agency in any other country or any political subdivision thereof, Grantor shall report such filing to Lender within five business days after the last day of the fiscal quarter in which such filing occurs. Upon request of Lender, Grantor shall execute and deliver any and all reasonably necessary agreements, instruments, documents, and papers as Lender may request to evidence Lender's security interest in any newly filed Patent, Copyright or Trademark (or the application related thereto) and the goodwill and general intangibles of Grantor relating thereto or represented thereby, and Grantor hereby constitutes Lender its attorney-in-fact to execute and file all such writings for the foregoing purposes, all acts of such attorney being hereby ratified and confirmed; such power being coupled with an interest is irrevocable until the Secured Obligations are paid in full.

(v) Grantor will take all commercially reasonable and necessary steps, including, without limitation, in any proceedings before any tribunal, office or agency in any other country or any political subdivision thereof, to maintain and pursue each application (and to obtain the relevant registration or issuance) and to maintain each Patent and each registration of Trademarks or Copyrights, including, without limitation, filing of applications for renewal, affidavits of use and affidavits of incontestability when appropriate unless Grantor reasonably determines that such Patent, Trademark or Copyright is of immaterial economic value to it.

(vi) In the event Grantor knows that any Patent, Copyright or Trademark included in the Collateral is being infringed, misappropriated or diluted by a third party, Grantor shall promptly notify Lender after it learns thereof and shall, unless Grantor shall reasonably determine that such infringement or misappropriation is of immaterial economic detriment to Grantor which determination Grantor shall promptly report to Lender, promptly sue for infringement, misappropriation or dilution, or take other commercially reasonable actions as Grantor shall reasonably deem appropriate under the circumstances to protect such Patent, Copyright or Trademark.

TRADEMARK

REEL: 1770 FRAME: 0888

5. Remedies. If an Event of Default shall occur and be continuing, Lender shall have all of the rights and remedies set forth in the Loan Agreement and all other rights and remedies that Lender may now or hereafter possess at law, in equity, by statute or otherwise.

6. Limitation on Duties Regarding Preservation of Collateral. Neither Lender nor any of its shareholders, directors, officers, employees or agents shall be liable for failure to demand, collect or realize upon all or any part of the Collateral or for any delay in doing so or shall be under any obligation to sell or otherwise dispose of any Collateral upon the request of Grantor or otherwise.

7. Severability. Any provision of this Security Agreement which is prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions hereof, and any such prohibition or unenforceability in any jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

8. Paragraph Headings. The paragraph headings used in this Security Agreement are for convenience of reference only and are not to affect the construction hereof or be taken into consideration in the interpretation hereof.

9. No Waiver; Cumulative Remedies. Lender shall not by any act (except by a written instrument pursuant to Section 10 hereof), delay, indulgence, omission or otherwise be deemed to have waived any right or remedy hereunder or to have acquiesced in any default or Event of Default or in any breach of any of the terms and conditions hereof. No failure to exercise, nor any delay in exercising, on the part of Lender, any right, power or privilege hereunder shall operate as a waiver thereof. No single or partial exercise of any right, power or privilege hereunder shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege. A waiver by Lender of any right or remedy hereunder on any occasion shall not be construed as a bar to any right or remedy which Lender would otherwise have on any future occasion. The rights and remedies herein provided are cumulative, may be exercised singly or concurrently and are not exclusive of any rights or remedies provided by law.

10. Waivers and Amendments; Successors and Assigns. None of the terms or provisions of this Security Agreement may be waived, amended, supplemented or otherwise modified except by a written instrument executed by Grantor and Lender, provided that any provision of this Security Agreement may be waived by Lender in a written letter or agreement executed by Lender or by telex or facsimile transmission from Lender. This Security Agreement shall be binding upon the successors and assigns of Grantor and shall inure to the benefit of Lender and its successors and assigns.

11. Notices. Any and all notices, elections or demands permitted or required to be made under this Agreement or any of the Loan Documents shall be made in accordance with the terms of the Loan Agreement.

12. Governing Law. This Security Agreement shall be governed by, and construed and interpreted in accordance with, the laws of the State of Georgia applicable to contracts to be wholly performed in such State.

[SIGNATURE PAGE TO TRADEMARK, COPYRIGHT AND PATENT SECURITY AGREEMENT]

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

GRANTOR:

ADVANCED REFRACTORY TECHNOLOGIES, INC.

By: Keith A. Blakely

Title: President and C.E.O.

LENDER:

PETRA CAPITAL, LLC

By: Petra Capital Management, LLC, Manager

By: \_\_\_\_\_

Title: \_\_\_\_\_

STATE OF NEW YORK )  
COUNTY OF ERIE )

On the 3<sup>rd</sup> day of June, in the year 1998, before me, the undersigned, a Notary Public in and for said state, personally appeared Keith A. Blakely, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Sandra R. Hanagan  
Notary Public

My Comm. Expires: 12-6-99

**SANDRA R. HANAGAN**  
Notary Public, State of New York  
Qualified in Erie County  
My Commission Expires Dec. 6, 1999



[SIGNATURE PAGE TO TRADEMARK, COPYRIGHT AND PATENT SECURITY AGREEMENT]

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

GRANTOR:

ADVANCED REFRACTORY TECHNOLOGIES, INC.

By: \_\_\_\_\_

Title: \_\_\_\_\_

LENDER:

PETRA CAPITAL, LLC

By: Petra Capital Management, LLC, Manager

By: Rob [Signature]

Title: Member

STATE OF NEW YORK    )  
                                  )  
COUNTY OF ERIE      )

On the \_\_\_\_ day of June, in the year 1998, before me, the undersigned, a Notary Public in and for said state, personally appeared Keith A. Blakely, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

\_\_\_\_\_  
Notary Public

My Comm. Expires: \_\_\_\_\_

STATE OF TENNESSEE    )  
                                  )  
COUNTY OF DAVIDSON    )

Before me, the undersigned, a Notary Public in and for the State and County aforesaid, personally appeared Rob Shuler, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who, upon oath, acknowledged himself/herself to be the member of Petra Capital Management, LLC, the Manager of Petra Capital, LLC, the within named bargainor, a Georgia limited liability company, and that he/she as such member, executed the foregoing instrument for the purposes therein contained, by signing the name of the Manager by himself/herself as such member.

WITNESS my hand, at office in Nashville, TN, this 10 day of June, 1998.

Lou McPherson  
Notary Public

My Comm. Expires: 5-26-2002

**TRADEMARK, COPYRIGHT & PATENT SECURITY AGREEMENT**

**EXHIBIT A**

1. Copyrights -
  - a. None, other than those copyrights arising under common law which relate to the business and operations of Borrower.
2. Copyright Licenses -
  - a. Any and all copyright licenses pertaining to any software used by Borrower which is "off the shelf" or "shrink-wrapped".
3. Patents -
  - a. Borrower's Provisional Patent Applications:
    1. Filed 9/15/97 for Silica - coated Aluminum Nitride Powders with improved properties; App. No. 60/058,833.
    2. Filed 2/9/97 for the Use of Ti<sub>3</sub>SiCz materials for improved Hall-Heroult cell electrolysis of metals. (No App. No. yet.)
  - b. See Schedule 1.
4. Patent Licenses -
  - a. General Agreement by and among Borrower, Atomic Scale Design, Inc. and Benjamin Dorfman, dated May 30, 1996.
  - b. Borrower to provide within Thirty (30) days after the Closing, a list of all other agreements, including, without limitation, license agreements, sublicense agreements and franchise agreements, material to the operation of Borrower's businesses, whether written or oral, providing for the grant by or to Borrower of:
    - (1) any right to manufacture, use or sell any invention covered by a Patent; or
    - (2) any patent license or patent sublicense.
5. Trademarks -
  - a. See attached Schedule 2.
6. Trademark Licenses -

- a. Borrower to provide within Thirty (30) days after the Closing, a list of any agreement, including, without limitation, license agreements, sublicense agreements and franchise agreements, material to the business of Borrower, written or oral, providing for the grant by or to Borrower of any right to use any Trademark.

7. Section 3 –

- a. Borrower to provide within Thirty (30) days of the Closing, a list of all agreements, including, without limitation, license agreements, sublicense agreements and franchise agreements, material to the business of Borrower, written or oral, providing for grant by or to Borrower of:
  - (1) any right to manufacture, use or sell any invention covered by a Patent;
  - (2) any patent license or patent sublicense; or
  - (3) any right to use any Trademark.
- b. Intellectual Property purchased by Borrower from Electronic Designs, Inc. on October 27, 1997 (as such term is defined in that certain Asset Purchase Agreement by and between Borrower and Electronic Designs, Inc. (“EDI”), dated as of October 1, 1997), is subject to that certain Security Agreement by and between Borrower and EDI, dated October 27, 1997.
- c. Pursuant to that certain Asset Purchase Agreement by and between RCS Technologies, Inc. and Borrower, dated August 6, 1997, (“Asset Purchase Agreement”) Borrower purchased, among other things, certain Intellectual Property (as such term is defined in the Assset Purchase Agreement). Pursuant to Section 3 of that certain Royalty Agreement by and between Borrower and RCS Technologies, Inc. dated August 6, 1997 (“Royalty Agreement”) one of the Covered Agreements under the Asset Purchase Agreement, Borrower granted to RCS the right to repurchase from Borrower the Intellectual Property and certain data, records, software information, proprietary or otherwise, upon payment of \$30,000.00. See Section 3 of the Royalty Agreement.

#303699

**SCHEDULE 1**

**PATENTS AND PATENT APPLICATIONS**

TRADEMARK  
REEL: 1770 FRAME: 0895

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty  
Type/Rel.

Subject/Inventor	Client Ref#	Serial#	Filing Data	IPIDO Atty.	Status
20497/100 USA DIAMOND-LIKE METALLIC AND SUPERCONDUCTING NANOCOMPOSITES AND METHODS FOR THEIR MANUFACTURE /Inventor(s):VenLamin F. Dorfman		07/695,552	03MY1991	KH	Patent issued on 10/14/94 as U.S. Patent No. 5,352,493.
20497/101 USA DIAMOND-LIKE METALLIC AND SUPERCONDUCTING NANOCOMPOSITES AND METHODS FOR THEIR MANUFACTURE /Inventor(s):VenLamin F. Dorfman				KH	CLOSED.
20497/102 USA DIAMOND-LIKE METALLIC AND SUPERCONDUCTING NANOCOMPOSITES AND METHODS FOR THEIR MANUFACTURE /Inventor(s):VenLamin F. Dorfman		08/249,167	25RY1994	KH	Patent issued on 11/14/95 as U.S. Patent No. 5,466,431.
20497/103 USA DIAMOND-LIKE METALLIC AND SUPERCONDUCTING NANOCOMPOSITES AND METHODS FOR THEIR MANUFACTURE /Inventor(s):VenLamin F. Dorfman Boris Pypkin		08/471,401	06JEL1995	KH	Final Amendment due 4/1/98.
20497/110 USA NANOCLUSTER METAL AND POLYMETALLIC CATALYSTS STABILIZED IN CLUSTERLESS NANOCOMPOSITE MATRICES /Inventor(s):Veniamin F. Dorfman				KH	CLOSED.
20497/120 USA ELECTRICALLY TUNABLE COATINGS /Inventor(s):Arvind Goel Veniamin F. Dorfman		00/403,848	07JEL1995	KH	Issue Fee/Formal Drawings filed 10/30/97.

TRADEMARK

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty Type/Rel.	Subject/Inventor	Client Ref#	Serial#	Filing Date	NIJDD Atty.	Status
20497/121 PCT	ELECTRICALLY TUNABLE COATINGS		PCT/US96/08820	05JBE1996	DAH	Completed. National applications filed in Europe, Japan, China, Canada, Mexico, Korea, Australia and Singapore.
ORIGINAL O PATENT COO	/Inventor(s): Arvind Goel Venkamin F. Dorfman					
20497/122 INDI	ELECTRICALLY TUNABLE COATINGS		996/HAS/96	07JBE1996	KW	Pending.
ORIGINAL O NATIONAL C	/Inventor(s): Arvind Goel Venkamin F. Dorfman					
20497/123 TAIW	ELECTRICALLY TUNABLE COATINGS		85106785	06JBE1996	KW	Response sent to associate 2/9/98.
ORIGINAL O NATIONAL C	/Inventor(s): Arvind Goel Venkamin F. Dorfman					
20497/124 EPC	ELECTRICALLY TUNABLE COATINGS		96219077.6	05JBE1996	KW	Amendment sent to associate 3/9/98.
ORIGINAL O PCT/EPC AP	/Inventor(s): Arvind Goel Venkamin F. Dorfman					
20497/125 JAPA	ELECTRICALLY TUNABLE COATINGS		501305/1997	05JBE1996	KW	Request for Examination due 6/5/2003.
ORIGINAL O PCT/NATION	/Inventor(s): Arvind Goel Venkamin F. Dorfman					

TRADE MARK

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty Type/Ref.	Subject/Inventor	Client Ref#	Serial#	Filing Date	HMDO Atty.	Status
20497/126 CHEN	ELECTRICALLY TUNABLE COATINGS		961961112.0	05JJE1996	KW	Examination requested 5/27/98.
ORIGINAL O PCT/NATION	/Inventor(s): Arvind Goel Veniamin F. Dorfman					
20497/127 CANA	ELECTRICALLY TUNABLE COATINGS		2,224,068	05JJE1996	KW	Request for Examination due 6/5/2003.
ORIGINAL O PCT/NATION	/Inventor(s): Arvind Goel Veniamin F. Dorfman					
20497/128 HEXI	ELECTRICALLY TUNABLE COATINGS		979649	05JJE1996	KW	Pending.
ORIGINAL O PCT/NATION	/Inventor(s): Arvind Goel Veniamin F. Dorfman					
20497/119 KORS	ELECTRICALLY TUNABLE COATINGS		708953/1991	05JJE1996	KW	Request for Examination due 6/5/2001.
ORIGINAL O PCT/NATION	/Inventor(s): Arvind Goel Veniamin F. Dorfman					
20497/130 USA	DIMOND-LIKE NANOCOMPOSITE CORROSION RESISTANT COATINGS		08/472,552	07JJE1995	KR	Patent issued on 3/17/98 as U.S. Patent No. 5,728,165.
ORIGINAL O NATIONAL C	/Inventor(s): Veniamin F. Dorfman Arvind Goel					

TRADEMARK



MASTER FILE REPORT

PCMASTER REPORTER

02JJE1998 14 42 PAGE: 4

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty  
Type/Rel.

Docket #/Cty Type/Rel.	Subject/Inventor	Client Ref#	Serial#	Filing Date	NIPOD Atty.	Status
20497/131 PCT ORIGINAL O PATENT COO	DIAMOND-LIKE NANOCOMPOSITE CORROSION RESISTANT COATINGS  /Inventor(s): Veniamin F. Dorfman Arvind Goel		PCT/US96/08754	05JJE1996	BAH	Completed. No national applications filed.
20497/132 INDI ORIGINAL O NATIONAL C	DIAMOND-LIKE NANOCOMPOSITE CORROSION RESISTANT COATINGS  /Inventor(s): Veniamin F. Dorfman Arvind Goel		984/US96/96	06JJE1996	KW	Pending.
20497/133 TAIN ORIGINAL O NATIONAL C	DIAMOND-LIKE NANOCOMPOSITE CORROSION RESISTANT COATINGS  /Inventor(s): Veniamin F. Dorfman Arvind Goel		85106786	06JJE1996	KW	Pending.
20497/134 USA DIVISION NATIONAL C	DIAMOND-LIKE NANOCOMPOSITE CORROSION RESISTANT COATINGS  /Inventor(s): Veniamin F. Dorfman Arvind Goel		09/018,150	03JJE1998	KW	Not examined yet.
20497/140 USA ORIGINAL O NATIONAL C	DIAMOND-LIKE NANOCOMPOSITE THIN FILMS FOR AUTOMOTIVE POWERTRAIN COMPONENT COATINGS  /Inventor(s): Arvind Goel Donald J. Bray		08/538,472	03OC1995	KW	Abandoned.

TRADEMARK

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty  
Type/Rel.

Subject/Inventor

Client Ref#

Serial#

Filing  
Date

INDD  
Atty.

Status

20497/141  
PCT  
ORIGINAL O  
PATENT COO

DIAMOND-LIKE  
NANOCOMPOSITE THIN FILMS  
FOR AUTOMOTIVE POWERTRAIN  
COMPONENT COATINGS  
/Inventor(s): Arvind Goel  
Donald J. Bray

PCT/US96/15367

BAH

25SEP1996

Completed. No national  
applications filed.

20497/142  
INDI  
ORIGINAL O  
NATIONAL C

DIAMOND-LIKE  
NANOCOMPOSITE THIN FILMS  
FOR AUTOMOTIVE POWERTRAIN  
COMPONENT COATINGS  
/Inventor(s): Arvind Goel  
Donald J. Bray

536/HAS/97

RW

14NR1997

Pending.

20497/143  
JAIN  
ORIGINAL O  
NATIONAL C

DIAMOND-LIKE  
NANOCOMPOSITE THIN FILMS  
FOR AUTOMOTIVE POWERTRAIN  
COMPONENT COATINGS  
/Inventor(s): Arvind Goel  
Donald J. Bray

86104160

KV

01AP1997

Pending.

20497/150  
USA  
ORIGINAL O  
NATIONAL C

EROSION RESISTANT  
DIAMOND-LIKE  
NANOCOMPOSITE COATINGS  
FOR OPTICAL COMPONENTS  
/Inventor(s): Arvind Goel  
William F. Dorfman  
Donald J. Bray

08/476,660

KV

07JEL995

Patent issued on 2/17/98 as  
U.S. Patent No. 5,718,976.

20497/151  
PCT  
ORIGINAL O  
PATENT COO

EROSION RESISTANT  
DIAMOND-LIKE  
NANOCOMPOSITE COATINGS  
FOR OPTICAL COMPONENTS  
/Inventor(s): Arvind Goel  
William F. Dorfman  
Donald J. Bray

PCT/US96/08814

BAH

05JEL996

Completed. No national  
applications filed.

TRADEMARK

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty Type/Rel.	Subject/Inventor	Client Ref#	Serial#	Filing Date	NUDD Atty.	Status
20497/152 INDI ORIGINAL O NATIONAL C	EROSION RESISTANT DIAMOND-LIKE NANOCOMPOSITE COATINGS FOR OPTICAL COMPONENTS  /Inventor(s): Arvind Goel Veniamin F. Dorfman Donald J. Bray		985/10AS/96	06JEL1996	KW	Pending.
20497/153 TAIW ORIGINAL O NATIONAL C	EROSION RESISTANT DIAMOND-LIKE NANOCOMPOSITE COATINGS FOR OPTICAL COMPONENTS  /Inventor(s): Arvind Goel Veniamin F. Dorfman Donald J. Bray		05106709	06JEL1996	KW	Issued as Patent No. H1-00997 on 2/6/98.
20497/160 USA ORIGINAL O NATIONAL C	METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS  /Inventor(s): Arvind Goel Donald J. Bray		00/538,731	03JOC1995	KW	Final Amendment filed 1/29/98.
20497/161 PCT ORIGINAL O PATENT COO	METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS  /Inventor(s): Arvind Goel Donald J. Bray		PCT/US96/15358	25SEP1996	BAH	Completed; National applications filed in Japan, China, Korea, Mexico, Australia, Singapore, Canada and Europe.
20497/162 INDI ORIGINAL O NATIONAL C	METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS  /Inventor(s): Arvind Goel Donald J. Bray		537/MS/97	14HR1997	KW	Pending.

TRADEMARK

STATUS REPORT

Docket #/City  
 Type/Rel.

Subject/Inventor	Client Ref#	Serial#	Filing Date	HMDD Atty.	Status
20497/163 TAIN ORIGINAL O NATIONAL C		86104156	01AP1997	KW	Pending.
METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS /Inventor(s):Arvind Goel Donald J. Bray					
20497/164 JARA ORIGINAL O PCT/NATION		514312/1997	25SE1996	KW	National filing instructions to associate on 3/11/98.
METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS /Inventor(s):Arvind Goel Donald J. Bray					
20497/165 CHEN ORIGINAL O PCT/NATION		PCT/US96/15358	25SE1996	KW	National filing instructions to associate on 3/11/98.
METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS /Inventor(s):Arvind Goel Donald J. Bray					
20497/166 XONS ORIGINAL O PCT/NATION		702427/1998	25SE1996	KW	National filing instructions to associate on 3/11/98.
METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS /Inventor(s):Arvind Goel Donald J. Bray					
20497/167 MEXI ORIGINAL O PCT/NATION		982582	25SE1996	KW	National filing instructions to associate on 3/11/98.
METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANOCOMPOSITE FILM COATINGS /Inventor(s):Arvind Goel Donald J. Bray					

TRADEMARK

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty Type/Rel.	Subject/Inventor	Client Ref#	Serial#	Filing Date	NIPO Acty.	Status
20497/168 ASTL	METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANO-COMPOSITE FILM COATINGS /Inventor(s): Arvind Goel Donald J. Bray		70712/96	25SEP1996	KW	National Filing instructions to associate on 3/20/98.
20497/169 SING	METHOD FOR PRESERVING PRECISION EDGES USING DIAMOND-LIKE NANO-COMPOSITE FILM COATINGS /Inventor(s): Arvind Goel Donald J. Bray		PCT/US96/15358	25SEP1996	KW	National Filing instructions to associate on 3/20/98.
20497/170 USA	METHOD FOR SYNTHESIZING TITANIUM NITRIDE WHISKERS /Inventor(s): Vithal Revankar		08/556,704	13NOV1995	KW	Patent Issued on 9/9/97 as U.S. Patent No. 5,665,326.
20497/171 USA	METHOD FOR SYNTHESIZING TITANIUM NITRIDE WHISKERS /Inventor(s): Vithal Revankar		08/818,851	17MAY1997	KW	Abandoned.
20497/180 USA	METHOD FOR SYNTHESIZING ALUMINUM NITRIDE WHISKERS /Inventor(s): Arvind Goel Vithal Revankar		08/545,358	19OCT1995	KW	Patent Issued on 12/02/97 as U.S. Patent No. 5,693,305.
ORIGINAL O NATIONAL C						

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ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty Type/Ref.	Subject/Inventor	Client Ref#	Serial#	Filing Date	MIID Atty.	Status
20497/181 USA	METHOD FOR SYNTHESIZING ALUMINUM NITRIDE WHISKERS  /Inventor(s):Vithal Revankar Arvind Goel		08/881,394	02Jul1997	KW	Not examined yet.
20497/190 USA	CAPACITIVE THIN FILMS USING DIAMOND-LIKE NANOCOMPOSITE MATERIALS  /Inventor(s):Arvind Goel Donald J. Bray Steven C. Martin Keith A. Blakely		08/538,475	030C1995	KW	Patent Issued on 6/10/97 as U.S. Patent No. 5,638,251.
20497/191 INDI	CAPACITIVE THIN FILMS USING DIAMOND-LIKE NANOCOMPOSITE MATERIALS  /Inventor(s):Arvind Goel Donald J. Bray Steven C. Martin Keith A. Blakely		PCT/US96/15368	25SE1996	BM	Completed. National applications filed in Japan, China, Korea, Mexico, Australia, Singapore, Canada and Europe.
20497/192 INDI	CAPACITIVE THIN FILMS USING DIAMOND-LIKE NANOCOMPOSITE MATERIALS  /Inventor(s):Arvind Goel Donald J. Bray Steven C. Martin Keith A. Blakely		538/MAS/97	14MR1997	KW	Pending.

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MASTER FILE REPORT  
 ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty Type/Rel.	Subject/Inventor	Client Ref#	Serial#	Filing Date	RHDD Atty.	Status
20497/19J TAIW	CAPACITIVE THIN FILMS USING DIAMOND-LIKE NANOCOMPOSITE MATERIALS  /Inventor(s): Arvind Goel Donald J. Bray Steven C. Martin Keith A. Blakely		06104157	01AP1997	KW	Pending.
20497/194 JAKA	CAPACITIVE THIN FILMS USING DIAMOND-LIKE NANOCOMPOSITE MATERIALS  /Inventor(s): Arvind Goel Donald J. Bray Steven C. Martin Keith A. Blakely		514311/1997	25SE1996	KW	National filing instructions to associate on 3/11/98.
20497/195 CHIN	CAPACITIVE THIN FILMS USING DIAMOND-LIKE NANOCOMPOSITE MATERIALS  /Inventor(s): Arvind Goel Donald J. Bray Steven C. Martin Keith A. Blakely		PCT/0996/15368	25SE1996	KW	National filing instructions to associate on 3/11/98.
20497/196 KORS	CAPACITIVE THIN FILMS USING DIAMOND-LIKE NANOCOMPOSITE MATERIALS  /Inventor(s): Arvind Goel Donald J. Bray Steven C. Martin Keith A. Blakely		702418/1998	25SE1996	KW	National filing instructions to associate on 3/11/98.

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MASTER FILE REPORT  
ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Cty  
Type/Rel.

Subject/Inventor Client Ref# Serial# Filing Date MHDD Atty. Status

20497/197  
HXKI  
ORIGINAL O  
PCT/NATION

CAPACITIVE THIN FILMS  
USING DIAMOND-LIKE  
NANOCOMPOSITE MATERIALS  
/Inventor(s):Arvind Goel  
Donald J. Bray  
Steven C. Martin,  
Keith A. Blakely

902581  
25SEP1996  
KW  
National filing instructions  
to associate on 3/11/98.

20497/198  
ASTL  
ORIGINAL O  
PCT/NATION

CAPACITIVE THIN FILMS  
USING DIAMOND-LIKE  
NANOCOMPOSITE MATERIALS  
/Inventor(s):Arvind Goel  
Donald J. Bray  
Steven C. Martin  
Keith A. Blakely

75132/96  
25SEP1996  
KW  
National filing instructions  
to associate on 3/20/98.

20497/199  
SING  
ORIGINAL O  
PCT/NATION

CAPACITIVE THIN FILMS  
USING DIAMOND-LIKE  
NANOCOMPOSITE MATERIALS  
/Inventor(s):Arvind Goel  
Donald J. Bray  
Steven C. Martin  
Keith A. Blakely

PCT/US996/15368  
25SEP1996  
KW  
National filing instructions  
to associate on 3/20/98.

20497/210  
USA  
ORIGINAL O  
NATIONAL C

ELECTRICALLY TUNABLE LOW  
SECONDARY ELECTRON  
EMISSION DIAMOND-LIKE  
COATINGS AND PROCESS FOR  
DEPOSITING COATINGS  
/Inventor(s):Arvind Goel  
Craig A. Outten

08/853,929  
09HY1997  
KH  
Not examined yet.

TRADEMARK



ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/cty Type/Rel.	Subject/Inventor	Client Ref	Serial#	Filing Date	INNOV Atty.	Status
20497/211 PCT	ELECTRICALLY TUNABLE LOW SECONDARY ELECTRON EMISSION DIAMOND-LIKE COATINGS AND PROCESS FOR DEPOSITING COATINGS /Inventor(s):Arvind Goel Craig A. Outten		PCT/US98/09396	07/14/1998	KW	Pending.
20497/212 TAIN	ELECTRICALLY TUNABLE LOW SECONDARY ELECTRON EMISSION DIAMOND-LIKE COATINGS AND PROCESS FOR DEPOSITING COATINGS /Inventor(s):Arvind Goel Craig A. Outten		87107237	11/14/1998	KW	Pending.
20497/213 INDI	ELECTRICALLY TUNABLE LOW SECONDARY ELECTRON EMISSION DIAMOND-LIKE COATINGS AND PROCESS FOR DEPOSITING COATINGS /Inventor(s):Arvind Goel Craig A. Outten		<del>88/0557355</del>	08/14/1998	KW	Pending.
20497/220 USA	WEAR RESISTANT ELECTROMECHANICAL CONTACTS /Inventor(s):Chandra Venkataraman				KW	Not filed yet.
20497/230 USA	WEAR RESISTANT POLYMERIC COATINGS /Inventor(s):Arvind Goel				KW	Not filed yet.

TRADEMARK

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/Clty Type/Rel.	Subject/Inventor	Client Refl	Serial/J	Filing Date	HMDD Atty.	Status
20497/240 USA ORIGINAL O NATIONAL C	METHOD OF INHIBITING ATOMIC OXYGEN DEGRADATION USING DIAMOND-LIKE NANOCOMPOSITE COATINGS /Inventor(s): Daniel J. Kester				KW	Not filed yet.
20497/250 USA ORIGINAL O NATIONAL C	FLUORINE DOPED FILMS L /Inventor(s): Craig A. Outten Donald J. Heay		60/067,567	05DE1997	KW	Response to Missing Parts filed 4/6/98.
20497/260 ASTL ORIGINAL O PCT/NATION	ELECTRICALLY TUNABLE COATINGS /Inventor(s): Arvind Goel Veniamin F. Dorfman		61514/96	05JEL996	KW	Request for Examination due 6/5/2001.
20497/261 SING ORIGINAL O PCT/NATION	ELECTRICALLY TUNABLE COATINGS /Inventor(s): Arvind Goel Veniamin F. Dorfman		PCT/US96/08820	05JEL996	KW	Pending.
20497/270 USA ORIGINAL O NATIONAL C	FLUORINE DOPED FILMS FOR FLEXIBLE SUBSTRATES L /Inventor(s): Chandra Venkatesan Craig A. Outten		60/067,750	05DE1997	KW	Response to Missing Parts filed 4/6/98.

REMARK

REEL: 1770 FRAME: 0908

ADVANCED REFRACTORY TECHNOLOGIES

STATUS REPORT

Docket #/City  
Type/Rel.

Filing  
Date

WIPO  
Atty.

Status

Subject/Inventor

Serial#

Client Ref#

20497/280  
USA

KW  
UNDESIGNED application filed  
5/22/98.

ORIGINAL O  
NATIONAL C

RESISTORS WITH LOW  
TEMPERATURE COEFFICIENT  
OF RESISTANCE AND METHODS  
OF MAKING  
/inventor(s):Chandra Venkatraman

20497/290  
CAN

25881996

KW

National filing instructions  
to associate on 3/27/98.

ORIGINAL O  
PCT/NATION

PCT/US96/15358

METHOD FOR PRESERVING  
PRECISION EDGES USING  
DIAMOND-LIKE  
NANOCOMPOSITE FILM  
COATINGS  
/inventor(s):Arvind Goel  
Donald J. Bray

20497/291  
EPC

25881996

KW

National filing instructions  
to associate on 3/27/98.

ORIGINAL O  
PCT/EPC AP

96935946.2

METHOD FOR PRESERVING  
PRECISION EDGES USING  
DIAMOND-LIKE  
NANOCOMPOSITE FILM  
COATINGS  
/inventor(s):Arvind Goel  
Donald J. Bray

20497/300  
CAN

25881996

KW

National filing instructions  
to associate on 3/27/98.

ORIGINAL O  
PCT/NATION

PCT/US96/15368

CAPACITIVE THIN FILMS  
USING DIAMOND-LIKE  
NANOCOMPOSITE MATERIALS  
/inventor(s):Arvind Goel  
Donald J. Bray  
Steven C. Martin  
Keith A. Blakely

20497/301  
EPC

25881996

KW

National filing instructions  
to associate on 3/27/98.

ORIGINAL O  
PCT/EPC AP

96937640.9

CAPACITIVE THIN FILMS  
USING DIAMOND-LIKE  
NANOCOMPOSITE MATERIALS  
/inventor(s):Arvind Goel  
Donald J. Bray  
Steven C. Martin  
Keith A. Blakely

TRADEMARK

**CRYSTALLUME ISSUED**  
(updated June 2, 1998)

Patent Title	Inventors	Atty.	Patent Number	Issue Date
Method for Suppressing Growth of Graphite and Other Non-Diamond Carbon species During Formation of Synthetic Diamond	Pinneo		4,849,199	7/18/89
Method for Preparation of Diamond Ceramics	Pinneo		4,882,138	11/21/89
Method for Preparing Diamond X-ray Transmissive Elements	Pinneo		4,939,763	7/3/90
Fluidized Bed Diamond Particle Growth	Pinneo		5,015,528	5/14/91
Silicon on Insulator Semiconductor Composition Containing Thin Synthetic Diamond Films	Ravi		5,131,963	7/21/92
Methods for Coating Adherent Diamond Films of Cemented Tungsten Carbide Substrates (licensed from NCMS)	Peters Cummings		5,236,740	8/17/93
Apparatus and Method for Controlling Plasma Size and Position in Plasma-Activated Chemical Vapor Deposition Processes	Pinneo	DR	5,230,740	7/27/93
High Thermal Conductivity Diamond/Non-Diamond Composite Materials	Herb Pinneo Gardinier	DR	5,270,114	12/14/93
Microwave Plasma Method for Coating a Substrate with High Thermal Conductivity Diamond Material	Herb Pinneo Gardinier	DR	5,271,971	12/21/93
Method for Consolidating Diamond Particles to Form High Thermal Conductivity Article			5,273,790	
Article Comprising Regions of High Thermal Conductivity Diamond on Substrate	Herb Pinneo Gardinier	DR	5,273,825	12/28/93
High Thermal-Conductivity Diamond-Coated Fiber Articles	Herb Pinneo Gardinier	DR	5,277,975	1/11/94
Diamond Materials with Enhanced Heat Conductivity	Herb Pinneo Gardinier	DR	5,284,709	2/8/94
High Thermal Conductivity Diamond/Non Diamond Composite Materials	Herb Pinneo Gardinier	DR	5,304,424	4/19/94
Diamond/Non-Diamond Materials with Enhanced Thermal Conductivity	Herb Pinneo Gardinier	DR	5,316,842	5/31/94
Structure and Method for Mounting Laser Diode Arrays	Herb Pinneo	DR	5,325,384	6/28/94
Diamond Film and Solid Particles Composite Structure and Method for Fabricating Same	Pinneo	DR	5,413,722	5/9/95

Patent Title	Inventors	Atty.	Patent Number	Issue Date
Continuous Thin Film and Method for Making Same	Plano Peters Ravi Pinneo	DR	5,432,003	7/11/95
Apparatus and Method for Controlling Plasma Size and Position in Plasma-Activated Chemical Vapor Deposition Processes	Pinneo	DR	5,449,412	9/1/95
Methods for Producing Diamond Materials with Enhanced Heat Conductivity	Herb Pinneo Gardinier	DR	5,496,596	3/15/96
Diamond Film and Solid Non-Diamond Particle Composite Compositions	Pinneo	DR	5,545,030	8/13/96
Cemented Tungsten Carbide Substrates Having Adherent Diamond Films Coated Thereon (licensed to Crystallume by NCMS)	Peters Cummings	DR	5,567,526	10/22/96
Ultrasooth Adherent Diamond Film Coating Article and Method for Making Same	Phillips Pinneo	DR	5,571,615	11/5/96
Ultrasooth Adherent Diamond Film Coated Article and Method for Making Same	Phillips Pinneo	DR	5,571,616	11/5/96
Method for Making Continuous Thin Diamond Film	Plano Peters Ravi Pinneo	DR	5,607,723	3/4/97
Diamond Film and Mixed Diamond and Non-Diamond Particle Composite Compositions	Pinneo	DR	5,609,955	3/11/97
Methods for Fabricating Diamond Film and Solid Fiber Composite Structure	Pinneo	DR	5,614,140	3/25/97
Diamond Film and Solid Particle Composite Structure and Methods for Fabricating Same	Pinneo	DR	5,633,088	5/27/97

**SCHEDULE 2**

**TRADE NAMES**

1. "ART" - Corporate Certificate of Assumed Name filed with New York Department of State on June 5, 1996 with respect to Erie and Niagara Counties.

**TRADEMARKS RELATING TO CRYSTALLUME**

1. United States Registration No. 1,824,109 for "CRYSTALLUME" regarding Crystallume for Power Operated Diamond Coated Tungsten Carbide Tools; Namely, Inserts and Cutting Tolls, In International Class 7.
2. United States Registration No. 1,822,500 for "CRYSTALLUME" regarding X-Ray Lithography Membranes, In International Class 9.
3. United States Registration No. 1,822,507 for "CRYSTALLUME" regarding X-Ray Transparent Windows, In International Class 9.
4. United States Registration No. 1,822,508 for "CRYSTALLUME" regarding Heat Spreaders For Use With Electronic Devices; Namely, Laser Diodes, Microwave Power Transistors, and Microprocessors, In International Class 9.
5. United States Registration No. 1,822,499 for "CRYSTALLUME" regarding Diamond Coated Silicon Wafers, In International Class 9.
6. United States Registration No. 1,874,507 for "DCC" regarding Power-Operated Diamond Coated Tungsten Carbide Tools; Namely, Inserts and Cutting Bits, In International Class 7.
7. Any and all common law rights relating to any of the Trademark Registrations set forth above.

OTHER TRADEMARKS AND SERVICE MARKS

<u>NAME</u>	<u>DESCRIPTION</u>	<u>DATE</u>	<u>REG. NO.</u>
A and Design	Service Mark - Technical assistance and consulting services rendered to manufacturers of ceramic products in connection with practical applications for boron carbide, titanium diboride, silicon carbide, and similar materials, in Class 42 (U.S. CL. 100)	4/26/83	1,235,929
A and Design	Trademark - Boron carbide, titanium diboride, and plasma spray powders, in Class 1 (U.S. CL. 66 <sup>6</sup> )	6/28/83	1,243,348
ALNEL	Trademark - Aluminum nitride powder for use in making electronic products, such as printed circuit boards and/or ceramic products such as insulators, in Class 1 (U.S. CL. 6)	2/16/88	1,476,418
CERASHIELD	Trademark - Ceramic material for absorbing neutrons, such as emitted by a nuclear reactor, in Class 17 (U.S. CLS. 1 and 12)	8/25/87	1,454,252
DYLYN	Trademark - Low friction, high adherence coating for use on metal, semiconductors, ceramics, glass, plastic, composites of the foregoing materials, and forms of carbon, namely diamond, diamond-like materials, graphite, and glassy carbon materials to impart or enhance protective, electrical, optical, or wear properties, in Class 2 (U.S. CLS. 6, 11, and 16)	3/5/96	1,961,073
Tomorrow's Technology ... Today	Service Mark	5/13/83	1,238,806

**SHERRARD & ROE, PLC**

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424 CHURCH STREET  
NASHVILLE, TENNESSEE 37219  
(615) 742-4200  
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MICHAEL D. ROBERTS

WRITER'S DIRECT DIAL  
(615) 742-4543  
MROBERTS@SHROE.COM

August 11, 1998

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

Commissioner of Patents and Trademarks  
Box Assignments  
Washington, D.C. 20231

Re: Advanced Refractory Technologies, Inc.

Honorable Commissioner:

Enclosed please find a Trademark Cover Sheet together with a Trademark, Copyright and Patent Security Agreement and a Patent Cover Sheet together with a Trademark, Copyright and Patent Security Agreement by and between Advanced Refractory Technologies, Inc. and Petra Capital, LLC. I have also enclosed two checks payable to the Commissioner of Patents and Trademarks in the amounts of \$315.00 and \$1,760.00 for the filing fees.

If you have any questions or require further information, please give me a call. Thank you for your assistance in this matter.

Sincerely,

  
Michael D. Roberts

MDR/lam

Enclosures

163930.01 3465-0028

RECORDED: 08/17/1998

TRADEMARK  
REEL: 1770 FRAME: 0914