

04-05-2001



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U.S. Department of Commerce
Patent and Trademark Office
PATENT

**RECORDATION FORM COVER SHEET
PATENTS ONLY**

TO: The Commissioner of Patents and Trademarks: Please record the attached original document(s) or copy(ies).

Submission Type

☒ New

☐ Resubmission (Non-Recordation)

Document ID#

☐ Correction of PTO Error

Reel #

Frame #

☐ Corrective Document

Reel #

Frame #

Conveyance Type

☒ Assignment

☐ Security Agreement

☐ License

☐ Change of Name

☐ Merger

☐ Other

U.S. Government
(For Use ONLY by U.S. Government Agencies)

☐ Departmental File

☐ Secret File

Conveying Party(ies)

☐ Mark if additional names of conveying parties attached

Name (line 1) Advanced Ceramics Corporation

Execution Date
Month Day Year
02 02 01

Name (line 2)

Second Party

Name (line 1)

Execution Date
Month Day Year

Name (line 2)

Receiving Party

☐ Mark if additional names of receiving parties attached

Name (line 1) KeyBank National Association, as agent

Name (line 2)

Address (line 1) 127 Public Square

Address (line 2)

Address (line 3) Cleveland

City

OH

State/Country

44114

Zip Code

☐ If document to be recorded is an assignment and the receiving party is not domiciled in the United States, an appointment of a domestic representative is attached. (Designation must be a separate document from Assignment.)

Domestic Representative Name and Address

Enter for the first Receiving Party only.

Name

Address (line 1)

Address (line 2)

Address (line 3)

Address (line 4)

FOR OFFICE USE ONLY

04/04/2001 TBIAZI 00000037 08314412

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120.00 OP

Public burden reporting for this collection of information is estimated to average approximately 30 minutes per Cover Sheet to be recorded, including time for reviewing the document and gathering the data needed to complete the Cover Sheet. Send comments regarding this burden estimate to the U.S. Patent and Trademark Office, Chief Information Officer, Washington, D.C. 20231 and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Paperwork Reduction Project (0651-0027), Washington, D.C. 20503. See OMB Information Collection Budget Package 0651-0027, Patent and Trademark Assignment Practice. DO NOT SEND REQUESTS TO RECORD ASSIGNMENT DOCUMENTS TO THIS ADDRESS.

Mail documents to be recorded with required cover sheet(s) information to:
Commissioner of Patents and Trademarks, Box Assignments, Washington, D.C. 20231

PATENT
REEL: 011642 FRAME: 0001

Correspondent Name and Address

Area Code and Telephone Number (216) 586-7206

Name

Address (line 1)

Address (line 2)

Address (line 3)

Address (line 4)

RETURN TO:**FEDERAL RESEARCH CORP.****400 SEVENTH STREET NW****SUITE 101****WASHINGTON DC 20004**

Pages

Enter the total number of pages of the attached conveyance document
including any attachments.

#

90

Application Number(s) or Patent Number(s)

☐

Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

Patent Application Number(s)

08314412

08771373

Patent Number(s)

08603498

If this document is being filed together with a new Patent Application, enter the date the patent application was
signed by the first named executing inventor.

Month Day Year

Patent Cooperation Treaty (PCT)

Enter PCT application number

only if a U.S. Application Number
has not been assigned.

PCT

PCT

PCT

PCT

PCT

PCT

Number of Properties

Enter the total number of properties involved.

#

3

Fee Amount

Fee Amount for Properties Listed (37 CFR 3.41): \$

120.00

Method of Payment:

Deposit Account

Enclosed ☐Deposit Account ☐

(Enter for payment by deposit account or if additional fees can be charged to the account.)

Deposit Account Number:

#

Authorization to charge additional fees:

Yes ☐No ☐

Statement and Signature

*To the best of my knowledge and belief, the foregoing information is true and correct and any
attached copy is a true copy of the original document. Charges to deposit account are authorized, as
indicated herein.*

Kathie J. Kopczyk

Name of Person Signing

Kathie J. Kopczyk

Signature

March 19, 2000

Date

INTELLECTUAL PROPERTY COLLATERAL ASSIGNMENT AGREEMENT

1. RECITALS.

ADVANCED CERAMICS CORPORATION, an Ohio corporation (together with its successors and assigns, "Pledgor"), the financial institutions listed on Schedule 1 to the Credit Agreement, as hereinafter defined, (collectively, "Banks" and, individually, "Bank") and KEYBANK NATIONAL ASSOCIATION, as agent for the Banks ("Agent"), are entering into the Credit Agreement.

Pledgor deems it to be in the direct pecuniary and business interests of Pledgor that Pledgor obtain from the Banks the Commitment, as defined in the Credit Agreement, and the Loans, as hereinafter defined, provided for in the Credit Agreement.

Pledgor understands that the Banks are willing to grant such financial accommodations to Pledgor only upon certain terms and conditions, one of which is that Pledgor grant to Agent, for the benefit of the Banks, a security interest in and collateral assignment of the Collateral, as hereinafter defined, and this Intellectual Property Collateral Assignment Agreement (as the same may from time to time be amended, restated or otherwise modified, this "Agreement") is being executed and delivered in consideration of each financial accommodation granted to Pledgor by the Banks and for other valuable considerations.

2. DEFINITIONS. As used in this Agreement, the following terms shall have the following meanings:

2.1. "Assignment" shall mean an Assignment in the form of Exhibit A attached hereto.

2.2. "Collateral" shall mean, collectively, all of Pledgor's existing and future (a) patents, patent registrations, patent applications, trademarks, trademark registrations, trademark applications and copyright registrations, whether federal or state, including, but not limited to, those listed on Schedule 1 hereto (as such Schedule 1 may from time to time be amended, supplemented or otherwise modified); (b) common law trademark rights, copyrights, improvements and inventions; (c) renewals, proceeds on infringement suits, and rights to sue for past, present and future infringements relating to any of the foregoing; (d) goodwill associated with any of the foregoing; and (e) proceeds of any of the foregoing.

2.3. "Credit Agreement" shall mean the Credit and Security Agreement executed by and among Pledgor, the Banks and Agent and dated as of the 2nd day of February, 2001, as the same may from time to time be amended, restated or otherwise modified or replaced.

2.4. "Debt" shall mean, collectively, (a) all Loans; (b) all other indebtedness now owing or hereafter incurred by Pledgor to Agent or any Bank pursuant to the Credit Agreement and any Note executed in connection therewith; (c) each renewal, extension, consolidation or refinancing of any of the foregoing, in whole or in part; (d) all interest from time to time accruing on any of the foregoing, and all fees or other amounts payable by Pledgor pursuant to the Credit Agreement; (e) all obligations and liabilities of Pledgor now existing or hereafter incurred to Agent or any Bank

under, arising out of, or in connection with any Hedge Agreement; (f) every other liability, now or hereafter owing to Agent or any Bank by Pledgor pursuant to the Credit Agreement or any other Loan Document; and (g) all Related Expenses.

2.5. "Event of Default" shall mean an event or condition that constitutes an event of default pursuant to Section 8 hereof.

2.6 "Hedge Agreement" shall mean any currency swap or hedge agreement, interest rate swap, cap, collar or floor agreement, or other interest rate management device entered into by Pledgor with Agent or any of the Banks, or any of their respective affiliates, in connection with the Debt.

2.7. "Loan" shall mean any Loan, as defined in the Credit Agreement, granted pursuant to the Credit Agreement.

2.8. "Person" shall mean any individual, sole proprietorship, partnership, joint venture, unincorporated organization, corporation, limited liability company, institution, trust, estate, government or other agency or political subdivision thereof or any other entity.

2.9. "Related Expenses" shall mean any and all reasonable costs, liabilities and expenses (including, without limitation, losses, damages, penalties, claims, actions, reasonable attorneys' fees, legal expenses, judgments, suits, and disbursements) (a) incurred by Agent or imposed upon or asserted against Agent or any Bank, in any attempt by Agent and the Banks to (i) obtain, preserve, perfect or enforce any security interest evidenced by this Agreement, the Credit Agreement or any Related Writing, as defined in the Credit Agreement; (ii) obtain payment, performance or observance of any and all of the Debt; or (iii) maintain, insure, audit, collect, preserve, repossess or dispose of any of the Collateral or any other collateral securing the Debt, including, without limitation, costs and expenses for appraisals, assessments and audits of Pledgor or any such collateral; or (b) incidental or related to (a) above, including, without limitation, interest thereupon from the date incurred, imposed or asserted until paid at the Default Rate, as defined in the Credit Agreement.

2.10. "USPTO" shall mean the United States Patent and Trademark Office in Washington D.C.

Except as specifically defined herein, capitalized terms used herein that are defined in the Credit Agreement shall have their respective meanings ascribed to them in the Credit Agreement.

3. GRANT OF ASSIGNMENT AND SECURITY INTEREST. In consideration of and as security for the full and complete payment of all of the Debt, Pledgor hereby agrees that the Banks shall at all times have, and hereby grants to Agent, for the benefit of the Banks, a security interest in and collateral assignment of all of the Collateral, including (without limitation) all of Pledgor's future Collateral, irrespective of any lack of knowledge by Agent or any Bank of the creation or acquisition thereof.

4. REPRESENTATIONS AND WARRANTIES. Pledgor represents and warrants to Agent and each Bank that:

(a) Pledgor owns all of the Collateral and, whether the same are registered or unregistered, no such Collateral has been adjudged invalid or unenforceable;

(b) The Collateral is valid and enforceable;

(c) Pledgor has no knowledge of any claim that the use of any of the Collateral does or may violate the rights of any Person;

(d) Pledgor is the sole and exclusive owner of the entire and unencumbered right, title and interest in and to the Collateral, free and clear of any liens, charges and encumbrances except as expressly permitted in the Credit Agreement, including, without limitation, pledges, assignments, licenses, registered user agreements and covenants by Pledgor not to sue third Persons;

(e) Pledgor has full power, authority and legal right to pledge the Collateral and enter into this Agreement and perform its terms; and

(f) Pledgor has used, and shall continue to use, for the duration of this Agreement, proper statutory notice in connection with its use of the Collateral, except where the failure to do so will not have a Material Adverse Effect.

5. FURTHER ASSIGNMENT PROHIBITED. Pledgor shall not enter into any agreement that is inconsistent with Pledgor's obligations under this Agreement and shall not otherwise sell or assign its interest in, or grant any license or sublicense with respect to, any of the Collateral without Agent's prior written consent. Absent such prior written consent, any attempted sale or license is null and void.

6. RIGHT TO INSPECT. Pledgor hereby grants to Agent, for the benefit of the Banks, and its employees and agents the right, during regular business hours, to visit any location of Pledgor or, if applicable, any other location, and to inspect the products and quality control records relating thereto, at Pledgor's expense.

7. STANDARD PATENT AND TRADEMARK USE. Pledgor shall not use the Collateral in any manner that would jeopardize the validity or legal status thereof. Pledgor shall comply with all patent marking requirements as specified in 35 U.S.C. §287. Pledgor shall further conform its usage of any trademarks to standard trademark usage, including, but not limited to, using the trademark symbols ®, ™, and ™ where appropriate.

8. EVENT OF DEFAULT.

(a) The occurrence of any of the following shall constitute an "Event of Default" under this Agreement (i) an Event of Default, as defined in the Credit Agreement, shall occur under the Credit Agreement; (ii) any representation, warranty or statement made by Pledgor in or pursuant to

this Agreement or in any other writing received by Agent or the Banks in connection with the Debt shall be false or erroneous in any material respect; or (iii) Pledgor shall fail or omit to perform or observe any agreement made by Pledgor in or pursuant to this Agreement or in any other writing received by Agent or the Banks pursuant hereto.

(b) Pledgor expressly acknowledges that Agent, on behalf of the Banks, shall record this Agreement with the USPTO. Contemporaneously herewith, Pledgor shall execute and deliver to Agent the Assignment, which Assignment shall have no force and effect and shall be held by Agent in escrow until the occurrence of an Event of Default; provided, that, anything herein to the contrary notwithstanding, the security interest and collateral assignment granted herein shall be effective as of the date of this Agreement. After the occurrence of an Event of Default, the Assignment shall immediately take effect upon certification of such fact by an authorized officer of Agent in the form reflected on the face of the Assignment and Agent may, in its sole discretion, record the Assignment with the USPTO.

(c) If an Event of Default shall occur, Pledgor irrevocably authorizes and empowers Agent, on behalf of the Banks, to terminate Pledgor's use of the Collateral and to exercise such rights and remedies as allowed by law. Without limiting the generality of the foregoing, after any delivery or taking of possession of the Collateral, or any thereof, pursuant to this Agreement, then, with or without resort to Pledgor or any other Person or property, all of which Pledgor hereby waives, and upon such terms and in such manner as Agent may deem advisable, Agent, in its discretion, may sell, assign, transfer and deliver any of the Collateral, together with the associated goodwill, or any interest that Pledgor may have therein, at any time, or from time to time. No prior notice need be given to Pledgor or to any other Person in the case of any sale of Collateral that Agent determines to be declining speedily in value or that is customarily sold in any recognized market, but in any other case Agent shall give Pledgor no fewer than ten (10) days prior notice of either the time and place of any public sale of the Collateral or of the time after which any private sale or other intended disposition thereof is to be made. Pledgor waives advertisement of any such sale and (except to the extent specifically required by the preceding sentence) waives notice of any kind in respect of any such sale. At any such public sale, Agent or any Bank may purchase the Collateral, or any part thereof, free from any right of redemption, all of which rights Pledgor hereby waives and releases. After deducting all Related Expenses, and after paying all claims, if any, secured by liens having precedence over this Agreement, Agent may apply the net proceeds of each such sale to or toward the payment of the Debt, whether or not then due, in such order and by such division as Agent in its sole discretion may deem advisable. Any excess, to the extent permitted by law, shall be paid to Pledgor, and the obligors on the Debt shall remain liable for any deficiency. In addition, Agent shall at all times have the right to obtain new appraisals of Pledgor or the Collateral, the cost of which shall be paid by Pledgor.

9. TERMINATION. At such time as the Debt shall have been irrevocably paid in full, the Commitment, as defined in the Credit Agreement, terminated, and the Credit Agreement terminated and not replaced by any other credit facility with Agent and the Banks, Pledgor shall have the right to terminate this Agreement. Upon written request of Pledgor, Agent shall execute and deliver to Pledgor all deeds, assignments, and other instruments as may be necessary or proper to release Agent's security interest in and assignment of the Collateral and to re-vest in Pledgor full title

to the Collateral, subject to any disposition thereof that may have been made by Agent, for the benefit of the Banks, pursuant hereto.

10. MAINTAINING COLLATERAL; ATTORNEYS' FEES, COSTS AND EXPENSES.

Pledgor shall have the obligation and duty to perform all acts necessary to maintain or preserve the Collateral, provided that Pledgor shall not be obligated to maintain any Collateral in the event Pledgor determines, in the reasonable business judgment of Pledgor, that the maintenance of such Collateral is no longer necessary in Pledgor's business. Any and all reasonable fees, costs and expenses, of whatever kind or nature, including, without limitation, the reasonable attorneys' fees and legal expenses incurred by Agent and the Banks in connection with the amendment and enforcement of this Agreement, all renewals, required affidavits and all other documents relating hereto and the consummation of this transaction, the filing or recording of any documents (including all taxes in connection therewith) in public offices, the payment or discharge of any taxes, counsel fees, maintenance fees, encumbrances or otherwise protecting, maintaining or preserving the Collateral, or in defending or prosecuting any actions or proceedings arising out of or related to the Collateral, shall be borne and paid by Pledgor, upon demand by Agent and, until so paid, shall be added to the principal amount of the Debt.

11. PLEDGOR'S OBLIGATION TO PROSECUTE. Except as otherwise agreed to by Agent in writing, Pledgor shall have the duty to prosecute diligently any patent application or trademark application pending as of the date of this Agreement or thereafter until the Debt shall have been paid in full, to file and prosecute opposition and cancellation proceedings and to do any and all acts that are necessary or desirable to preserve and maintain all rights in the Collateral, including, but not limited to, payment of any maintenance fees. Any expenses incurred in connection with the Collateral shall be borne by Pledgor. Pledgor shall not abandon any Collateral without the prior written consent of Agent, unless such abandonment will not have a Material Adverse Effect or such abandonment is in connection with the abandonment of a product or product line.

12. AGENT'S RIGHT TO ENFORCE. Pledgor shall have the right to bring any opposition proceeding, cancellation proceeding or lawsuit in its own name to enforce or protect the Collateral. Agent, on behalf of the Banks, shall have the right, but shall have no obligation, to join in any such action. Pledgor shall promptly, upon demand, reimburse and indemnify Agent and the Banks for all damages, reasonable costs and expenses, including reasonable attorneys' fees, incurred by Agent and the Banks in connection with the provisions of this Section 12, in the event Agent, on behalf of the Banks, elects to join in any such action commenced by Pledgor.

13. POWER OF ATTORNEY. Pledgor hereby authorizes and empowers Agent, on behalf of the Banks, to make, constitute and appoint any officer or agent of Agent as Agent may select, in its exclusive discretion, as Pledgor's true and lawful attorney-in-fact, with the power to endorse, after the occurrence of an Event of Default (unless waived by Agent and the Required Banks or cured to the satisfaction of Agent), Pledgor's name on all applications, documents, papers and instruments necessary for Agent, on behalf of the Banks, to use the Collateral, or to grant or issue any exclusive or nonexclusive license under the Collateral to any third party, or necessary for Agent, on behalf of the Banks, to assign, pledge, convey or otherwise transfer title in or dispose of the Collateral, together with associated goodwill to a third party or parties. Pledgor hereby ratifies

all that such attorney shall lawfully do or cause to be done by virtue hereof. This power of attorney shall be irrevocable for the life of this Agreement.

14. AGENT'S RIGHT TO PERFORM OBLIGATIONS. If Pledgor fails to comply with any of its obligations under this Agreement, Agent, on behalf of the Banks, may, but is not obligated to, do so in Pledgor's name or in the name of Agent, on behalf of the Banks, but at Pledgor's expense, and Pledgor hereby agrees to reimburse Agent, upon request, in full for all expenses, including attorneys' fees, incurred by Agent and the Banks in protecting, defending and maintaining the Collateral.

15. ADDITIONAL DOCUMENTS. Pledgor shall, upon written request of Agent, enter into such additional documents or instruments as may be required by Agent in order to effectuate, evidence or perfect the interest of Agent and the Banks in the Collateral as evidenced by this Agreement.

16. NEW COLLATERAL. If, before the Debt shall have been satisfied in full and the Credit Agreement terminated, Pledgor shall obtain rights to any new Collateral, the provisions of Section 1 shall automatically apply thereto as if the same were identified on Schedule 1 as of the date hereof and Pledgor shall give Agent prompt written notice thereof.

17. MODIFICATION FOR NEW COLLATERAL. Pledgor hereby authorizes Agent to modify this Agreement by amending Schedule 1 to include any future Collateral as contemplated by Sections 1 and 16 hereof and, at Agent's request, Pledgor shall execute any documents or instruments required by Agent in order to modify this Agreement as provided in this Section 17, provided that any such modification to Schedule 1 shall be effective without the signature of Pledgor.

18. NO WAIVER. No course of dealing between Pledgor and Agent or any Bank, nor any failure to exercise, nor any delay in exercising, on the part of Agent or any such Bank, any right, power or privilege hereunder or under any of the Loan Documents shall operate as a waiver thereof; nor shall any single or partial exercise of any right, power or privilege hereunder or thereunder preclude any other or further exercise thereof or the exercise of any other right, power or privilege.

19. REMEDIES CUMULATIVE. All of the rights and remedies of Agent and the Banks with respect to the Collateral, whether established hereby or by the Documents, or by any other agreements or by law shall be cumulative and may be executed singularly or concurrently.

20. SEVERABILITY. The provisions of this Agreement are severable, and, if any clause or provision shall be held invalid and unenforceable in whole or in part in any jurisdiction, then such invalidity or unenforceability shall affect only such clause or provision, or part thereof, in such jurisdiction, and shall not in any manner affect such clause or provision in any other jurisdiction, or any other clause or provision of this Agreement in any jurisdiction.

21. MODIFICATIONS. This Agreement may be amended or modified only by a writing signed by Pledgor and Agent. In the event that any provision of this Agreement is deemed to be

inconsistent with any provision of any other document, other than the Credit Agreement, the provisions of this Agreement shall control.

22. **ASSIGNMENT AND SUCCESSORS.** This Agreement shall not be assigned by Pledgor without the prior written consent of Agent. This Agreement shall bind the successors and permitted assigns of Pledgor and shall benefit the respective successors and assigns of Agent and the Banks. Any attempted assignment or transfer without the prior written consent of Agent shall be null and void.

23. **NOTICE.** All notices, requests, demands and other communications provided for hereunder shall be in writing and, if to Pledgor, mailed or delivered to it, addressed to the address of Pledgor specified on the signature pages of the Credit Agreement, and, if to Agent or any Bank, mailed or delivered to it, addressed to the address of Agent or such Bank specified on the signature pages of the Credit Agreement. All notices, statements, requests, demands and other communications provided for hereunder shall be deemed to be given or made when delivered or forty-eight (48) hours after being deposited in the mails with postage prepaid by registered or certified mail, addressed as aforesaid, or sent by facsimile with telephonic confirmation of receipt, except that notices from Pledgor to Agent or any Bank pursuant to any of the provisions hereof shall not be effective until received by Agent or such Bank.

24. **GOVERNING LAW.** This Agreement shall be construed and enforced in accordance with, and the rights of the parties shall be governed by, the laws of the State of Ohio, without regard to principles of conflicts of law. Pledgor hereby irrevocably submits to the non-exclusive jurisdiction of any Ohio state or federal court sitting in Cleveland, Ohio, over any action or proceeding arising out of or relating to this Agreement, any Loan Document or any Related Writing, and Pledgor hereby irrevocably agrees that all claims in respect of such action or proceeding may be heard and determined in such Ohio state or federal court. Pledgor hereby irrevocably waives, to the fullest extent permitted by law, any objection it may now or hereafter have to the laying of venue in any action or proceeding in any such court as well as any right it may now or hereafter have to remove such action or proceeding, once commenced, to another court on the grounds of FORUM NON CONVENIENS or otherwise. Pledgor agrees that a final, nonappealable judgment in any such action or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by law.

[Remainder of page intentionally left blank.]

25. JURY TRIAL WAIVER. PLEDGOR, AGENT AND THE BANKS, TO THE EXTENT PERMITTED BY LAW, EACH WAIVE ANY RIGHT TO HAVE A JURY PARTICIPATE IN RESOLVING ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT OR OTHERWISE, AMONG AGENT, THE BANKS AND PLEDGOR, OR ANY THEREOF, ARISING OUT OF, IN CONNECTION WITH, RELATED TO, OR INCIDENTAL TO THE RELATIONSHIP ESTABLISHED BETWEEN THEM IN CONNECTION WITH THIS AGREEMENT OR ANY NOTE OR OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION THEREWITH OR THE TRANSACTIONS RELATED THERETO. THIS WAIVER SHALL NOT IN ANY WAY AFFECT, WAIVE, LIMIT, AMEND OR MODIFY THE ABILITY OF AGENT OR ANY BANK TO PURSUE REMEDIES PURSUANT TO ANY CONFESSION OF JUDGMENT OR COGNOVIT PROVISION CONTAINED IN ANY NOTE, OR OTHER INSTRUMENT, DOCUMENT OR AGREEMENT AMONG PLEDGOR, AGENT AND THE BANKS, OR ANY THEREOF.

IN WITNESS WHEREOF, the undersigned has executed this Agreement as of the 2nd day of February, 2001.

ATTEST:


Print Name: William E. Post.


Print Name: David J. Ray

ADVANCED CERAMICS CORPORATION

By: 
Gerard R. Weimann, President

ACKNOWLEDGMENTS

THE STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

BEFORE ME, a Notary Public, the undersigned authority, on this day personally appeared Gerard R. Weimann, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of ADVANCED CERAMICS CORPORATION, an Ohio corporation, and that she/he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 2nd day of February, 2001.


NOTARY PUBLIC

JOHN E. MAZEY NOTARY PUBLIC
State of Ohio
My Commission Has No Expiration

SCHEDULE 1

SEE ATTACHED LISTS OF PATENTS, PATENT APPLICATIONS AND TRADEMARKS

Advanced Ceramics Corporation
Active Trademarks and Service Marks

Trademark or Service Mark	Number	U.S. Filing Date	Registration Date	Describes	Countries Registered
Boralloy	763,741 137,447 152,274		28 Jun 84 25 Sep 79 30 Nov 81	Pyrolytic Boron Nitride (renewal app. Aug 91)	Canada China
Boralectric	1,703,088 594,249		28 Jul 92 10 May 92	Resistance heating elements for industrial and commercial use comprised of pyrolytic graphite and pyrolytic nitride	China
MCP				Metal coated powders Labels to EL 21 Dec 00	
Polarsphere(s)	76/026481	14-Apr-00		Ceramic particles exhibiting high thermal conductivity and a substantially spherical shape, for use alone or as fillers in polymers or glasses. To EL 9 Mar 99.	
Polartherm	2,126,905 D-3329 75/173892		30 Sep 96	6-Jan-98 High thermal conductivity ceramic preparations and filler materials, namely, boron nitride filled polymers, graphite, ceramic oxide, and compositions of the foregoing for use in mfr. of ceramic mats.	

Q Coat D-3736 ca 15 Sep 97 3-Aug-99 Ceramic flash evaporators for use in
75/369,758 75/369758 evaporating a metal coating of, for
example, aluminum upon a product such
as a picture tube or component of a
product.

SUPPLY SHIPPING
LABELS

Softouch D-3892 28-Aug-98 9-Nov-99 Boron nitride as a chemical raw material in
75/544,604 granular, particle or powder form for use as a
component of packaging materials, plastic
molding compounds, semiconductor related
products and diverse cosmetic products.

LABELS AND LITERATURE
SUPPLIED

TC1050 D-3936 21-Jan-99 7-Mar-00 A structure for transferring heat which
75/624519 2,326,014 contains or encapsulates pyrolytic graphite
within another solid material.

TPG D-3816 25-Mar-98 28-Dec-99 conductivity. Pyrolytic graphite having high thermal
75/457,180

SUPPLY SHIPPING
LABELS

Weld-R-White 1,844,968 12-Jul-94 74/263,405 7 Apr 92 Spatter guard stop-off compound in a water-
based liquid (paste) form for use in welding,
brazing and other hot metal working ops.

RE-FILE BY DEC 99
UNDER ACC

Notes: Foreign trademark registrations will generally not be made, unless there is a specific benefit to be gained.
Trademarks "Boralectric", "Boralloy" and "Weld-R-White" were assigned to ACC by Praxair S.T. Technology Inc.
2 Mar 93.

21 Dec 00 as PATDOC

Advanced Ceramics Corporation
Active Foreign Patent Applications and Invention Disclosures

2165293954 ADVANCED CERAMICS

647 P04

JAN 29 '01 17:42

Docket No.	Lab No.	Subject	Inventor	Filing	Remarks	Sales Class
31815 EPO G J K UK		J. Murtagh Articles Coated with Aluminum Nitride by Chemical Vapor Deposition	M.H. Gilbert	22 Nov 00 as PCT/US00/42236 21 Nov 00 as 60/166971		470
4121 CI G K Mal NE Tai		Evaporator for Projection Ray Tube	J.M. Morris	22 Mar 00 as 09/533,003		453
3953 EPO J		Heater for High Vacuum Optical View Port	T.J. Mattord M.H. Gilbert	2000-1117	US 5,977,526, 2 Nov 99 By 29 Feb 00 Before 17 Jul 00	430
4093 F G R		Pyrolytic Graphite Monochromator and Method A.W. Moore for Improving Lattice Spacing Spread...	T.J. Mattord M.H. Gilbert	31 Aug 99 as 09/386,739 R.L. 01029 Fr. 0273, 31 Aug Fr. 00/11070, before 10 Oct 00 De 100 40 196.1, 7 Oct 00	BAR DATE: Eur. Conf. Neutron Diff. Budapest 1 Sep 99	471
3915 UNM-496 EPO CMEM J		Spherical BN Particles	R.T. Paine W.J. Kroenke E.A. Pruss	US 09/315,097 16 May 00 as EPO00401328.0 19 May 00 as 2000-148893	22 Nov 00 as EP 1053973	452
3967		Improved Compaction for Producing Densified BN Precursor for Cubic BN	G.W. Shaffer R.F. Hill	U.S. 6,048,511, 11 Apr 00	Division of D-3775	452
3909 EPO		Flexible Heat Transfer Device and Method	J.B. Richey III	US:09/154,253, 16 Sep 98		435

F						Prior to 12 Sep 00	
J						2000-512246, 16 Mar 00	
R						2000109304, 27 Apr 00	Response filed prior to 17 Aug 00
33855							430
EPO		Pyrolytic BoronNitride Radiation Heater	M.H. Gilbert			09/347,335, 2 Jul 99	
J						22 May 00 as 00 401 406.4	Pub. 3 Jan 01 as 1065913, 24 Nov 00
K						13 Apr 00 as 2000-117191	
						Prior to 11 May 00	Translation and priority 19 Aug 00
33825							452
CAN		Surface Treated Boron Nitride for Forming a Low Viscosity High Thermal Conductivity Polymer Based Boron Nitride Composition	K. Ishida			US 6,160,042, 12 Dec 00	
EPO						99403250.6	Search report by 7 Sep 00
J							
TAI						88122593, 1 Oct 98	
33807							458
PCT		Method for Electroplating Metal Coatings on Particulates at High Coating Speed with High C.D.	Pay Yih			EPO 99 904 502.4	EPO 1051543, 15 Nov 00
J						PCT/US99/02112 29 Jan 99	Favorable prelim exam, 29 Mar 00
UK						2000-530647, 19 Jul 00	Request exam. 13 Oct 2000
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EPO		Method for Forming Boron Nitride and High-Density Agglomerated Boron Nitride Particles	G.W. Shaffer			98400361.6, 16 Feb 98	Germany, Sweden, UK 3-30-00
J						47768/98, 27 Feb 98	
33605							430
		Ceramic Electrostatic Chuck	H. Inoue, H. Miyata			21 Jan 97	
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3447							444
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PCT						PCT/US98/11730, 5 Jun 98	Prelim exam 10 Sep 99
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PCT		Composition for Forming High Thermal Conductivity Polybenzoxazine-based	K. Ishida (to EPIC)			Apr-98	

CAN CH F G I J SW TAI UK	Material and Method	C2,250,511 15 Oct 98 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00	Assigned 6 Nov 98	
3502 EPO F G K TAI	Pyrolytic Boron Nitride Compact and Method of Manufacture	J. Honma	EP 96 307144.4 30 Sep 96 K96-43613 20 Oct 96 Tai8S112116 by 13 Dec 96	"Discretionary Resistivity" J278269 EP 0 768 389, 16 Aug 00 By 18 Sep 00 By 5 Jul 00 Power to Kim & Lee 22 Nov 96 430
3467 CI J R UK	Method for the Precise Adjustment of the Mosaic Spread of HOPG	A.W. Moore	97120541, 10 Oct 97 277743/97, 9 Oct 97 97116800, 7 Oct 97 9721351.6, 9 Oct 97	471
3406 CAN F G I J K TAI	High Thermal Conductivity Composite and Method	J.T. Mariner H. Sayir	C2204331, 2 May 97 J115873/97, 6 May 97 97-17020, 2 May 97 30 Apr 97 as 86105759	435 filed by 14 Nov 00 per EPO 97 107 323.4 filed by 14 Nov 00 per EPO 97 107 323.4 filed by 14 Nov 00 per EPO 97 107 323.4
3301 CAN EPO	Boron Nitride Composition and Polymer Based High Conductivity Molding Compound	R.F. Hill S. DeVanzo	25 Feb 97 as 2198422 3 Mar 97 as 97103424.4	452 Search 29 Oct 99

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PCT	SiBN Coatings on Low Thermal Expansion		
F	Materials		
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Advanced Ceramics Corporation
Active U.S. Patent Applications and Invention Disclosures

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		TLP052000A High Thermal Conductivity BN Filled Polymers and Processing the Same	A.Y. Sane T.J. Fox		Received 8 Jun 00	452
32014 33022		J. Murtaugh Glass Sealed Two Piece PBN Crucible	J. T. Mariner N. J. Weiss	2 Nov 99 as 60/163,149 13 Nov 00 as 60/247,241		444
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4121		Pyrolytic Graphite Monochromator and Method for Improving Lattice Spacing Spread...	A.W. Moore	31 Aug 99 as 09/386,739 RL 01029 Fr. 0273, 31 Aug	Claims allowed 31 Jul 00	471
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3915 CMEM		Spherical BN Particles	R.T. Paine W.J. Kroenke E.A. Pruss	US 09/315,097	Examiner's 2nd response 6 Dec 00 Reply 6 Mar 01	452
3855		Pyrolytic BoronNitride Radiation Heater	M.H. Gilbert	09/347,335, 2 Jul 99 Reel 010094 Frame 0853	Allowance 10 May 00	430

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34130	J.T. Mariner	08/31/412	435
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USCINCPAC 160042A

6,160,042

[45] Date of Patent: Dec. 12, 2000

[50] **References Cited**

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Primary Examiner—Lae Yoon

Attorney, Agent, or Firm—Anderson, Kill & Olick P.C.

[57] ABSTRACT

A low viscosity high thermal conductivity polymer-based boron nitride composition and a surface-treated boron nitride material for use as a filler in this composition, and methods of preparation is described.

8 Claims, 1 Drawing Sheet

8 Claims, 1 Drawing Sheet

US006048511A

United States Patent [19]
Shaffer et al.

[11] **Patent Number:** **6,048,511**
 [45] **Date of Patent:** **Apr. 11, 2000**

[54] **METHOD FOR FORMING HIGH DENSITY BORON NITRIDE AND HIGH DENSITY AGGLOMERATED BORON NITRIDE PARTICLES**

[56] **References Cited**

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5,064,589 11 1991 Ichikawa et al. 423,290

[75] **Inventors:** Gregory W. Shaffer, Strongsville;
 Richard Frank Hill, Chargin Falls,
 both of Ohio

Primary Examiner—Wayne Langel
Attorney, Agent, or Firm—Eugene Lieberstein; Michael N. Meller

[73] **Assignee:** Advanced Ceramics Corporation,
 Lakeland, Ohio

[57] **ABSTRACT**

[21] **Appl. No.:** 09/225,820

[22] **Filed:** Jan. 5, 1999

Related U.S. Application Data

[62] Division of application No. 08/968,954, Nov. 12, 1997, Pat. No. 5,898,709, which is a continuation of application No. 08/618,361, Mar. 19, 1996, abandoned.

[51] **Int. Cl.**⁷ B29C 67/02; C01B 21/064

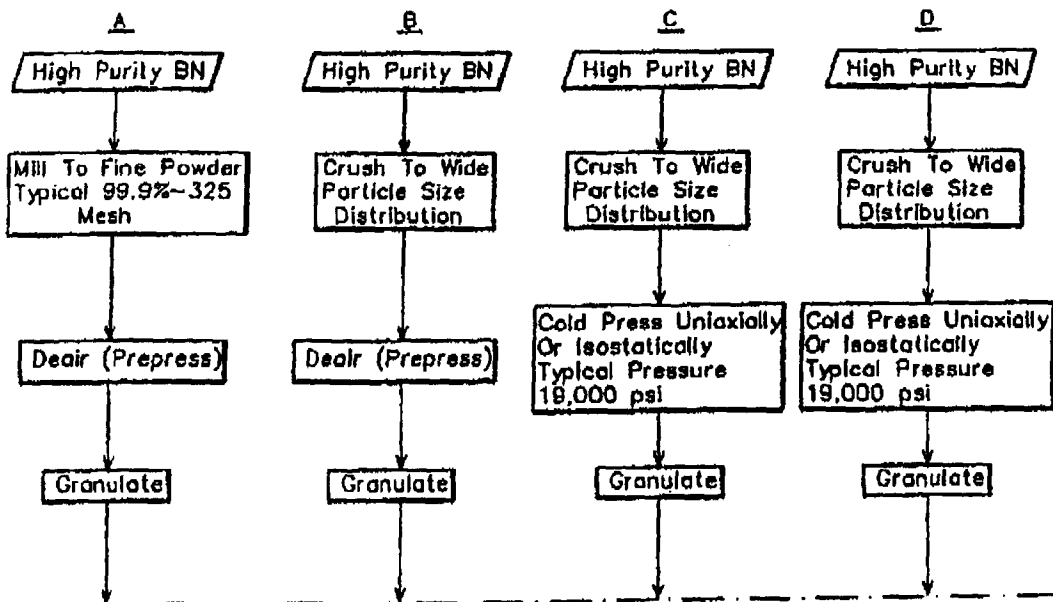
[52] **U.S. Cl.** 423/290; 264/117

[58] **Field of Search** 423/290; 501/96.4; 264/65, 117, 118

A method of forming pellets or agglomerates of high density boron nitride from high purity hexagonal boron nitride by crushing the high purity hexagonal boron nitride into boron nitride particles extending over a size range of at least 100 microns with the majority of the particles having a particle size above 50 microns and cold pressing the crushed particles into a compacted form. The compacted form is then granulated into a granulated powder and again cold pressed to form pellets or agglomerates of boron nitride particles with the operations of cold pressing and granulation occurring in one or more stages.

6 Claims, 5 Drawing Sheets

METHODS FOR PRODUCING HIGH GREEN DENSITY BN COMPACTS



US006011904A

United States Patent [19]

Mattord

[11] Patent Number: 6,011,904
[45] Date of Patent: Jan. 4, 2000

[54] MOLECULAR BEAM EPITAXY EFFUSION CELL

WO96/19597 6/1996 WIPO.
WO97/06292 2/1997 WIPO.
WO98/51836 11/1998 WIPO.

[75] Inventor: Terry J. Mattord, Austin, Tex.

[73] Assignee: Board of Regents, University of Texas, Austin, Tex.

Primary Examiner—Richard Bueker
Attorney, Agent, or Firm—Eugene Lieberstein; Michael N. Meller

[21] Appl. No.: 08/872,758

[22] Filed: Jun. 10, 1997

[51] Int. Cl.⁷ C23C 14/00

[52] U.S. Cl. 392/389; 118/726

[58] Field of Search 118/726, 392/389

[56] References Cited

U.S. PATENT DOCUMENTS

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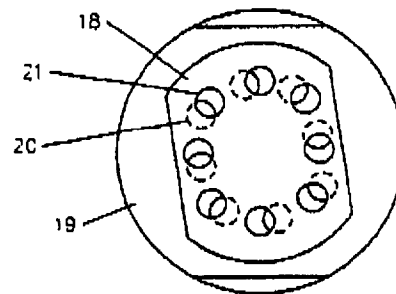
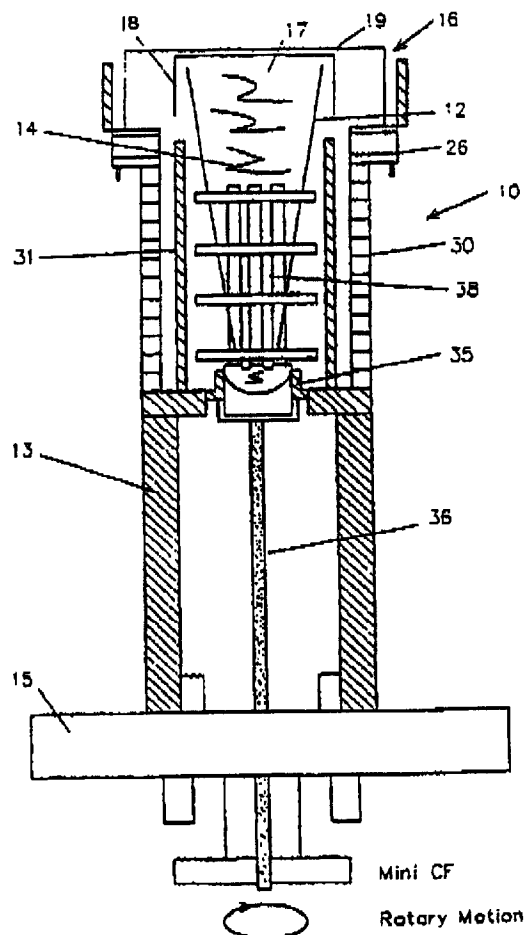
FOREIGN PATENT DOCUMENTS

2 534 933A1 4/1984 France

[57] ABSTRACT

A molecular beam epitaxy effusion cell for growing epitaxial layers upon a semiconductor substrate by control of a collimated beam of molecules generated from a source material in a high vacuum environment in order to control the hyper abrupt stoichiometry of the effusion flux. A heated control assembly is used to control the size of the exit openings of the effusion cell. The control assembly comprises a piezoelectric heating member such as a grating having a plurality of holes and a perforated cover which are adjustable relative to one another. The grating includes an internal heating element.

10 Claims, 9 Drawing Sheets



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PATENT
REEL: 011642 FRAME: 0024

DATE 21AUG2000

CLIENT: 7H

MASTER LIST

REPORT 31A101

PAGE 1

CASE
NUMBER

CLIENT/
DIVISION ATTORNEY YOUR
REFERENCE NUMBER PRIORITY TITLE

031291

96/0630941 PROCESS FOR FORMING PYROLYTIC SIBN COATINGS

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MD0RE

COUNTRY

SUB TYPE STATUS
CASE CASE NO. CMNT

APPLICATION
NUMBER/
FILE DATE

PATENT
NUMBER/
ISSUE DATE

PUBLIC
NUMBER/
DATE

TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
WORKING SCHD THRU DATE
STRT DATE

USA

CMNT

630041
02APR1996

5972511
26OCT1999

26APR2000

02APR2016

DATE 21AUG2000 CLIENT: 7M MASTER LIST REPORT 31A101 PAGE 1A

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR PRIORITY TITLE
EPICAD3550 ADVAN
ASSIGNEE: ADVANCED CERAMICS
INVENTOR: ISHIDA

846457 COMPOSITION FOR FORMING HIGH THERMAL CONDUCTIVITY POLYBENZOXINE-BASED MATERIAL AND METHOD

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
EUROPE		PEND	98401034.8		0875531	28APR1998	28APR2018
CANADA		PEND	28APR1998		04NOV1998	15OCT1998	NILME 15OCT2018
JAPAN		PEND	15OCT1998		122382/98	01MAY1998	KYOWU 01MAY2018
TAIWAN		PEND	87119924		01DEC1998		7SA1 01DEC2018

US-3689 ADVAN
ASSIGNEE: UNIV OF TEXAS
INVENTOR: NATIBRO-VT
97/0872758 MOLECULAR BEAM EPITAXY EFFUSION CELL

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA		GRNT	872758	4011904		04JUL2000 SE	10JUN2017

002919 ADVAN EL
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MARINER
119996 CLAMP ASSEMBLY FOR VAPORIZATION BOAT

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
EUROPE		PCT ABND	94927397.4		0717786	09SEP1994	09SEP2014

ASSIGNEE: ADVANCED CERAMICS CORPORATION
REMARKS: DROP PER FAX 10APR98

JAPAN PCT ABND 508006/95 09SEP1994 09SEP2014

USA REMARKS: ABAND PER FAX 16DEC98 119996 5410631 25OCT1995 SE 25APR2012

DATE 21AUG2000

CLIENT: 7H

MASTER LIST

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CASE NUMBER CLIENT/ DIVISION ATTORNEY FIRM PRIORITY TITLE

002961

ADVANCE CERAMICS CORPORATION
INVENTOR: MARINER

93/0166470 BORON NITRIDE VAPORIZATION VESSE

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		GRNT		166470 14DEC1993	5395180 07MAR1995		07SEP1995 SE	07MAR2012

003085

ADVANCE CERAMICS CORPORATION
INVENTOR: MARINER ET AL.

94/0314411 COATED FLASH EVAPORATOR

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		GRNT		314411 28SEP1994	5537507 16JUL1996		16JAN1997 SE	16JUL2013

003086

ADVANCE CERAMICS CORPORATION
INVENTOR: MARINER JT LONGMOUTH DA

314412 HIGH DENSITY FLASH EVAPORATOR

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE		PCT	ABND	US95/11787 18SEP1995			18SEP1995	18SEP2015
CHINA		PCT	GRNT	95196450.1 18SEP1995	95196450.X 07MAY1999	1167508 10DEC1997	18SEP1995	18SEP2015
GERMANY		PCT	PEND	P19501904.7 18SEP1995			18SEP1995	18SEP2015
JAPAN		PCT	PEND	517874/96 18SEP1995				OKUYA 18SEP2015
RUSSIAN FEDERAT		PCT	GRNT	97104924 18SEP1995	2142021		18SEP1995	18SEP2015
UNITED KINGDOM		PCT	GRNT	9718470.2 18SEP1995	2313846 26MAY1999	2313846 10DEC1997	18SEP1995	18SEP2015
USA		PEND		314412 28SEP1994			SE	

COMMENTS: +PLEASE VERIFY ISSUED DT PER AGENT.

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

PAGE 3

CASE NUMBER CLIENT / ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

003087

ADVAN

94/0314314 EVAPORATOR HAVING MULTIPLE COATING

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MARTINE JT LONGWORTH BA

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT	AMND		0895/11788 18SEP1995			18SEP1995	18SEP2015
CHINA	PCT	GRNT		95196451.8 18SEP1995	1167509 28AUG1999	18SEP1995	18SEP1995	CHINA 18SEP2015
GERMANY	PCT	PEND		P19581903.5 18SEP1995		10DEC1997	18SEP1995	18SEP2015
JAPAN	PCT	PEND		511846/97 18SEP1995				18SEP2015
RUSSIAN FEDERAT	PCT	GRNT		97105370 18SEP1995	2136778 10SEP1999		18SEP1995	99 18SEP2015
UNITED KINGDOM	PCT	GRNT		971224.1 18SEP1995	2313845 26MAY1999	2313845 10DEC1997	18SEP1995	18SEP2015
USA		GRNT		314314 28SEP1994	5495350 27FEB1996		27AUG1996 SE	27FEB2013

REMARKS: 99 P3 THRU PER FAX - 70CT99

003088 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MARTINE ET AL.
94/0314313 PBN COATED FLASH EVAPORATOR

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		GRNT		314313 28SEP1994	3493630 20FEB1996		20AUG1996 SE	20FEB2013

003129 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MOORE, W.
630041 PROCESS FOR FORMING FOR THERMAL EXPANSION PYROLYTIC NITRIDE COATINGS ON LOW THERMAL EXPANSION MATERIALS AND COATED...

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
JAPAN	PCT	PEND		11SEP1996 98120361				11SEP2016
RUSSIAN FEDERAT	PCT	PEND		11SEP1996				11SEP2016

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

003130

ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MOORE ET AL. DWELL, Michael

94/0332924 IMPROVED INTERFACE COATING FOR CERAMIC FIBERS

COUNTRY	SUB TYPE CASE NO.	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRI DATE	TAX PAID AGENT SCHD THRU	EXPIR/ABAND DATE	ATTY
EUROPE	PCT GRNT		95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	97		24OCT2015	
CHINA	PCT PEND		95197074.7 24OCT1995		1171095 21JAN1998	24OCT1995 PA	CPA	24OCT2015	
FRANCE	EPC GRNT		95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	24OCT1995		24OCT2015	
GERMANY	EPC GRNT		95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	24OCT1995		24OCT2015	
JAPAN	PCT PEND		514716/96 24OCT1995					24OCT2015	
RUSSIAN FEDERAT	PCT PEND		97108678 24OCT1995					24OCT2015	
UNITED KINGDOM	EPC GRNT		95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	24OCT1995		24OCT2015	
USA	GRNT		532924 01NOV1994	5593728 14JAN1997		14JUL1997 SE		01NOV2014	

003247 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: FINICLE

586326 LATERAL FLASH EVAPORATOR

COUNTRY	SUB TYPE CASE NO.	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRI DATE	TAX PAID AGENT SCHD THRU	EXPIR/ABAND DATE	ATTY
EUROPE	GRNT		97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997			15JAN2017	
FRANCE	EPC GRNT		97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN1997		15JAN2017	
GERMANY	EPC GRNT		97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN1997		15JAN2017	
NETHERLANDS	EPC GRNT		97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN2001 EP		15JAN2017	
JAPAN	PEND		6851/97 17JAN1997					17JAN2017	
KOREA (SOUTH)	PEND		1121/97 16JAN1997					16JAN2017	
TAIWAN	UTM PEND		87203892 15JAN1997			UN		15JAN2009	
UNITED KINGDOM	EPC GRNT		97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN1997		15JAN2017	
USA	GRNT		586326 17JAN1996	5671322 23SEP1997		23MAR1998 SE		17JAN2016	

DATE 21AUG2000 CLIENT: 7M MASTER LIST REPORT 31A101 PAGE 5

CASE NUMBER 003259
CLIENT/ DIVISION ADVAN
ATTORNEY YOUR REFERENCE NUMBER 93/0524242 IMPROVED REFRACTORY BOAT & METHOD OF MANUFACTURE
INVENTOR: MONTGOMERY ET AL.

COUNTRY USA
SUB TYPE STATUS GRNT
CASE CASE NO.
APPLICATION NUMBER/ FILE DATE 524242
PATENT NUMBER/ ISSUE DATE 560464
PUBLIC NUMBER/ DATE 18AUG1997 SE
TAX/ TAX PAID AGENT EXPIR/ABAND ATTY DATE 06SEP2015

003300 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: SHAFFER
METHOD FOR FORMING BORON NITRIDE AND HIGH DENSITY AGGLOMERATE BORON NITRIDE PARTICLES

COUNTRY USA
SUB TYPE STATUS PEND
CASE CASE NO.
APPLICATION NUMBER/ FILE DATE 618361
PATENT NUMBER/ ISSUE DATE 19MAR1996
PUBLIC NUMBER/ DATE 19MAR2016

003301 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: HELL
610764 ENHANCED BORON NITRIDE COMPOSITION & POLYMER BASED HIGH THERMAL ETAL

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
EUROPE	PEND	97103424.4 03MAR1997		0794227 10SEP1997	03MAR1997	03MAR2017
CANADA	PEND	2198422 25FEB1997			25FEB1997	MILNE 25FEB2017
JAPAN	PEND	67472/97 05MAR1997		05SEP1997		05MAR2017
KOREA (SOUTH)	PEND	5958/97 26FEB1997				26FEB2017
MALAYSIA	PEND	P19700879 04MAR1997				
SINGAPORE	PEND	9700476-6 25FEB1997			25FEB1997	25FEB2017
TAIWAN	PEND	86102690 05MAR1997				05MAR2017
USA	GRNT	610764 05MAR1996	5681883 28OCT1997		28APR1998 SE	05MAR2016

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

PAGE 6

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

003320

ADVAN
ASSIGNEE: ADVANCED CERAMICS CORP
INVENTOR: HILL

95/0580860 BORDN NITRIDE SEAL AND METHOD OF USE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	GRNT	580860 29DEC1995	5678832 21OCT1997		21APR1998 SE	29DEC2015

003406

ADVAN
ASSIGNEE: ADVANCED CERAMICS COMPOSITE
INVENTOR: MARINER ET AL.

642469 HIGH THERMAL CONDUCTIVITY COMPOSITE AND METHOD

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT	97107323.4 02MAY1997	0805463 02AUG2000	0805463 05NOV1997		02MAY2017
CANADA	PEND	2204331 02MAY1997			02MAY1997	NOFFA 02MAY2017

COMMENTS: +PLS CONFIRM GRANT INFORMATION & DESIGNATED COUNTRIES

FRANCE

ASSIGNEE: ADVANCED CERAMICS CORPORATION

EPC GRNT

97107323.4

0805463 02MAY1997

02MAY2017

GERMANY

EPC GRNT

97107323.4

0805463 02MAY1997

02MAY2017

ITALY

EPC GRNT

97107323.4

0805463 02MAY1997

02MAY2017

JAPAN

PEND

115873/97

06MAY1997

06MAY2017

KOREA (SOUTH)

PEND

17020/97

03MAY1997

03MAY2017

TAIWAN

PEND

86105759

03MAY1997

03MAY2017

USA

GRNT

642469 03MAY1996

5863467 26JUL1999 SE

03MAY2016

003414

ADVAN
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: MARINER

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	PEND	603498 20FEB1996				20FEB2016

PATENT

REEL: 011642 FRAME: 0031

DATE 21AUG2000

CLIENT: 7M

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REPORT 01A101

PAGE 7

CASE
NUMBER
003421

CLIENT/
DIVISION
ADVAN

ATTORNEY YOUR
REFERENCE
630041

PRIORITY TITLE
NUMBER
COATING

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MORE, W.

PROCESS FOR FORMING LOW THERMAL EXPANSION PYROLYTIC NITRIDE

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ NUMBER/ NUMBER/ WORKING SCHD THRU DATE
USA ABAND 332693 01NOV1994
ISSUE DATE DATE STRT DATE SE

REMARKS: ABAND PER SOURCE 11/09/98

003447 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: MATTORO-JT

MOLECULAR BEAM EPITAXY EFFUSION CELL

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ NUMBER/ NUMBER/ WORKING SCHD THRU DATE
USA PRO PEND 019586 11JUN1996
ISSUE DATE DATE STRT DATE

003467 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MORE

728933 ADJUSTMENT OF MOSAIC SPREAD FOR MOPG MATERIAL

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ NUMBER/ NUMBER/ WORKING SCHD THRU DATE
CHINA PEND 97120541.8 10OCT1997 06MAY1998 1180902 10OCT1997 PA 10OCT2017
FRANCE GRNT 97/12761 9712761 2754547 13OCT1997 13OCT2017
JAPAN PEND 277743/97 28MAY1999 17APR1998
RUSSIAN FEDERAT PEND 09OCT1997 97116800
UNITED KINGDOM PEND 07OCT1997 9721351.6 2319519 09OCT1997 07OCT2017
USA GRNT 09OCT1997 9728933 27MAY1998 25FEB1999 09OCT2017
11OCT1998 5798075 25AUG1998 11OCT2016

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

003502

ADVANCEE: ADVANCED CERAMICS CORPORATION
INVENTOR: HONMA
278269/95 PYROLYTIC BORDON NITRIDE COMPACT AND METHOD OF MANUFACTURE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PEND	96307144.4 30SEP1996		0768389 16APR1997	30SEP1996	30SEP2016
KOREA (SOUTH)	PEND	43613/96 20OCT1996				20OCT2016
TAIWAN	PEND	85112116 03OCT1996				03OCT2016
USA	GRNT	725130 02OCT1996	5693581 02DEC1997		02JUN1998 SE	02OCT2016

003548

ADVANCEE: ADVANCED CERAMICS CORP.
INVENTOR: MARINER

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	PEND	771373 16DEC1996				16DEC2016

003550

ADVANCEE: ADVANCED CERAMICS
INVENTOR: ISHIDA
COMPOSITION FOR FORMING HIGH THERMAL CONDUCTIVITY POLYBENZOXAZINE-BASED MATERIAL AND METHOD

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	PEND	846467 01MAY1997				01MAY2017
USA	GRNT	846457 01MAY1997	5900467 04MAY1999		04NOV1999	01MAY2017

003554

ADVANCEE: ADVANCED CERAMICS CORPORATION
INVENTOR: SHINKO
THERMOMETRIC MEASURING DEVICE AND METHOD

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	CIP PEND	770807 20DEC1996				

REMARKS: CIP OF 490304

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

003605

ADVAN
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: HONMA ET AL.

97/0785082 CERAMIC ELECTROSTATIC CHUCK AND METHOD

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ FILE DATE ISSUE DATE NUMBER/ DATE WORKING SCHD THRU DATE
USA GRNT 785082 21JAN1997 5748436 05NOV1998 21JAN2017

003751

ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: RICHEY

FLEXIBLE HEAT TRANSFER DEVICE AND METHOD

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ FILE DATE ISSUE DATE NUMBER/ DATE WORKING SCHD THRU DATE
USA PRO PEND 059586 19SEP1997 19SEP2017

003775

ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: SHAFFER Hill, Richard F

96/0618361 METHOD FOR FORMING BORON NITRIDE END HIGH DENSITY AGGLOMERATA TED BORON NITRIDE PARTICLES

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ FILE DATE ISSUE DATE NUMBER/ DATE WORKING SCHD THRU DATE
EUROPE PEND 98400361.6 16FEB1998 0939066 16FEB1998 16FEB2018
JAPAN PEND 47768/98 27FEB1998 01SEP1999 27FEB2018
USA DIV GRNT 5898009 27AUG1999 27AUG1999

REMARKS: DIV OF 618361: 3/19/96

003782

ADVAN
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: YIH

97/0837299 METHOD FOR ELECTROPLATING OF MICROPARTICULATES WITH METAL COATINGS

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ FILE DATE ISSUE DATE NUMBER/ DATE WORKING SCHD THRU DATE
USA CIP GRNT 837299 5911865 15JUN1999

REMARKS: CIP OF 796204

PATENT

REEL: 011642 FRAME: 0034

CASE NUMBER 003825 ADVAN 164927 SURFACE TREATED BORON NITRIDE FOR FORMING A LOW VISCOSITY H
CLIENT/ DIVISION YOUR REFERENCE NUMBER PRIORITY TITLE IGH THERMAL CONDUCTIVITY POLYMER BASED BORON NITRIDE COMP..
ASSIGNEE: ADVANCED CERAMICS CORP. / EDISON POLYMER INNOVATION CORP
INVENTOR: ISHIDA

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/	PATENT NUMBER/	PUBLIC NUMBER/	TAX/ WORKING	TAX PAID AGENT	EXPIR/ABAND	ATTY
	CASE CASE NO.	FILE DATE	ISSUE DATE	DATE	STRT DATE	SCHD THRU	DATE	
EUROPE	PEND	99403250.6						
CANADA	PEND							
JAPAN	PEND	88122593						21DEC2019
TAIWAN	PEND	21DEC1999						
USA	CIP PEND	01OCT1998						

COMMENTS: +PLS FORWARD COMPLETE FILING INFORMATION

009711 ADVAN CPO 553814 IMPROVED BORON NITRIDE CRUCIBLE
ASSIGNEE: UNION CARBID CORPORATION

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/	PATENT NUMBER/	PUBLIC NUMBER/	TAX/ WORKING	TAX PAID AGENT	EXPIR/ABAND	ATTY
	CASE CASE NO.	FILE DATE	ISSUE DATE	DATE	STRT DATE	SCHD THRU	DATE	
FRANCE	GRNT	76/05450	76/05450		26FEB1976		26FEB1996	
		26FEB1976	21APR1980					
ITALY	YOUR REF: 009711-F GRNT	483084/76	1057254		26FEB1976		26FEB1996	
		26FEB1976	10MAR1982					
JAPAN	YOUR REF: 009711-1 1 DIV EXP	033473/80	1075401		22APR1981 P2		26FEB1996	
		18MAR1980	30NOV1981	22APR1981				
UNITED KINGDOM	GRNT	76/07586	1326003		26FEB1976 OL		26FEB1996	
		26FEB1976	28DEC1978					

YOUR REF: 009711-CB

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

011468 ADVAN EL

868446 RESISTANCE-HEATED PYROLYTIC BORON NITRIDE COATED GRAPHITE
BOAT FOR METAL VAPORIZATION

ASSIGNEE: UNION CARBIDE CORPORATION

COUNTRY	SUB TYPE CASE NO.	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
FRANCE	ABND		09JAN1979	79/00445 26MAR1984		09JAN1979	09JAN1999

YOUR REF: 011468-f

ITALY	ABND		11NOV97	47576A/79 20JAN1986		10JAN1979	10JAN1999
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REMARKS: ABND PER TMR 11NOV97
YOUR REF: 011468-1
REMARKS: ABND PER TMR 11NOV97

JAPAN	EIP		000460/79 09JAN1979	124957 25JAN1985	02MAY1984	02MAY1984	09JAN1999
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COMMENTS: +CPI ATTEMPTED 99 PYRMI/VERIFY PATENT EXPIRED FULL-TERM,
ABND 7900185-5 7900185-5 09JAN1979 09JAN1979

YOUR REF: 011468-5

UNITED KINGDOM	ABND		11NOV97	79/00728 04AUG1982		09JAN1979	09JAN1999
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REMARKS: ABND PER TMR 11NOV97
YOUR REF: 011468-CB
REMARKS: ABND PER TMR 11NOV97

013071

ADVAN EL

306385 PRODS FREE STANDING PYROLYTIC BORON NITRIDE ARTICLES

ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: SHINKO, JULIUS KEYES, THOM

COUNTRY	SUB TYPE CASE NO.	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT		82401744.6 27SEP1982	0076731 12NOV1986	0076731 13APR1983		27SEP2002

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

015155

ADVAN EL
ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: TERBET, JOHN F HILL, RICHARD

911221 METHOD FOR PRODUCING LIQUID ALKOXIDES OF MIXED METALS

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING SCHD THRU	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744 0261744		23SEP2007
BELGIUM	REMARKS: CTRYS DROPPED PER TMR 8SEP97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
FRANCE	REMARKS: ABAN PER DATA IN 8-29-97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
GERMANY	REMARKS: DROP PER SOURCE 16DEC97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
NETHERLANDS	REMARKS: DROP PER SOURCE 16DEC97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1997	EP 23SEP2007
ITALY	REMARKS: ABAN PER DATA IN 8-29-97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	EP 96 23SEP2007
JAPAN	REMARKS: DROP PER SOURCE 16DEC97 ABND	239912/87 24SEP1987	2620253 11MAR1997		11MAR1997	P3 KYOMA 24SEP2007
UNITED KINGDOM	REMARKS: DROP PER SOURCE 16DEC97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
USA	REMARKS: DROP PER SOURCE 16DEC97 ABND	911221 24SEP1986	4835298 30MAY1989		30MAY1989	30MAY2006
REMARKS: DROP PER SOURCE 16DEC97						

015155-1 ADVAN
ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: TERBET HILL

CORDIERITE COMPOSITION AND MET

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING SCHD THRU	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	276807 23NOV1988	4946976 07AUG1990		07FEB1991	07AUG2007
YOUR REF: 015155-1 REMARKS: ABND PER TMR 11NOV97						

DATE 21AUG2008

CLIENT: 7H

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CASE NUMBER CLIENT/ ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

015155-2

ADVAN

ASSIGNEE: UNION CARBIDE COATINGS SERVICE
INVENTOR: TERBOT, JOHN F HILL, RICHARD

CORDIERITE COMPOSITION AND MET

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
USA	ABND	321214 09MAR1989	513976 18AUG1992		18FEB1993 SE	18AUG2009

REMARKS: DROP PER SOURCE 16DEC97

015155-3

ADVAN

ASSIGNEE: UNION CARBIDE COATINGS SERVICE
INVENTOR: TERBOT, JOHN F HILL, RICHARD

LOW SINTERING CORDIERITE POWDE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
USA	ABND	696087 06MAY1991	517345 22DEC1992		22JUN1993	22DEC2009

REMARKS: DROP PER SOURCE 16DEC97

015650

ADVAN

ASSIGNEE: UNION CARBIDE CORP.
INVENTOR: PARRISH, LIEN, MONTGOMERY,

291605 ALLIED POWDER AND METHOD OF PREPARING SAME

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
EUROPE	ABND	89123722.4 22DEC1989	0376179 10AUG1994	0376179		22DEC2009
FRANCE	ABND	89123722.4 22DEC1989	0376179 10AUG1994	0376179	22DEC1989	22DEC2009
GERMANY	ABND	89123722.4 22DEC1989	0376179 10AUG1994	0376179	22DEC1989	22DEC2009
JAPAN	ABND	345016789 28DEC1989				28DEC2007
UNITED KINGDOM	ABND	89123722.4 22DEC1989	0376179 10AUG1994	0376179	22DEC1989	22DEC2009
USA	ABND	291605 29DEC1988	5047372 10SEP1991		10MAR1992 SE	10SEP2008

REMARKS: ABND PER SOURCE 26DEC97

PATENT

REEL: 011642 FRAME: 0038

DATE 21AUG2000

CLIENT: 7H

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CASE NUMBER CLIENT/ DIVISION YOUR REFERENCE NUMBER PRIORITY TITLE

015730

ADVAN EL
ASSIGNEE: PRAAIR S.T. TECHNOLOGY INC.
INVENTOR: SARA, RAYMOND

272419 METHOD FOR SINTERED SHAPES WITH CONTROLLED GRAIN SIZE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	89311849.7 16NOV1989	0375148 08SEP1993	0375148		16NOV2009
FRANCE	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	89311849.7 16NOV1989	0375148 08SEP1993	0375148	16NOV1989	16NOV2009
GERMANY	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	89311849.7 16NOV1989	P68909024.2 08SEP1993	0375148	16NOV1989	16NOV2009
JAPAN	REMARKS: ABND PER SOURCE 26DEC97 ABND	296308/89 16NOV1989	2027033 26FEB1996	7-045342 17MAY1995	17MAY1995	16NOV2009
UNITED KINGDOM	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	89311849.7 16NOV1989	0375148 08SEP1993	0375148	16NOV1989	16NOV2009
USA	REMARKS: ABND PER SOURCE 26DEC97 ABND	01FEB1991 635383	5045269 03SEP1991	03MAR1992		03SEP2008

ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.
REMARKS: ABND PER SOURCE 26DEC97

015845

ADVAN CFC

180578 BORON NITRIDE CONTAINING VESSEL HAVING A SURFACE COATING OF
TITANIUM-IRON SILICON THEREON

ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: SHAFFER, GREGO

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	89106412.3 11APR1989	0337391 22JUL1992	0337391 18OCT1989		11APR2009
FRANCE	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	89106412.3 11APR1989	0337391 22JUL1992	0337391 18OCT1989	11APR1989	11APR2009
GERMANY	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	89106412.3 11APR1989	P68902165.8 22JUL1992	0337391 18OCT1989	11APR1989	11APR2009
ITALY	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	89106412.3 11APR1989	0337391 22JUL1992	0337391 18OCT1989	11APR1989	11APR2009
JAPAN	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	089882/89 11APR1989	1951563 28JUL1995	073913/94 21SEP1994	21SEP1994	11APR2009
UNITED KINGDOM	ASSIGNEE: ADVANCED CERAMICS CORPORATION EPC ABND	89106412.3 11APR1989	0337391 22JUL1992	0337391 18OCT1989	11APR1989	11APR2009
USA	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	180578 12APR1988	4884788 05DEC1989	05JUN1990		05DEC2006

PATENT

REEL: 011642 FRAME: 0039

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

016068 ADVAN EL

ASSIGNEE: UNION CARBIDE COATINGS SERVICE
INVENTOR: MOORE

318349 POLYTIC BORON NITRIDE WITH COLUMNAR CRYSTALLINE MORPHOLOGY

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NUMBER/ NUMBER/ NUMBER/ WORKING SCHD THRU DATE
NO. FILE DATE ISSUE DATE DATE STRT DATE

EUROPE GRNT 90302178.0 0385772 0385772 0385772 01MAR1990 01MAR2010

FRANCE YOUR REF: 016068 EPC GRNT 90302178.0 0385772 0385772 0385772 01MAR1990 01MAR2010

GERMANY YOUR REF: 016068-f EPC GRNT 90302178.0 P69002778.8 0385772 0385772 01MAR1990 01MAR2010

JAPAN YOUR REF: 016068-c GRNT 047257190 1913134 041367794 01JUN1994 10 KURAU 01MAR2010

RUSSIAN FEDERAT ASSIGNEE: ADVANCED CERAMICS CORPORATION GRNT 4743242 2033964 01MAR1990 95 SOJUZ 01MAR2010

UNITED KINGDOM EPC GRNT 90302178.0 0385772 0385772 0385772 01MAR1990 01MAR2010

USA YOUR REF: 016068-cb GRNT 318349 5004708 02MAR1989 02APR1991 02OCT1991 02APR2008

ASSIGNEE: PRAIRIE S T TECHNOLOGY, INC.
ASSIGNEE: PRAIRIE S.T. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE PRIORITY TITLE

016233

ADVANCE EL
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: MONTGOMERY, LI

458347 METHOD FOR FORMING A HIGH DENSITY METAL BORIDE COMPOSITE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	9031430.3 27DEC1990	0435672 14DEC1994	0435672		27DEC2010
FRANCE	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	9031430.3 27DEC1990	0435672 14DEC1994	0435672	27DEC1990	27DEC2010
GERMANY	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	9031430.3 27DEC1990	0435672 14DEC1994	0435672	27DEC1990	27DEC2010
JAPAN	REMARKS: ABND PER SOURCE 26DEC97 ABND	415287/90 27DEC1990	7-055861 14JUN1995	14JUN1995		27DEC2010
UNITED KINGDOM	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	9031430.3 27DEC1990	0435672 14DEC1994	0435672	27DEC1990	27DEC2010
USA	REMARKS: ABND PER SOURCE 26DEC97 ABND	458347 28DEC1989	4983340 08JAN1991	08JUL1991 SE		08JAN2008

ASSIGNEE: PRAHAIR S.T. TECHNOLOGY, INC.
REMARKS: ABND PER SOURCE 26DEC97

016234

ADVANCE

669009 PROCESS FOR PRODUCING TITANIUM DIBORIDE AND BORON NITRIDE P
OWERS

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY, LI

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT	92302103.4 12MAR1992	0503930 25SEP1996	0503930 16SEP1992		12MAR2012
GERMANY	YOUR REF: 016234-EP REMARKS: DE GR EPC GRNT	92302103.4 12MAR1992	0503930 25SEP1996	0503930 16SEP1992		12MAR2012
JAPAN	GRNT	087497/92 12MAR1992	2528056 14JUN1996	14JUN1996 08		KURAU 12MAR2012
UNITED KINGDOM	EPC GRNT	92302103.4 12MAR1992	0503930 25SEP1996	0503930 16SEP1992		12MAR2012
USA	GRNT	669009 13MAR1991	5100845 31MAR1992	30SEP1992 SE		31MAR2009

ASSIGNEE: PRAHAIR S.T. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER 016237
 CLIENT/DIVISION ADVAN EL
 ATTORNEY YOUR REFERENCE NUMBER
 PRIORITY TITLE

564108 PYROLYTIC BORON NITRIDE COATING FOR OXIDATION PROTECTION OF
 CARBON-COMPOSITES

ASSIGNEE: ADVANCED CERAMICS, CORP.
 INVENTOR: MOORE, ARTHUR,

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/FILE DATE	PATENT NUMBER/ISSUE DATE	PUBLIC NUMBER/DATE	TAX/WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT GRNT		91918125.5 08AUG1991	0495095 31JAN1996	0495095 22JUL1992		08AUG2011
CANADA	REMARKS: FR DE GB PCT GRNT		2067145 08AUG1991	2067145 16FEB1999	08AUG1991	97	08AUG2011
FRANCE	EPC GRNT		91918125.5 08AUG1991	0495095 31JAN1996	0495095 22JUL1992		08AUG2011
GERMANY	EPC GRNT		91918125.5 08AUG1991	0495095 31JAN1996	0495095 22JUL1992		08AUG2011
JAPAN	COMMENTS: +PLEASE CONFIRM GERMAN NATIONAL # IS PCT GRNT		516606/91 08AUG1991	2729289 19DEC1997	0495095 08AUG1991	PER AGENT. 19DEC1997 06	08AUG2011
UNITED KINGDOM	EPC GRNT		91918125.5 08AUG1991	0495095 31JAN1996	0495095 22JUL1992		08AUG2011
USA	ASSIGNEE: ADVANCED CERAMICS CORPORATION PEND		564108 08AUG1990				

016237-1 ADVAN EL 564108 PYROLYTIC BORON NITRIDE COATING FOR OXIDATION PROTECTION OF
 CARBON-COMPOSITES

ASSIGNEE: PRAHAIR S.I. TECHNOLOGY, INC.
 INVENTOR: MOORE, ARTHUR,

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/FILE DATE	PATENT NUMBER/ISSUE DATE	PUBLIC NUMBER/DATE	TAX/WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	GRNT		819647 10JAN1992	5275844 04JAN1994		04JUL1994	04JAN2011

ASSIGNEE: PRAHAIR S.I. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016311

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION

431191 POWDER COATING COMPOSITIONS

INVENTOR: OSBORNE, TIMOT

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT SCHD THRU	EXPIR/ABAND DATE	ATTY
EUROPE	GRNT			90312018.6 02NOV1990	0426485 11JAN1995	0426485 08MAY1991			02NOV2010	

REMARKS: FR DE GB

CANADA

GRNT

2029232

03DEC1996

04MAY1991

02NOV1990

SIN

02NOV2010

FRANCE

GRNT

90312018.6
02NOV1990

0426485
11JAN1995

0426485
08MAY1991

02NOV1990

94

02NOV2010

GERMANY

GRNT

90312018.6
02NOV1990

0426485
11JAN1995

0426485
08MAY1991

02NOV1990

94

02NOV2010

JAPAN

GRNT

295577/90
02NOV1990

2709862
24OCT1997

0426485
08MAY1991

24OCT1997 11

02NOV2010

UNITED KINGDOM

GRNT

90312018.6
02NOV1990

0426485
11JAN1995

0426485
08MAY1991

02NOV1990

94

02NOV2010

USA

GRNT

431191
03NOV1989

5026422
25JUN1991

0426485
08MAY1991

25DEC1991 SE

03NOV2009

ASSIGNEE: PRAKRAIR S.T. TECHNOLOGY, INC.
COMMENTS: *PLEASE VERIFY PATENT IS A SMALL ENTITY--PER PTO

016328

ADVAN

CFD

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: FINICLE, ROBER

516910 BODEN NITRIDE TEXTURED BOAT AND PROCESS FOR PRODUCING IT

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT SCHD THRU	EXPIR/ABAND DATE	ATTY
EUROPE	GRNT			91303625.7 24APR1991	0457444 07JUN1995	0457444 0457444			24APR2011	

ASSIGNEE: *NO NOT CHANGE FILE DT -- SHOULD BE 24APR91**
REMARKS: DE GB

CANADA

GRNT

2041427

2041427

31OCT1991

29APR1991

97

SIN

29APR2011

GERMANY

GRNT

91303625.7
24APR1991

P69110197.3
07JUN1995

0457444
2681551

0457444
08AUG1997 02

95

24APR2011

JAPAN

GRNT

124492/91
30APR1991

2681551
08AUG1997

0457444
0457444

08AUG1997 02

95

30APR2011

UNITED KINGDOM

GRNT

91303625.7
24APR1991

0457444
07JUN1995

0457444
0457444

24APR1991

95

24APR2011

USA

GRNT

516910
30APR1990

5032366
16JUL1991

16JAN1992

16JUL2008

REMARKS: ***DO NOT CHANGE FILE DATE***
ASSIGNEE: PRAKRAIR S.T. TECHNOLOGY, INC.

PATENT

REEL: 011642 FRAME: 0043

DATE 21AUG2000

CLIENT: 7H

MASTER LIST

REPORT 31A101

PAGE 19

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016328-1 ADVAN

ASSIGNEE: PRAHAIR S.I. TECHNOLOGY, INC.

INVENTOR: FINICLE, ROBER

BORON NITRIDE BOAT AND PROCESS

COUNTRY	SUB TYPE CASE NO.	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	GRNT		662954 01MAR1991	5182149 26JAN1993		26JUL1993 SE	26JAN2010

016329

ADVAN CFO
ASSIGNEE: ADVANCED CERAMICS CORPORATION/ UNION CARBIDE
INVENTOR: FINICLE, ROBERT

533816 BORON NITRIDE CRUCIBLE AND PROCESS FOR PRODUCING IT

COUNTRY	SUB TYPE CASE NO.	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT		91305100.9 05JUN1991	0460943 24AUG1994	0460943 11DEC1991		05JUN2011
CHINA	GRNT	REMARKS: DE GB	91104641.0 05JUN1991	91104641.0 19DEC1997	1058091 22JAN1992	05JUN1991 DL	CPA 05JUN2006
GERMANY	GRNT	EPC GRNT	91305100.9 05JUN1991	P68103579.-2 24AUG1994	0460943 11DEC1991	05JUN1991	94 05JUN2011
JAPAN	GRNT		159883/91 05JUN1991	2520060 17MAY1996		17MAY1996 09	KURAU 05JUN2011
RUSSIAN FEDERAT	GRNT		4893648 05JUN1991	2057925 27APR1996		05JUN1991	05JUN2011
UNITED KINGDOM	GRNT	COMMENTS: +PLS VERIFY PAT142059025 PER AGENT	91305100.9 05JUN1991	0460943 24AUG1994	0460943 11DEC1991	05JUN1991	94 05JUN2011
USA	GRNT		533816 06JUN1990	5075055 24DEC1991		24JUN1992 SE	24DEC2008

ASSIGNEE: PRAHAIR S.I. TECHNOLOGY, INC.

016329-1

ADVAN
ASSIGNEE: PRAHAIR S.I. TECHNOLOGY, INC.
INVENTOR: FINICLE, ROBER

BORON NITRIDE CRUCIBLE (AMENDED)

COUNTRY	SUB TYPE CASE NO.	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	GRNT		750296 27AUG1991	5158750 27OCT1992		27APR1993	27OCT2009

DATE 21AUG2000

CLIENT: TM

MASTER LIST

REPORT 31A101

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016459

ADVAN CFO
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: SHAFFER, GREGG

693545 MULTITE/BORON NITRIDE COMPOSITE BREAK RING

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
EUROPE	ABND	92303848.3 29APR1992	0511840 25DEC1995	0511840		29APR2012
CANADA	ABND	2067532 29APR1992	2067532 09JUL1996		29APR1992	29APR2012
GERMANY	REMARKS: DROP PER THR 21FEB97 EPC ABND	92303848.1 29APR1992	P69205618.1 25OCT1995	0511840	29APR1992	29APR2012
JAPAN	REMARKS: ABND PER THR 21FEB97 ABND	135693/92 30APR1992	2772305 24APR1998		24APR1998 02	30APR2012
UNITED KINGDOM	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	92303848.3 29APR1992	0511840 25OCT1995	0511840	29APR1992	29APR2012
	REMARKS: ABND PER THR 21FEB97					

016459-1

ADVAN

MULTITE/BORON NITRIDE COMPOSITE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
USA	ABND	038754 29MAR1993				
	ASSIGNEE: PRAXAIR S.I. TECHNOLOGY, INC. REMARKS: ABND PER SOURCE 26DEC97					

016465

ADVAN EL

544611 A GRAPHITE CHUCK FOR A STARTER FILAMENT IN THE MANUFACTURE OF POLYCRYSTALLINE SILICON AND METHOD OF PROTECTION

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
JAPAN	ABND	418179/90 25DEC1990	2556397 05SEP1996		20NOV1996	25DEC2010
KOREA (SDUTH)	REMARKS: DROP PER SOURCE 16DEC97 ABND	21578/90 24DEC1990	102429 23JUL1996	3734/96	21MAR1996	21MAR2011
	REMARKS: DROP PER FAX 18MAR98					

PATENT

REEL: 011642 FRAME: 0045

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE PRIORITY TITLE

016465-1 ADVAN EL

ASSIGNEE: ADVANCED CERAMIC CORPORATION
INVENTOR: GILBERT MICHAEL HEDGE JOHN B WALSH PAUL J

A GRAPHITE CHUCK FOR A STARTER FILAMENT IN THE MANUFACTURE
OF POLYCRYSTALLINE SILICON AND METHOD OF PROTECTION

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA	GMT			790079 13NOV1991	527934 11JAN1994		11JUL1994	11JAN2011

ASSIGNEE: PRAXAIR S.T. TECHNOLOGY, INC.

016496 ADVAN EL

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY, LI

570739 NONAQUEOUS BINDER COMPOSITION FOR SLIP CASTING OR COLD
FORMING AND METHOD

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
JAPAN	GMT			232407/91 21AUG1991	2767657 10APR1998		10APR1998	21AUG2011
KOREA (SOUTH)	GMT			14367/91 21AUG1991	111032		22AUG1996 04	22AUG2011
USA	GMT			837606 21FEB1992	3238986 24AUG1993		24FEB1994	24AUG2010

ASSIGNEE: PRAXAIR S.T. TECHNOLOGY, INC.

016496-1 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY

NON AQUEOUS BINDER COMPOSITION METAL

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA	GMT			044677 09APR1993	5429781 04JUL1995		04JAN1996	04JUL2012

ASSIGNEE: PRAXAIR S.T. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

PAGE 22

CASE NUMBER	CLIENT/ DIVISION	ATTORNEY YOUR REFERENCE	PRIORITY TITLE
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016708

ADVAN CER
 ASSIGNEE: ADVANCED CERAMICS CORP.
 INVENTOR: SHAFFER, GREGO

693546 NULLITE/YTTRIA STABILIZED ZIRCONIA/BORON NITRIDE COMPOSITES

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	92303849.1 29APR1992	0511841 08NOV1995	0511841		29APR2012

CANADA	REMARKS: DROP CTRY'S PER TMR 21FEB97 ABND	2067531 29APR1992			29APR1992	SIN 29APR2012
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GERMANY	REMARKS: ABND PER TMR 21FEB97 EPC ABND	92303849.1 29APR1992	P69205882.6 08NOV1995	0511841	29APR1992	29APR2012
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JAPAN	REMARKS: DROP PER TMR 21FEB97 ABND	135694/92 30APR1992				30APR2012
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UNITED KINGDOM	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	92303849.1 29APR1992	0511841 08NOV1995	0511841	29APR1992	29APR2012
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USA	REMARKS: DROP PER TMR 21FEB97 ABND	693546 30APR1991	5120683 09JUN1992		09DEC1992	09JUN2009
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ASSIGNEE: PRAXAIR S.T. TECHNOLOGY, INC.
 REMARKS: ABND PER SOURCE 26DEC97

016708-1 ADVAN
 ASSIGNEE: UNION CARBIDE COATINGS SERVICE
 INVENTOR: SHAFFER, GREGO

METHOD OF PRODUCING NULLITE/YT

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	824219 23JAN1992	5134098 28JUL1992		28JAN1993 SE	28JUL2009

ASSIGNEE: UNION CARBIDE CANADA LTD.
 REMARKS: ABANDONED PER TMR 09/10/99

PATENT

REEL: 011642 FRAME: 0047

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

PAGE 23

CASE NUMBER
CLIENT/ DIVISION
ATTORNEY
YOUR REFERENCE
PRIORITY TITLE

016891 ADVAN EL

810910 METHOD FOR RESISTANCE HEATING OF METAL USING A PYROLYTIC

BORON NITRIDE COATED GRAPHITE BOAT

ASSIGNEE: ADVANCED CERAMIC CORP.
INVENTOR: MORRIS, JOSEPH

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT SCHD THRU	EXPIR/ABAND DATE	ATTY
EUROPE			GRNT	93303212.0 23APR1993	0621351 07JUL1999	0621351 26OCT1994	03JUL1993		23APR2013	
CHINA			GRNT	93107926.8 03JUL1993	93107926.8 25MAR1999	45697 11JAN1995	03JUL1993	CPA	03JUL2013	
GERMANY		EPC	GRNT	93303212.0 23APR1993	0621351 07JUL1999	0621351 26OCT1994	23APR1993		23APR2013	
HONG KONG		REG	PEND			0621351			23APR2013	
JAPAN			GRNT	23APR1993 119228/93	2655873 27JUN1997		27JUN1997 02		KURAU 23APR2013	
KOREA (SOUTH)			GRNT	23APR1993 7043/93	177836 19NOV1998		19NOV1998	NAH	19NOV2013	
TAIWAN			GRNT	27APR1993 82103377	19NOV1998 NI-69830	239250 21JAN1995	21JAN1995		30APR2013	
UNITED KINGDOM		EPC	GRNT	30APR1993 93303212.0	0621351 07JUL1999	0621351 26OCT1994	23APR1993		23APR2013	
USA			GRNT	23APR1993 810910	5239612 20DEC1991		24FEB1994		24AUG2010	

ASSIGNEE: PRAIRIE S.I. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

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CASE NUMBER
CLIENT/ ATTORNEY
DIVISION REFERENCE
PRIORITY TITLE

016969

ADVAN EL

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: GILBERT, MICHAEL, TIMOTHY,

953156 PYROLYTIC BORON NITRIDE HEATING UNIT

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT GRNT	93922354.1 24SEP1993	0663138 15JAN1997	0663138 19JUL1995		24SEP2013

REMARKS: DE FR GB SE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
CANADA	PCT GRNT	2141340 24SEP1993	2141340 12JAN1999		24SEP1993	MILNE 24SEP2013
FRANCE	EPC GRNT	93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993	24SEP2013
GERMANY	EPC GRNT	93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993	24SEP2013
JAPAN	PCT GRNT	509175/94 24SEP1993	2702609 03OCT1997		03OCT1997 05	24SEP2013
KOREA (SOUTH)	PCT GRNT	701156/95 24SEP1993	174587 05NOV1996	05NOV1996	05NOV1996	05NOV2013
SWEDEN	EPC GRNT	93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993 EP	PATRA 24SEP2013
UNITED KINGDOM	EPC GRNT	93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993	24SEP2013
USA	GRNT	953156 29SEP1992	5343022 30AUG1994		28FEB1995	30AUG2011

ASSIGNEE: PRAXAIR S.T. TECHNOLOGY, INC.

020000

ADVAN EL

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: LEMMARTZ, Jeffe

69801 FLUIDIZED BED REACTOR ARRANGEMENT AND METHOD FOR FORMING A METAL CARBIDE COATING ON A SUBSTRATE CONTAINING GRAPHITE...

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT GRNT	94920036.4 25MAY1994	0658219 24MAR1999	0658219 21JUN1995		25MAY2014
CHINA	PCT GRNT	94190542.1 25MAY1994	94190542.X 16JUL1999	1112790 29NOV1995	25MAY1994	25MAY2014
GERMANY	EPC GRNT	94920036.4 25MAY1994	0658219 24MAR1999	0658219 21JUN1995	25MAY1994	25MAY2014
UNITED KINGDOM	EPC GRNT	94920036.4 25MAY1994	0658219 24MAR1999	0658219 21JUN1995	25MAY1994	25MAY2014
USA	ABAND	069801 01JUN1993				

COMMENTS: *PLEASE VERIFY CASE ISSUED ON 16JUL99 PER AGENT.

REMARKS: ARAND PER SOURCE 1/20/99

PATENT

REEL: 011642 FRAME: 0049

DATE 21AUG2090

CLIENT: 7M

MASTER LIST

REPORT 31A101

PAGE 25

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE PRIORITY TITLE

020000-1

ADVAN

95/0396875 FLUIDIZED BED REACTOR ARRANGEMENT AND METHOD FOR FORMING A

METAL CARBIDE COATING ON A SUBSTRATE CONTAINING GRAPHITE....

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: LEMMARTZ

COUNTRY	SUB TYPE STATUS	APPLICATION CASE NO.	FILE DATE	PATENT NUMBER/ISSUE DATE	PUBLIC NUMBER/DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	CON GRNT	396875	01MAR1995	549842	12MAR1996	12SEP1996	12MAR2013

REMARKS: CON OF 069801

020014

ADVAN EL

037751 BORDON NITRIDE COMPOSITES BASED ON ALUMINUM NITRIDE AND

NULLITE

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY, L.

COUNTRY	SUB TYPE STATUS	APPLICATION CASE NO.	FILE DATE	PATENT NUMBER/ISSUE DATE	PUBLIC NUMBER/DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	94301845.7	15MAR1994	0616988	0616988	15MAR2014	15MAR2014

CHINA

REMARKS: DROP PER CMTYS 16DEC97
ABND 94103604.9
26MAR1994

26MAR1994 PA

26MAR2014

GERMANY

REMARKS: ABND PER THR 11NOV97
EPC ABND 94301845.7
15MAR1994

0616988

0616988 15MAR1994

97

15MAR2014

JAPAN

REMARKS: ABND PER SOURCE 16DEC97
ABND 51359/94
23MAR1994

2645216

02MAY1997 05

23MAR2014

UNITED KINGDOM

REMARKS: DROP PER SOURCE 16DEC97
EPC ABND 94101845.7
15MAR1994

0616988

0616988 15MAR1994

15MAR2014

USA

REMARKS: ABND PER SOURCE 16DEC97
ABND 037751
26MAR1994

5336454

09AUG1995

09AUG2011

020014-1

ADVAN EL

CERAMIC COMPOSITE & METHOD

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY

COUNTRY	SUB TYPE STATUS	APPLICATION CASE NO.	FILE DATE	PATENT NUMBER/ISSUE DATE	PUBLIC NUMBER/DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	212501	11MAR1994	5401696	28MAR1995	28SEP1995 SE	28MAR2012

REMARKS: DROP PER THR 12FEB98

EXHIBIT A

FORM OF ASSIGNMENT

THIS DOCUMENT SHALL BE HELD BY AGENT, FOR THE BENEFIT OF THE BANKS, IN ESCROW PURSUANT TO AND IN ACCORDANCE WITH THE PROVISIONS OF THE INTELLECTUAL PROPERTY COLLATERAL ASSIGNMENT AGREEMENT (THE "AGREEMENT"), DATED AS OF FEBRUARY 2, 2001, EXECUTED BY ADVANCED CERAMICS CORPORATION, AN OHIO CORPORATION ("PLEDGOR"), IN FAVOR OF KEYBANK NATIONAL ASSOCIATION, AS AGENT FOR THE BANKS, AS DEFINED IN THE AGREEMENT (TOGETHER WITH ITS SUCCESSORS AND ASSIGNS, "AGENT"). BY SIGNING IN THE SPACE PROVIDED BELOW, THE UNDERSIGNED OFFICER OF AGENT CERTIFIES THAT AN EVENT OF DEFAULT, AS DEFINED IN THE AGREEMENT, HAS OCCURRED AND THAT AGENT HAS ELECTED TO TAKE POSSESSION OF THE COLLATERAL, AS DEFINED BELOW, AND TO RECORD THIS DOCUMENT WITH THE UNITED STATES PATENT AND TRADEMARK OFFICE. UPON RECORDING OF THIS DOCUMENT WITH THE UNITED STATES PATENT AND TRADEMARK OFFICE, THIS LEGEND SHALL CEASE TO HAVE ANY FORCE OR EFFECT.

KEYBANK NATIONAL ASSOCIATION,
as Agent

By: _____
John P. McKelvey, Senior Vice President

Date: _____

ASSIGNMENT

WHEREAS, ADVANCED CERAMICS CORPORATION, an Ohio corporation ("Pledgor"), is the owner of the Collateral, as hereinafter defined;

WHEREAS, Pledgor has executed an Intellectual Property Collateral Assignment Agreement, dated as of February 2, 2001 (as the same may from time to time be amended, restated or otherwise modified, the "Agreement"), in favor of KEYBANK NATIONAL ASSOCIATION as Agent for the Banks, as defined in the Agreement (together with its successors and assigns, "Agent"), pursuant to which Pledgor has granted to Agent, for the benefit of the Banks, a security interest in and collateral assignment of the Collateral as security for the Debt, as defined in the Agreement;

WHEREAS, the Agreement provides that the security interest in and collateral assignment of the Collateral is effective as of the date of the Agreement;

WHEREAS, the Agreement provides that this Assignment shall become effective upon the occurrence of an Event of Default, as defined in the Agreement and Agent's election to take actual title to the Collateral;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound hereby, Pledgor, its successors and assigns, subject to the limitations stated in the paragraph immediately following, does hereby transfer, assign and set over unto Agent, for the benefit of the Banks, and their respective successors, transferees and assigns, all of its existing and future (a) patents, patent registrations, patent applications, trademarks, trademark registrations, trademark applications and copyright registrations, whether federal or state; (b) common law trademark rights, copyrights, improvements and inventions; (c) renewals, proceeds on infringement suits, and rights to sue for past, present and future infringements relating to any of the foregoing; (d) goodwill associated with any of the foregoing; and (e) proceeds of any of the foregoing (collectively, the "Collateral"), including, but not limited to, the Collateral listed on Schedule 1 hereto that is registered in the United States Patent and Trademark Office in Washington D.C. or that is the subject of pending applications in the United States Patent and Trademark Office.

This Assignment shall be effective only upon certification of an authorized officer of Agent, as provided above, that (a) an Event of Default, as defined in the Agreement, has occurred, and (b) Agent, on behalf of the Banks, has elected to take actual title to the Collateral.

IN WITNESS WHEREOF, the undersigned has caused this Agreement to be executed by its duly authorized officer on February 2, 2001.

ATTEST:

ADVANCED CERAMICS CORPORATION

Print Name: _____

By: _____
Gerard R. Weimann, President

Print Name: _____

THE STATE OF OHIO)
) SS:
COUNTY OF CUYAHOGA)

BEFORE ME, a Notary Public, the undersigned, on this day personally appeared Gerard R. Weimann, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of ADVANCED CERAMICS CORPORATION, an Ohio corporation, and that she/he executed the same as the act of such corporation for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 2nd day of February, 2001.

Notary Public

SCHEDULE 1

[TO EXHIBIT A]

SEE ATTACHED LISTS OF PATENTS, PATENT APPLICATIONS AND TRADEMARKS

Advanced Ceramics Corporation
Active Trademarks and Service Marks

Trademark or Service Mark	Number	U.S. Filing Date	Registration Date	Describes	Countries Registered
Boralloy	763,741		28 Jun 84	Pyrolytic Boron Nitride (renewal app. Aug 91)	Canada China
	137,447		25 Sep 79		
	152,274		30 Nov 81		
Boralectric	1,703,088		28 Jul 92	Resistance heating elements for industrial and commercial use comprised of pyrolytic graphite and pyrolytic nitride	China
	594,249		10 May 92		
MCP				Metal coated powders Labels to EL 21 Dec 00	
Polarsphere(s)	76/026481	14-Apr-00		Ceramic particles exhibiting high thermal conductivity and a substantially spherical shape, for use alone or as fillers in polymers or glasses. To EL 9 Mar 99.	
Polarthern	2,126,905		6-Jan-98	High thermal conductivity ceramic preparations and filler materials, namely, boron nitride filled polymers, graphite, ceramic oxide, and compositions of the foregoing for use in mft. of ceramic mats.	
	D-3329 75/173892	30 Sep 96			

Q Coat

D-3736 ca 15 Sep 97 3-Aug-99
75/369,758 75/369758

Ceramic flash evaporators for use in evaporating a metal coating of, for example, aluminum upon a product such as a picture tube or component of a product.

SUPPLY SHIPPING
LABELS

Softouch

D-3892 28-Aug-98
75/544,604

9-Nov-99 Boron nitride as a chemical raw material in granular, particle or powder form for use as a component of packaging materials, plastic molding compounds, semiconductor related products and diverse cosmetic products.

LABELS AND LITERATURE
SUPPLIED

TC1050

D-3936 21-Jan-99
75/624519

7-Mar-00 A structure for transferring heat which contains or encapsulates pyrolytic graphite within another solid material.

TPG

D-3816 25-Mar-98
75/457,180

Pyrolytic graphite having high thermal conductivity.

SUPPLY SHIPPING
LABELS

Weld-R-White

1,844,968 12-Jul-94
74/263,405 7 Apr 92

Spatier guard stop-off compound in a water-based liquid (paste) form for use in welding, brazing and other hot metal working ops.

RE-FILE BY DEC 99
UNDER ACC

Notes: Foreign trademark registrations will generally not be made, unless there is a specific benefit to be gained.

Trademarks "Boralectric", "Boralloy" and "Weld-R-White" were assigned to ACC by Praxair S.T. Technology Inc. 2 Mar 93.

21 Dec 00 as PATDOC

Advanced Ceramics Corporation
Active Foreign Patent Applications and Invention Disclosures

2165293954 ADVANCED CERAMICS

647 P04

JAN 29 '01 17:42

Docket No.	Lab No.	Subject	Inventor	Filing	Remarks	Sales Class
31815	J. Muraugh	Articles Coated with Aluminum Nitride by Chemical Vapor Deposition	M.H. Gilbert	22 Nov 00 as PCT/US00/42236 21 Nov 00 as 60/166971		470
	G					
	J					
	K					
	UK					
4121		Evaporator for Projection Ray Tube	J.M. Morris	22 Mar 00 as 09/533,003		433
	CI					
	G					
	K					
	Mal					
	NE					
	Tai					
3953		Heater for High Vacuum Optical View Port	T.J. Martind		US 5,977,526, 2 Nov 99 By 29 Feb 00 Before 17 Jul 00	430
EPO			M.H. Gilbert	2000-1117		
	J					
4093		Pyrolytic Graphite Monochromator and Method A.W. Moore for Improving Lattice Spacing Spread...		31 Aug 99 as 09/386,739 RI. 01029 Fr. 0273, 31 Aug Fr. 00/11070, before 10 Oct 00 De 100 40 196.1, 7 Oct 00	BAR DATE: Eur. Conf. Neutron Diff. Budapest 1 Sep 99	471
	F					
	G					
	R					
3915	UNM-496	Spherical BN Particles	R.T. Paine	US 09/315,097		452
EPO	CMEM		W. J. Kroeake	16 May 00 as EPO00401328.0	22 Nov 00 as EP 1053973	
	J		E.A. Pruss	19 May 00 as 2000-148893		
3967		Improved Compaction for Producing Densified BN Precursor for Cubic BN	G.W. Shaffer R.F. Hill	U.S. 6,048,511, 11 Apr 00	Division of TD-3775	452
3909		Flexible Heat Transfer Device and Method	J.B. Ritchey III	US:09/154,253, 16 Sep 98		435
EPO						

F						Prior to 12 Sep 00	
J							
R						Response filed prior to 17 Aug 00	
3855	Pyrolytic BoronNitride Radiation Heater	M.H. Gilbert	09/347,335, 2 Jul 99				430
EPO			22 May 00 as 00 401 406.4			Pub. 3 Jan 01 as 1065913, 24 Nov 00	
J			13 Apr 00 as 2000-117191			Translation and priority 19 Aug 00	
K			Prior to 11 May 00				
3825	Surface Treated Boron Nitride for Forming a Low Viscosity High Thermal Conductivity Polymer Based Boron Nitride Composition	K. Ishida	US 6,160,042, 12 Dec 00				452
CAN			99403250.6			Search report by 7 Sep 00	
EPO			88122593, 1 Oct 98				
J			EPO 99 904 502.4			EPO 1051543, 15 Nov 00	458
TAI			PCT/US99/02112 29 Jan 99			Favorable prelim exam, 29 Mar 00	
3807	Method for Electroplating Metal Coatings on Particulates at High Coating Speed with High C.D.	Pay Yih	2000-530647, 19 Jul 00			Request exam. 13 Oct 2000	
PCT			24 May 00 as 0012441.2				
J							
UK							
3775	Method for Forming Boron Nitride and High-Density Agglomerated Boron Nitride Particles	G.W. Shaffer	98400361.6, 16 Feb 98			Germany, Sweden, UK 3-30-00	
EPO			47768/98, 27 Feb 98				
J							
3605	Ceramic Electrostatic Chuck	H. Inoue, H. Miyata K. Mino, J. Honma	51 Jan 97			Per EL, joint filing with 3502	430
3447	UTA98-02 Molecular Beam Epitaxy Effusion Cell (Variable Aperture)	T.J. Mattford	SN60/19586, 11 Jun 96				444
3689							
PCT			PCT/US98/11730, 5 Jun 98			Prelim exam 10 Sep 99	
EPO			98925296.0 -Feb 00				
F							
G							
UK							
3550	Composition for Forming High Thermal Conductivity Polybenzoxazine-based	K. Ishida (to EPIC)	Apr-98				452
PCT							

CAN CH F G I J SW TAI UK	Material and Method	C2,250,511 15 Oct 98 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00 Prior to 11 May 00	Assigned 6 Nov 98	
3502 EPO F G K TAI	Pyrolytic Boron Nitride Compact and Method of Manufacture	J. Honma	EP 96 307144.4 30 Sep 96 K96-43613 20 Oct 96 Tai85112116 by 13 Dec 96	"Discretional Resistivity" J278269 EP 0 768 389, 16 Aug 00 By 18 Sep 00 By 5 Jul 00 Power to Kim & Lee 22 Nov 96 430
3467 CI J R UK	Method for the Precise Adjustment of the Mosaic Spread of HOPG	A. W. Moore	97120541, 10 Oct 97 277743/97, 9 Oct 97 97116800, 7 Oct 97 9721351.6, 9 Oct 97	471 Allowance by 7 Dec 00
3406 CAN F G I J K TAI	High Thermal Conductivity Composite and Method	J. T. Mariner H. Sayir	C2204331, 2 May 97 J115873/97, 6 May 97 97-17020, 2 May 97 30 Apr 97 as 86105759	435 filed by 14 Nov 00 per EPO 97 107 323.4 filed by 14 Nov 00 per EPO 97 107 323.4 filed by 14 Nov 00 per EPO 97 107 323.4
3301 CAN EPO	Boron Nitride Composition and Polymer Based High Conductivity Molding Compound	R. F. Hill S. De Vanzo	25 Feb 97 as 2198422 3 Mar 97 as 97103424.4	452 Search 29 Oct 99

J K MAL SING TAI	Exam date 26 Feb 02	5 Mar 97 as 67472/1997 28 Feb 97 as 97-5958 P19700879, 4 Mar 97 25 Feb 97 as 9700476-6 5 Mar 97 as 86102690			
3247 J K TAI		US5,671,322, 23 Mar 98 J 006851/1997, 17 Jan 97 1121/97, 16 Jan 97 87203892, 15 Jan 97	R.L. Finicle	432	Grant by 12 Sep 00
31300 CI J R		95197074.7, 24 Oct 95 514716-1996, 24 Oct 95 97108678, 24 Oct 95	A.W. Moore M.B. Dowell	470	Accept utility patent, 3/2/98
31290 AC-91-2 34216 PCT F G J UK		Process for Forming Pyrolytic SiBN Coatings on Low Thermal Expansion Materials	A.W. Moore	470	Modified claim offered by 1 Nov 00 Cf. US 5,972,511 26 Oct 99 Written Opinion 9 Oct 97
30870 G J		EPO/US95/11788 P19581904.7, 18 Sep 95 517874/96, 18 Sep 95	J.T. Mariner D.A. Longworth	435	abandoned for national filings
30860 3413 3548G J		PCT/US95/11787 18 Sep 95 as P19581904.7 18 Sep 95 as 517874/96	J.T. Mariner D.A. Longworth	435	Rejection 28 Jun 96

12 Jan 01 as PATDOC

Advanced Ceramics Corporation
Active U.S. Patent Applications and Invention Disclosures

Docket No.	Lab No.	Subject	Inventor	Filing	Remarks	Sales Class
		PBN Neutron Detector	J.R. Leist		To EL 12 Jun 00	441
		TLP052000A High Thermal Conductivity BN Filled Polymers and Processing the Same	A.Y. Sane T.J. Fox		Received 8 Jun 00	452
32014 33022		J. Murtaugh Glass Sealed Two Piece PBN Crucible	J. T. Mariner N. J. Weiss	2 Nov 99 as 60/163,149 13 Nov 00 as 60/247,241		444
31815		J. Murtaugh Articles Coated with Aluminum Nitride by Chemical Vapor Deposition (CVD-AIN)	M.H. Gilbert	23 Nov 99 as 60/166,971	Provisional SN 60/166,971 By 23 Nov 00	470
4093		Surface Modified BN Powders and Methods for Making Them	A.Y. Sane		First discussion 10 Feb 00	452
4121		Pyrolytic Graphite Monochromator and Method for Improving Lattice Spacing Spread...	A.W. Moore	31 Aug 99 as 09/386,739 RI 01029 Fr. 0273, 31 Aug	Claims allowed 31 Jul 00	471
		Evaporator for Projection Ray Tube	J.M. Morris	22 Mar 00 as 09/533,003		453
		J. Murtaugh Omnibus CVD AIN Patent	M.H. Gilbert J.W. Lennartz	Process Description due at JM by 15 June		470
3915 CMIEM		UNM-496 Spherical BN Particles	R.T. Paine W.J. Kroenke E.A. Pruss	US 09/315,097	Examiner's 2nd response 6 Dec 00 Reply 6 Mar 01	452
3855		Pyrolytic BoronNitride Radiation Heater	M.H. Gilbert	09/347,335, 2 Jul 99 Reel 010094 Frame 0853	Allowance 10 May 00	430

30860
34130
35480
12 Jan 01 as PATDOC

High Density Flash Evaporator

J.T. Mariner
D.A. Longworth
08/314,412
08/603,498

Final rejection 9 Feb 96
2nd Continuation 17 Jun 96
On appeal, ~Mar 98

435

US006160042A

United States Patent [19][11] **Patent Number:** **6,160,042****Ishida**[45] **Date of Patent:** **Dec. 12, 2000**

[54] **SURFACE TREATED BORON NITRIDE FOR FORMING A LOW VISCOSITY HIGH THERMAL CONDUCTIVITY POLYMER BASED BORON NITRIDE COMPOSITION AND METHOD**

[58] **Field of Search** 523-208; 415; 523-445; 428-703; 423-290; 524-404

[56] **References Cited**

[75] **Inventor:** **Hatsuo Ishida**, Shaker Heights, Ohio

U.S. PATENT DOCUMENTS

[73] **Assignee:** **Edison Polymer Innovation Corporation**, Akron, Ohio

5,152,939 10/1992 Ishida 264 29.1
5,221,783 6/1993 Huynh et al. 524 701
5,385,989 1/1995 Obya 525 502

[21] **Appl. No.:** **09/164,927**

[22] **Filed:** **Oct. 1, 1998**

Primary Examiner—**Fac Yoon**

Attorney, Agent, or Firm—**Anderson, Kill & Olick P.C.**

Related U.S. Application Data

[57] **ABSTRACT**

[63] **Continuation-in-part of application No. 08/846,457, May 1, 1997, Pat. No. 5,900,447.**

[51] **Int. Cl.⁷** **C08K 9/04; C08K 3/38; C08L 63/00; C01B 21/064**

[52] **U.S. Cl.** **523/445; 523-208; 523-415; 524-404; 428-703; 423-290**

A low viscosity high thermal conductivity polymer-based boron nitride composition and a surface-treated boron nitride material for use as a filler in this composition, and methods of preparation is described.

8 Claims, 1 Drawing Sheet

US006048511A

United States Patent [19]

[11] Patent Number: 6,048,511

Shaffer et al.

[45] Date of Patent: Apr. 11, 2000

[54] METHOD FOR FORMING HIGH DENSITY BORON NITRIDE AND HIGH DENSITY AGGLOMERATED BORON NITRIDE PARTICLES

[56] References Cited

U.S. PATENT DOCUMENTS

5,964,589 11/1991 Ichikawa et al. 423/290

[75] Inventors: Gregory W. Shaffer, Strongsville;
Richard Frank Hill, Chargin Falls,
both of Ohio

Primary Examiner—Wayne Langel
Attorney, Agent, or Firm—Eugene Lichenstein, Michael N. Meller

[73] Assignee: Advanced Ceramics Corporation,
Lakeland, Ohio

[57] ABSTRACT

[21] Appl. No.: 09/225,820

[22] Filed: Jan. 5, 1999

Related U.S. Application Data

[62] Division of application No. 08/968,949, Nov. 12, 1997, Pat. No. 5,898,009, which is a continuation of application No. 08/018,361, Mar. 19, 1996, abandoned.

[51] Int. Cl.⁷ B29C 67/02; C01B 21/064

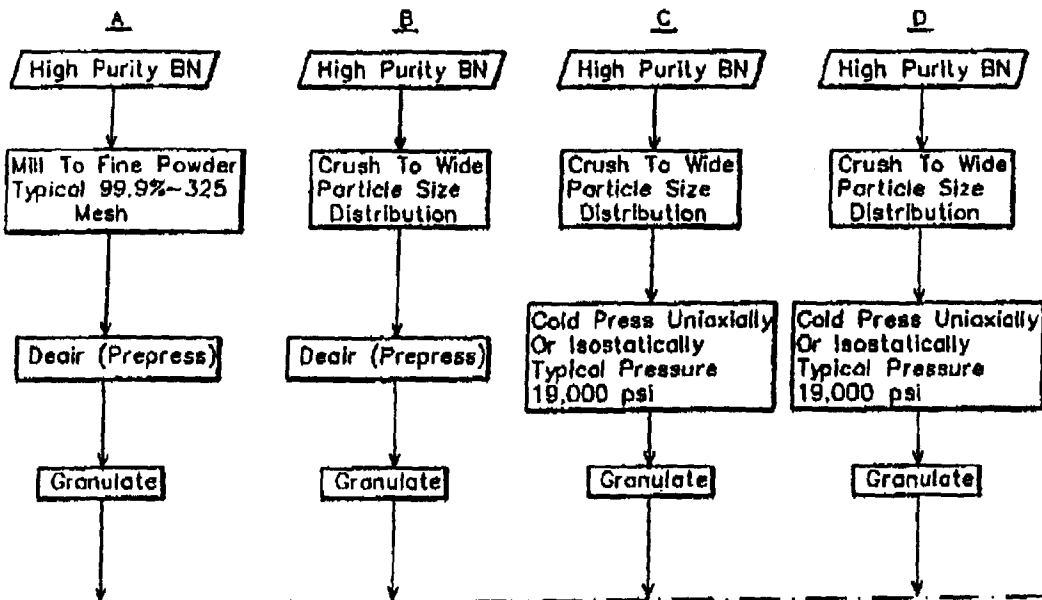
[52] U.S. Cl. 423/290; 264/117

[58] Field of Search 423/290; 501/96.4;
264/65, 117, 118

A method of forming pellets or agglomerates of high density boron nitride from high purity hexagonal boron nitride by crushing the high purity hexagonal boron nitride into boron nitride particles extending over a size range of at least 100 microns with the majority of the particles having a particle size above 50 microns and cold pressing the crushed particles into a compacted form. The compacted form is then granulated into a granulated powder and again cold pressed to form pellets or agglomerates of boron nitride particles with the operations of cold pressing and granulation occurring in one or more stages.

6 Claims, 5 Drawing Sheets

METHODS FOR PRODUCING HIGH GREEN DENSITY BN COMPACTS



United States Patent [19]

[11] Patent Number: 6,011,904

Mattord

[45] **Date of Patent:** Jan. 4, 2000

[54] MOLECULAR BEAM EPITAXY EFFUSION CELL

WO96/19507	n/1996	WIPO
WO97/06292	2.1997	WIPO
WO98/51836	11/1998	WIPO

[75] Inventor: Terry J. Mattord, Austin, Tex.

[73] Assignee: Board of Regents, University of Texas, Austin, Tex.

Primary Examiner—Richard Bueker
Attorney, Agent, or Firm—Eugene Lieberstein; Michael N. Meller

[21] Appl. No.: 08/872,758

[57] **ABSTRACT**

[22] Filed: Jun. 10, 1997

1511 Int. Cl.⁷ C23C 14/00

[52] U.S. Cl. 392/389; 118/726

[58] Field of Search 118,726, 392,369

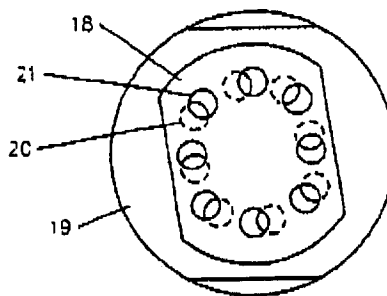
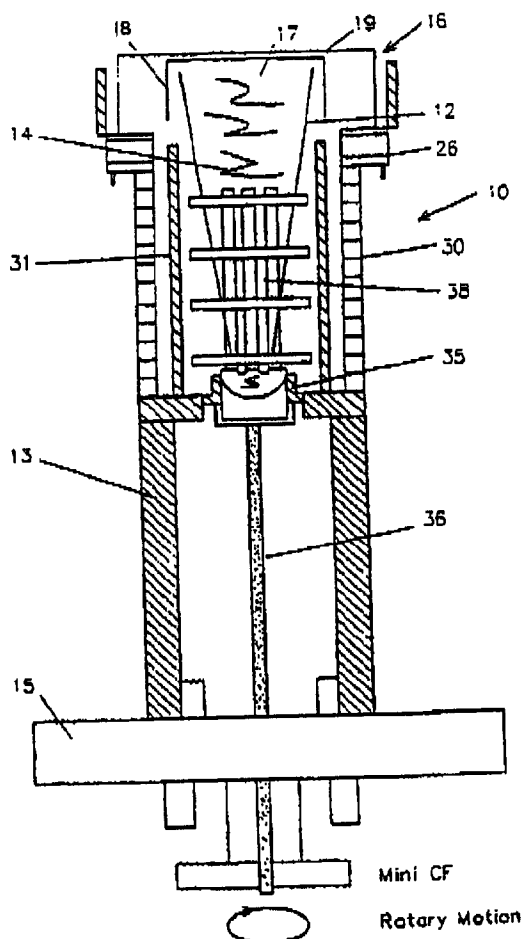
[56] **References Cited**

U.S. PATENT DOCUMENTS

4.543.467 0/1985 Fișele 118/726
5.478.401 12/1995 Shimizu .

FOREIGN PATENT DOCUMENTS

2 534 033A1 4,1484 France.



10 Claims, 9 Drawing Sheets

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PATENT
REEL: 011642 FRAME: 0066

DATE 21AUG2000 CLIENT: JN MASTER LIST REPORT 31A101 PAGE 1

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR PRIORITY TITLE

031291 96/0630041 PROCESS FOR FORMING PYROLYTIC SiBN COATINGS

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MDORE

COUNTRY	SUB CASE NO.	TYPE CASE	STATUS	APPLICATION NUMBER/	PATENT NUMBER/	PUBLIC NUMBER/	TAX/ WORKING	TAX SCHD THRU	PAID AGENT	EXPIR/ABAND	ATTY
USA				FILE DATE	ISSUE DATE	DATE	STRT DATE			DATE	
				02APR1996	5972511		26APR2000			02APR2016	

DATE 21JAN2000

CLIENT: 7H

MASTER LIST

REPORT 31A101

PAGE 1A

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR PRIORITY TITLE
REFERENCE NUMBER

EPICAD3550

ADVAN

846457 COMPOSITION FOR FORMING HIGH THERMAL CONDUCTIVITY POLYBENZO

XINE-BASED MATERIAL AND METHOD

ASSIGNEE: ADVANCED CERAMICS
INVENTOR: ISHIDA

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND ATTY DATE
EUROPE	PEND	98401034.8 28APR1998	0873531 04NOV1998	28APR1998	28APR2018	
CANADA	PEND	2250511 15OCT1998		15OCT1998	15OCT2018	
JAPAN	PEND	122382/98 01MAY1998		KYOWU 01MAY2018		
TAIWAN	PEND	87119924 01DEC1998		7SAI 01DEC2018		

UT-3689

ADVAN

97/0872758 MOLECULAR BEAM EPITAXY EFFUSION CELL

ASSIGNEE: UNIV OF TEXAS
INVENTOR: MATYORD-UT

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND ATTY DATE
USA	GRNT	872758 10JUN1997	6011904 04JAN2000		04JUL2000 SE	10JUN2017

002919

ADVAN

119996 CLAMP ASSEMBLY FOR VAPORIZATION BOAT

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MARINER

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND ATTY DATE
EUROPE	PCT ABND	94927387.4 09SEP1994		0717786 09SEP1994		09SEP2014

ASSIGNEE: ADVANCED CERAMICS CORPORATION

REMARKS: DROP PER FAX 10APR98

JAPAN

PCT ABND

508806/95

09SEP1994

09SEP2014

USA

REMARKS: ABAND PER FAX 16DEC98

CRNT

5410631

25OCT1995 SE

25APR2012

DATE 21AUG2000

CLIENT: 7H

MASTER LIST

REPORT 31A101

PAGE 2

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE PRIORITY TITLE

002961

ADVAN

ASSIGNEE: ADVANCE CERAMICS CORPORATION

93/0166470 BORON NITRIDE VAPORIZATION VESSE

INVENTOR: MARINER

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		GRNT		166470 14DEC1993	5395180 07MAR1995		07SEP1995 SE	07MAR2012

003085

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION

94/0314411 COATED FLASH EVAPORATOR

INVENTOR: MARINER ET AL.

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		GRNT		314411 28SEP1994	5537507 16JUL1996		16JAN1997 SE	16JUL2013

003086

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION

314412 HIGH DENSITY FLASH EVAPORATOR

INVENTOR: MARINER JT LONGWORTH DA

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE		PCT	ABND	US95/11787 18SEP1995			18SEP1995	18SEP2015
CHINA		PCT	GRNT	95196450.1 18SEP1995	95196450.1 07MAY1999	1167508 10DEC1997	18SEP1995	18SEP2015
COMMENTS: +PLEASE VERIFY ISSUED DT PER AGENT.								
GERMANY		PCT	PEND	P19581904.7 18SEP1995			18SEP1995	18SEP2015
JAPAN		PCT	PEND	51787476 18SEP1995				OKUYA 18SEP2015
RUSSIAN FEDERAT		PCT	GRNT	97104924 18SEP1995	2142021		18SEP1995	18SEP2015
UNITED KINGDOM		PCT	GRNT	9718478.2 18SEP1995	2313846 26MAY1999	2313846 10DEC1997	18SEP1995	18SEP2015
USA		PEND		314412 28SEP1994				SE

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

PAGE 3

CASE NUMBER	CLIENT/ DIVISION	ATTORNEY YOUR REFERENCE	PRIORITY TITLE
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003087

ADVAN
 ASSIGNEE: ADVANCED CERAMICS CORPORATION
 INVENTOR: MARINER JT LONGMORTH DA

94/0314314 EVAPORATOR HAVING MULTIPLE COATING

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT	AMND		18SEP1995 US95/11788			18SEP1995	18SEP2015
CHINA	PCT	GRNT		95196451.8 18SEP1995	95196451.8 28AUG1999	1167509 10DEC1997	18SEP1995	CHINA 18SEP2015
GERMANY	PCT	PEND		P19581905.5 18SEP1995			18SEP1995	18SEP2015
JAPAN	PCT	PEND		511846/97 18SEP1995				18SEP2015
RUSSIAN FEDERAT	PCT	GRNT		97105370 18SEP1995	2136778 10SEP1999		18SEP1995	99 18SEP2015
UNITED KINGDOM	PCT	GRNT		9717224.1 18SEP1995	2313845 26MAY1999	2313845 10DEC1997	18SEP1995	18SEP2015
USA		GRNT		314314 28SEP1994	5495530 27FEB1996		27AUG1996 SE	27FEB2013

REMARKS: 99 PD THRU PER FAX - 7OCT99

003088

ADVAN
 ASSIGNEE: ADVANCED CERAMICS CORPORATION
 INVENTOR: MARINER ET AL.

94/0314313 PAN COATED FLASH EVAPORATOR

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		GRNT		314313 28SEP1994	5493630 20FEB1996		20AUG1996 SE	20FEB2013

003129

ADVAN
 ASSIGNEE: ADVANCED CERAMICS CORPORATION
 INVENTOR: MOORE, W.

630041 PROCESS FOR FORMING LOW THERMAL EXPANSION PYROLYTIC NITRIDE COATINGS ON LOW THERMAL EXPANSION MATERIALS AND COATED...

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
JAPAN	PCT	PEND		11SEP1996 98120361				11SEP2016
RUSSIAN FEDERAT	PCT	PEND		11SEP1996				11SEP2016

PATENT

REEL: 011642 FRAME: 0070

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

PAGE 4

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR PRIORITY TITLE

003130

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MOORE ET AL. DONELL, Michael

94/0332924 IMPROVED INTERFACE COATING FOR CERAMIC FIBERS

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT GRNT	95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	97	24OCT2015
COMMENTS: +PLS VERIFY ISSUE DT, PAT# AND LIST DESIGNATED COUNTRIES						
CHINA	PCT PEND	93197024.7 24OCT1995	0828697 15MAR2000	1171095 21JAN1998	24OCT1995 PA	CPA 24OCT2015
FRANCE	EPC GRNT	95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	24OCT1995	24OCT2015
GERMANY	EPC GRNT	95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	24OCT1995	24OCT2015
JAPAN	PCT PEND	514716/96 24OCT1995	0828697 15MAR2000	0828697 18MAR1998		24OCT2015
RUSSIAN FEDERAT	PCT PEND	97108678 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	24OCT1995	24OCT2015
UNITED KINGDOM	EPC GRNT	95939594.8 24OCT1995	0828697 15MAR2000	0828697 18MAR1998	24OCT1995	24OCT2015
USA	GRNT	332924 01NOV1994	5593728 14JAN1997		14JUL1997 SE	01NOV2014

003247

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: FINICLE

586326 LATERAL FLASH EVAPORATOR

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT	97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997		15JAN2017
FRANCE	EPC GRNT	97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN1997	15JAN2017
GERMANY	EPC GRNT	97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN1997	15JAN2017
NETHERLANDS	EPC GRNT	97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN2001 EP	15JAN2017
JAPAN	PEND	6851/97 17JAN1997				17JAN2017
KOREA (SOUTH)	PEND	1121/97 16JAN1997				16JAN2017
TAIWAN	UTM PEND	87203892 15JAN1997			UN	15JAN2009
UNITED KINGDOM	EPC GRNT	97100496.5 15JAN1997	0785290 07APR1999	0785290 23JUL1997	15JAN1997	15JAN2017
USA	GRNT	586326 17JAN1996	5671322 23SEP1997		23MAR1998 SE	17JAN2016

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

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CASE NUMBER
CLIENT/ DIVISION
ATTORNEY YOUR REFERENCE
PRIORITY TITLE

003259

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY ET AL.

93/0524242 IMPROVED REFRACTORY BOAT & METHOD OF MANUFACTURE

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		GRNT	524242 06SEP1995	5604164 18FEB1997		18AUG1997 SE	06SEP2015

003300

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: SHAFFER

METHOD FOR FORMING BORON NITRIDE AND HIGH DENSITY AGGLOMERATE
TED BORON NITRIDE PARTICLES

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA		PEND	618361 19MAR1996				19MAR2016

003301

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: HILL DANANZO

610764 ENHANCED BORON NITRIDE COMPOSITION & POLYMER BASED HIGH THERMAL ETAL

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE		PEND	97103424.4 03MAR1997		0794227 10SEP1997	03MAR1997	03MAR2017
CANADA		PEND	2198422 25FEB1997			25FEB1997	NIL/NE 25FEB2017
JAPAN		PEND	67472/97 05MAR1997				05MAR2017
KOREA (SOUTH)		PEND	5958/97 26FEB1997				26FEB2017
MALAYSIA		PEND	P19700879 04MAR1997				
SINGAPORE		PEND	9700476-6 25FEB1997			25FEB1997	25FEB2017
TAIWAN		PEND	86102690 05MAR1997				05MAR2017
USA		GRNT	610764 05MAR1996	5681883 28OCT1997		28APR1998 SE	05MAR2016

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

003320

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORP
INVENTOR: HILL

95/0580860 BORDON NITRIDE SEAL AND METHOD OF USE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	GRNT	580860 29DEC1995	567832 21OCT1997		21APR1998 SE	29DEC2015

003406

ADVANCE
ASSIGNEE: ADVANCED CERAMICS COMPOSITE
INVENTOR: MARINER ET AL.

642469 HIGH THERMAL CONDUCTIVITY COMPOSITE AND METHOD

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT	97107323.4 02MAY1997	0805463 02AUG2000	0805463 05NOV1997		02MAY2017
CANADA	PEND	2204131 02MAY1997			02MAY1997	NOFPA 02MAY2017

COMMENTS: +PLS CONFIRM GRANT INFORMATION & DESIGNATED COUNTRIES

FRANCE

ASSIGNEE: ADVANCED CERAMICS CORPORATION
EPC GRNT 97107323.4 0805463 02AUG2000

0805463 02MAY1997 02MAY2017

GERMANY

EPC GRNT 97107323.4 0805463 02AUG2000

0805463 02MAY1997 02MAY2017

ITALY

EPC GRNT 97107323.4 0805463 02AUG2000

0805463 02MAY1997 EP 02MAY2017

JAPAN

PEND 115873/97 06MAY1997

06MAY2017

KOREA (SOUTH)

PEND 17020/97 03MAY1997

03MAY2017

TAIWAN

PEND 86105759 03MAY1997

03MAY2017

USA

GRNT 642469 03MAY1996

5863467 26JUL1999 SE 03MAY2016

003414

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: MARINER

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	PEND	603498 20FEB1996				20FEB2016

PATENT

REEL: 011642 FRAME: 0073

DATE 21AUG2000

CLIENT: 7H

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR PRIORITY TITLE
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003421

ADVAN

630041 PROCESS FOR FORMING LOW THERMAL EXPANSION PYROLYTIC NITRIDE
COATING

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MOORE, W.

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	AND			332693 01NOV1994				

REMARKS: ABAND PER SOURCE 11/09/98

003447

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: MATIORD-UT

MOLECULAR BEAM EPITAXY EFFUSION CELL

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	PRO		PEND	019586 11JUN1996				11JUN2016

003467

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MOORE

728933 ADJUSTMENT OF MOSAIC SPREAD FOR MOPE MATERIAL

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
CHINA			PEND	97120541.8 10OCT1997		1180902 06MAY1998	10OCT1997 PA	10OCT2017
FRANCE			GRNT	97112761 13OCT1997	97112761 28MAY1999	2754567 17APR1998	13OCT1997	13OCT2017
JAPAN			PEND	277743/97 09OCT1997				09OCT2017
RUSSIAN FEDERAT			PEND	97116800 07OCT1997				07OCT2017
UNITED KINGDOM			PEND	9721351.6 09OCT1997		2319519 27MAY1998	09OCT1997	09OCT2017
USA			GRNT	728933 11OCT1996	3798075 25AUG1998		23FEB1999	11OCT2016

DATE 21AUG2000

CLIENT: 7H

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DIVISION REFERENCE NUMBER

003502 ADVAN 27A269/95 PYROLYTIC BORDON NITRIDE COMPACT AND METHOD OF MANUFACTURE

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: HONMA

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
EUROPE	PEND	96307144.4 30SEP1996		0762389 16APR1997	30SEP1996	30SEP2016
KOREA (SOUTH)	PEND	43613/96 20OCT1996				20OCT2016
TAIWAN	PEND	85112116 03OCT1996				03OCT2016
USA	GRNT	725130 02OCT1996	5693581 02DEC1997		02JUN1998 SE	02OCT2016

003548 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: MARINER

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA	PEND	771373 16DEC1996				16DEC2016

003550 ADVAN
ASSIGNEE: ADVANCED CERAMICS
INVENTOR: ISHIDA
COMPOSITION FOR FORMING HIGH THERMAL CONDUCTIVITY POLYBENZID
IMAZINE-BASED MATERIAL AND METHOD

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA	PEND	844467 01MAY1997				01MAY2017
USA	GRNT	844457 01MAY1997	5960447 04MAY1999		04MAY1999	01MAY2017

003554 ADVAN
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: SHINKO
THERMOMETRIC MEASURING DEVICE AND METHOD

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA	CIP PEND	776807 20DEC1996				

REMARKS: CIP OF 490304

DATE 21AUG2000

CLIENT: 7H

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DIVISION REFERENCE NUMBER

003605

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: HONMA ET AL.

97/0785082 CERAMIC ELECTROSTATIC CHUCK AND METHOD

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ NUMBER/ NUMBER/ DATE WORKING SCHD THRU DATE
USA GRNT 21JAN1997 785082 5748436 05NOV1998 21JAN2017

003751

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: RICHNEY

FLEXIBLE HEAT TRANSFER DEVICE AND METHOD

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ NUMBER/ NUMBER/ DATE WORKING SCHD THRU DATE
USA PRG PEND 19SEP1997 059586 19SEP2017

003775

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: SHAFER HILL, Richard F

96/0618361 METHOD FOR FORMING BORDON NITRIDE END HIGH DENSITY AGGLOMERATE BORON NITRIDE PARTICLES

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ NUMBER/ NUMBER/ DATE WORKING SCHD THRU DATE
EUROPE PEND 98400361.6 0939066 16FEB1998 16FEB2018
JAPAN PEND 16FEB1998 47768/98 01SEP1999 27FEB2018
USA DIV GRNT 27FEB1998 5898009 27AUG1999 27OCT1999

REMARKS: DIV OF 618361: 3/19/96

003782

ADVANCE
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: YIH

97/0831299 METHOD FOR ELECTROPLATING OF MICROPARTICULATES WITH METAL COATINGS

COUNTRY SUB TYPE STATUS APPLICATION PATENT PUBLIC TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
CASE CASE NO. NUMBER/ NUMBER/ NUMBER/ DATE WORKING SCHD THRU DATE
USA CIP GRNT 11APR1997 837299 5911865 15DEC1999

REMARKS: CIP OF 796204

PATENT

REEL: 011642 FRAME: 0076

DATE 21AUG2000

CLIENT: 7H

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003825

ADVAN

164927 SURFACE TREATED BORON NITRIDE FOR FORMING A LOW VISCOSITY HIGH THERMAL CONDUCTIVITY POLYMER BASED BORON NITRIDE COMPOUND..

ASSIGNEE: ADVANCED CERAMICS CORP. / EDISON POLYMER INNOVATION CORP
INVENTOR: ISHIDA

COUNTRY

SUB TYPE STATUS
CASE CASEAPPLICATION
NUMBER/ FILE DATEPATENT
NUMBER/ ISSUE DATEPUBLIC
NUMBER/ DATETAX/ WORKING
SCHD THRUPAID AGENT
EXPIR/ABANDATTY
DATE

EUROPE

PENDING
COMMENTS: +PLS FORWARD COMPLETE FILING INFORMATIONCANADA
JAPAN
TAINANPENDING
PENDING
PENDING80122593
21DEC1999

21DEC2019

USA

CIP PENDING

01OCT1998

009711

ADVAN CPO

ASSIGNEE: UNION CARBID CORPORATION

553814 IMPROVED BORON NITRIDE CRUCIBLE

COUNTRY

SUB TYPE STATUS
CASE CASEAPPLICATION
NUMBER/ FILE DATEPATENT
NUMBER/ ISSUE DATEPUBLIC
NUMBER/ DATETAX/ WORKING
SCHD THRUPAID AGENT
EXPIR/ABANDATTY
DATE

FRANCE

GRANT

26FEB1976

21APR1980

ITALY

GRANT

483084/76
26FEB19761057254
10MAR1982

26FEB1976

26FEB1996

JAPAN

GRANT

033473/80
18MAR19801075401
30NOV1981

22APR1981

26FEB1976 OL

26FEB1996

UNITED KINGDOM

GRANT

76/07506
26FEB19761526003
28DEC1978

YOUR REF: 009711-CB

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011468 ADVAN EL

868446 RESISTANCE-HEATED PYROLYTIC BORON NITRIDE COATED GRAPHITE
BOAT FOR METAL VAPORIZATION

ASSIGNEE: UNION CARBIDE CORPORATION

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND ATTY DATE
FRANCE	ABND	79/00445 09JAN1979	79/00445 26MAR1984		09JAN1979	09JAN1999

ITALY	YOUR REF: 011468-F REMARKS: ABND PER TMR 11NOV97 ABND	475/64/79 10JAN1979	1113740 20JAN1986		10JAN1979	10JAN1999
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JAPAN	YOUR REF: 011468-1 REMARKS: ABND PER TMR 11NOV97 EIP	000460/79 09JAN1979	1249597 25JAN1985	02MAY1984	02MAY1984	09JAN1999
SWEDEN	COMMENTS: *CPI ATTEMPTED 99 PYRNI/VERIFY PATENT EXPIRED FULL-TERM. ABND	7900185-5 09JAN1979	7900185-5 25SEP1986		09JAN1979	09JAN1999

UNITED KINGDOM	YOUR REF: 011468-5 REMARKS: ABND PER TMR 11NOV97 ABND	79/00728 09JAN1979	2012251 04AUG1982		09JAN1979	09JAN1999
	YOUR REF: 011468-G8 REMARKS: ABND PER TMR 11NOV97					

013071

ADVAN EL

306385 PROUS FREE STANDING PYROLYTIC BORON NITRIDE ARTICLES

ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: SHINKO, JULIUS KEYES, THOM

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND ATTY DATE
EUROPE	GRNT	82401744.6 27SEP1982	0076731 12NOV1986	0076731 13APR1983		27SEP2002

DATE 21AUG2000

CLIENT: 7M

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015155

ADVAN EL
ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: TERBOT, JOHN F HILL, RICHARD

911221 METHOD FOR PRODUCING LIQUID ALKOXIDES OF MIXED METALS

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744		23SEP2007
BELGIUM	REMARKS: CTRYS DROPPED PER THR 05SEP97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
FRANCE	REMARKS: ABAN PER DATA INR.4-29-97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
GERMANY	REMARKS: DROP PER SOURCE 16DEC97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
NETHERLANDS	REMARKS: DROP PER SOURCE 16DEC97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1997 EP	23SEP2007
ITALY	REMARKS: ABAN PER DATA INR.4-29-97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987 EP	96 23SEP2007
JAPAN	REMARKS: DROP PER SOURCE 16DEC97 ABND	239912187 24SEP1987	2620253 11MAR1997		11MAR1997 P3	KYOMA 24SEP2007
UNITED KINGDOM	REMARKS: DROP PER SOURCE 16DEC97 EPC ABND	87201829.6 23SEP1987	0261744 08JAN1997	0261744	23SEP1987	96 23SEP2007
USA	REMARKS: DROP PER SOURCE 16DEC97 ABND	911221 24SEP1986	4835298 30MAY1989		30NOV1989	30MAY2006
	REMARKS: DROP PER SOURCE 16DEC97					

015155-1

ADVAN
ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: TERBOT HILL

CORDIERITE COMPOSITION AND MET

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	276807 23NOV1988	4946976 07AUG1990		07FEB1991	07AUG2007
	YOUR REF: 015155-1					
	REMARKS: ABND PER THR 11NOV97					

DATE 21AUG2008

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE PRIORITY TITLE

015155-2

ADVAN
ASSIGNEE: UNION CARBIDE COATINGS SERVICE
INVENTOR: TERBOT, JOHN F HILL, RICHARD

CORDEXITE COMPOSITION AND MET

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	321214 09MAR1989	5139976 18AUG1992		18FEB1993 SE	18AUG2009

REMARKS: DROP PER SOURCE 18DEC97

015155-3

ADVAN
ASSIGNEE: UNION CARBIDE COATINGS SERVICE
INVENTOR: TERBOT, JOHN F HILL, RICHARD

LOW SINTERING CORDEXITE POWDE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	896087 06MAR1991	5173455 22DEC1992		22JUN1993	22DEC2009

REMARKS: DROP PER SOURCE 18DEC97

015650

ADVAN EL
ASSIGNEE: UNION CARBIDE CORP.
INVENTOR: PARRISH, LIEN, MONTGOMERY,

291605 ALLOWED POWDER AND METHOD OF PREPARING SAME

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING START DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	89123722.4 22DEC1989	0376179 10AUG1994	0376179		22DEC2009
FRANCE	ABND PER SOURCE	89123722.4 22DEC1989	0376179 10AUG1994	0376179	22DEC1989	22DEC2009
GERMANY	EPC ABND	89123722.4 22DEC1989	P68917446.2 10AUG1994	0376179	22DEC1989	22DEC2009
JAPAN	ABND PER SOURCE	345016/89 28DEC1989				28DEC2009
UNITED KINGDOM	ABND PER SOURCE	89123722.4 22DEC1989	0376179 10AUG1994	0376179	22DEC1989	22DEC2009
USA	ABND PER SOURCE	291605 29DEC1988	5047372 10SEP1991	10MAR1992 SE		10SEP2008

REMARKS: ABND PER SOURCE 26DEC97

PATENT

REEL: 011642 FRAME: 0080

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER
CLIENT/ DIVISION
ATTORNEY YOUR REFERENCE NUMBER
PRIORITY TITLE

015730

ADVAN EL
ASSIGNEE: PRAHAIR S.T. TECHNOLOGY INC.
INVENTOR: SARA, RAYMOND

272419 METHOD FOR SINTERED SHAPES WITH CONTROLLED GRAIN SIZE

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE	ATTY
EUROPE	ABND		89311849.7 16NOV1989	0375148 08SEP1993	0375148		16NOV2009	
FRANCE	EPC ABND		89311849.7 16NOV1989	0375148 08SEP1993	0375148	16NOV1989	16NOV2009	
REMARKS:	ABND PER SOURCE	26DEC97						
GERMANY	EPC ABND		89311849.7 16NOV1989	0375148 08SEP1993	0375148	16NOV1989	16NOV2009	
REMARKS:	ABND PER SOURCE	26DEC97						
JAPAN	ABND		296308/89 16NOV1989	2027033 24FEB1996	7-045342 17MAY1995	17MAY1995	16NOV2009	
REMARKS:	ABND PER SOURCE	26DEC97						
UNITED KINGDOM	EPC ABND		89311849.7 16NOV1989	0375148 08SEP1993	0375148	16NOV1989	16NOV2009	
REMARKS:	ABND PER SOURCE	26DEC97						
USA	ABND		63383 01FEB1991	5045269 03SEP1991	03MAR1992		03SEP2008	
REMARKS:	ABND PER SOURCE	26DEC97						

ASSIGNEE: PRAHAIR S.T. TECHNOLOGY, INC.
REMARKS: ABND PER SOURCE 26DEC97

10578 BORON NITRIDE CONTAINING VESSEL HAVING A SURFACE COATING OF
TITANIUM-IRON SILICON THEREON

015845

ADVAN CEO

ASSIGNEE: UNION CARBIDE CORPORATION
INVENTOR: SHAFFER, GREGO

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE	ATTY
EUROPE	GRNT		89106412.3 11APR1989	0337391 22JUL1992	0337391 16OCT1989		11APR2009	
FRANCE	EPC GRNT		89106412.3 11APR1989	0337391 22JUL1992	0337391 16OCT1989	11APR1989	11APR2009	
GERMANY	EPC GRNT		89106412.3 11APR1989	0337391 22JUL1992	0337391 16OCT1989	11APR1989	11APR2009	
ITALY	EPC GRNT		89106412.3 11APR1989	0337391 22JUL1992	0337391 16OCT1989	11APR1989	11APR2009	
JAPAN	GRNT		088882/89 11APR1989	1951563 28JUL1995	073933/94 21SEP1994	06	11APR2009	
UNITED KINGDOM	EPC GRNT		89106412.3 11APR1989	0337391 22JUL1992	0337391 16OCT1989	11APR1989	11APR2009	
USA	GRNT		180578 12APR1988	4884788 05DEC1989	05JUN1990		05DEC2006	

DATE 21AUG2000

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016068 ADVAN EL

ASSIGNEE: UNION CARBIDE COATINGS SERVICE
INVENTOR: MOORE

318349 PROLYTIC BORON NITRIDE WITH COLUMNAR CRYSTALLINE MORPHOLOGY

COUNTRY SUB TYPE STATUS APPLICATION NUMBER/ PATENT NUMBER/ PUBLIC NUMBER/ TAX/ TAX PAID AGENT EXPIR/ABAND ATTY

EUROPE GRNT FILE DATE ISSUE DATE DATE STRT DATE

90302178.0 0385772 0385772 01MAR1990 01MAR2010

FRANCE YOUR REF: 016068 EPC GRNT 90302178.0 0385772 0385772 01MAR1990 01MAR2010

GERMANY YOUR REF: 016068-F EPC GRNT 90302178.0 P69002778.8 0385772 01MAR1990 01MAR2010

JAPAN YOUR REF: 016068-G GRNT 047257190 1913134 041367194 01JUN1994 10 KURAU 01MAR2010

RUSSIAN FEDERAT ASSIGNEE: ADVANCED CERAMICS CORPORATION GRNT 4743242 2033964 01MAR1990 01MAR1990 95 SOJUZ 01MAR2010

UNITED KINGDOM EPC GRNT 90302178.0 0385772 0385772 01MAR1990 01MAR2010

USA YOUR REF: 016068-CB ASSIGNEE: PRAAIR S T TECHNOLOGY, INC. GRNT 318349 5004708 02MAR1989 02APR1991 02OCT1991 02APR2008

ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7H

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016233

ADVANCE EL
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: MONTGOMERY, LI

458347 METHOD FOR FORMING A HIGH DENSITY METAL BORIDE COMPOSITE

COUNTRY	SUB TYPE STATUS CASE CASE ND.	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING SCHEM THRU DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	90314330.3 27DEC1990	0435672 14DEC1994	0435672	27DEC1990	27DEC2010
FRANCE	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	90314330.3 27DEC1990	0435672 14DEC1994	0435672	27DEC1990	27DEC2010
GERMANY	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	90314330.3 27DEC1990	P69015143.8 14DEC1994	0435672	27DEC1990	27DEC2010
JAPAN	REMARKS: ABND PER SOURCE 26DEC97 ABND	415287/90 27DEC1990	7-055861 14JUN1995	14JUN1995	27DEC2010	27DEC2010
UNITED KINGDOM	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	90314330.3 27DEC1990	0435672 14DEC1994	0435672	27DEC1990	27DEC2010
USA	REMARKS: ABND PER SOURCE 26DEC97 ABND	458347 28DEC1989	4983340 08JAN1991	08JUL1991 SE	08JAN2008	08JAN2008

ASSIGNEE: PRAHAIR S.T. TECHNOLOGY, INC.
REMARKS: ABND PER SOURCE 26DEC97

016234

ADVANCE

669009 PROCESS FOR PRODUCING TITANIUM DIOXIDE AND BORON NITRIDE P
ORDERS

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY, LI

COUNTRY	SUB TYPE STATUS CASE CASE ND.	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING SCHEM THRU DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT	92302103.4 12MAR1992	0503930 25SEP1996	0503930 16SEP1992	12MAR1992	12MAR2012
GERMANY	YOUR REF: 016234-EP REMARKS: DE GB EPC GRNT	92302103.4 12MAR1992	P69213978.8 25SEP1996	0503930 16SEP1992	12MAR1992	12MAR2012
JAPAN	GRNT	087497/92 12MAR1992	2528056 14JUN1996	14JUN1996	08	KURAU 12MAR2012
UNITED KINGDOM	EPC GRNT	92302103.4 12MAR1992	0503930 25SEP1996	0503930 16SEP1992	12MAR1992	12MAR2012
USA	GRNT	669009 12MAR1991	5100845 31MAR1992	JOSEF1992 SE	31MAR2009	31MAR2009

ASSIGNEE: PRAHAIR S.T. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016237 ADVAN EL

564108 PYROLYTIC BORON NITRIDE COATING FOR OXIDATION PROTECTION OF CARBON-COMPOSITES

ASSIGNEE: ADVANCED CERAMICS, CORP.
INVENTOR: MOORE, ARTHUR,

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
EUROPE	PCT	GRNT		91918125.5 08AUG1991	0495095 31JAN1996	0495095 22JUL1992		08AUG2011

REMARKS: FR DE GB
2067145
08AUG1991 16FEB1999 09FEB1992 08AUG1991 97 STM 08AUG2011

CANADA PCT GRNT 2067145 08AUG1991 16FEB1999 09FEB1992 08AUG1991 97 STM 08AUG2011

FRANCE EPC GRNT 91918125.5 08AUG1991 31JAN1996 22JUL1992 08AUG1991 08AUG2011

GERMANY EPC GRNT 91918125.5 08AUG1991 31JAN1996 22JUL1992 08AUG1991 08AUG2011

JAPAN PCT GRNT 516606191 08AUG1991 19DEC1997 19DEC1997 06 08AUG2011

UNITED KINGDOM EPC GRNT 91918125.5 08AUG1991 31JAN1996 22JUL1992 08AUG1991 08AUG2011

USA ASSIGNEE: ADVANCED CERAMICS CORPORATION
PENO 564108
08AUG1990

016237-1 ADVAN EL 564108 PYROLYTIC BORON NITRIDE COATING FOR OXIDATION PROTECTION OF CARBON-COMPOSITES
ASSIGNEE: PRAKHAIR S.I. TECHNOLOGY, INC.
INVENTOR: MOORE, ARTHUR,

COUNTRY	SUB CASE NO.	TYPE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND ATTY DATE
USA	GRNT			819647 10JAN1992	3275844 04JAN1994		04JUL1994	04JAN2011

ASSIGNEE: PRAKHAIR S.I. TECHNOLOGY, INC.

DATE 21AUG2000 CLIENT: 7M MASTER LIST REPORT 31A101 PAGE 18

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016311 ADVAN ASSIGNEE: ADVANCED CERAMICS CORPORATION 431191 POWDER COATING COMPOSITIONS
INVENTOR: OSBORNE, TIMOT

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE		GRNT	90312018.6 02NOV1990	0426485 11JAN1995	0426485 08MAY1991		02NOV2010

REMARKS: FR DE GB

CANADA		GRNT	2029232 02NOV1990	2029232 03DEC1996	04MAY1991 0426485	02NOV1990	51M 02NOV2010
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FRANCE		EPC GRNT	90312018.6 02NOV1990	0426485 11JAN1995	0426485 08MAY1991	02NOV1990	94 02NOV2010
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GERMANY		EPC GRNT	90312018.6 02NOV1990	0426485 11JAN1995	0426485 08MAY1991	02NOV1990	94 02NOV2010
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JAPAN		GRNT	295577/90 02NOV1990	2708862 24OCT1997	0426485 02NOV1990	11 02NOV2010	94 02NOV2010
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UNITED KINGDOM		EPC GRNT	90312018.6 02NOV1990	0426485 11JAN1995	0426485 08MAY1991	02NOV1990	94 02NOV2010
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USA		GRNT	431191 03NOV1989	5026422 25JUN1991		25DEC1991 SE	03NOV2009
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ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.
COMMENTS: +PLEASE VERIFY PATENT IS A SMALL ENTITY--PER PTO

016328 ADVAN CFD 516910 BORDON NITRIDE TEXTURED BOAT AND PROCESS FOR PRODUCING IT
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: FINIGLE, ROBER

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE		GRNT	91303625.7 24APR1991	0457444 07JUN1995	0457444		24APR2011

ASSIGNEE: **DO NOT CHANGE FILE 01 -- SHOULD BE 24APR91**
REMARKS: DE GB

CANADA		GRNT	2041427 29APR1991	2041427 24FEB1998	31OCT1991 0457444	29APR1991	97 51M 29APR2011
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GERMANY		EPC GRNT	91303625.7 24APR1991	0457444 07JUN1995	0457444	24APR1991	95 24APR2011
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JAPAN		GRNT	124492/91 30APR1991	2681551 08AUG1997	08AUG1997 02		30APR2011
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UNITED KINGDOM		EPC GRNT	91303625.7 24APR1991	0457444 07JUN1995	0457444	24APR1991	95 24APR2011
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USA		GRNT	516910 30APR1990	5032366 16JUL1991		16JAN1992	16JUL2008
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REMARKS: ***DO NOT CHANGE FILE DATE***
ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7H

MASTER LIST

REPORT 31A101

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CASE NUMBER CLIENT/ ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

016328-1

ADVAN

ASSIGNEE: PRAKAR S.T. TECHNOLOGY, INC.
INVENTOR: FINICLE, ROBER

BORON NITRIDE BOAT AND PROCESS

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA	GRNT	662954 01MAR1991	5182149 26JAN1993		26JUL1993 SE	26JAN2010

016329

ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION/ UNION CARBIDE
INVENTOR: FINICLE, ROBER

533816 BORON NITRIDE CRUCIBLE AND PROCESS FOR PRODUCING IT

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
EUROPE	GRNT	91305100.9 05JUN1991	0460943 24AUG1994	0460943 11DEC1991		05JUN2011

REMARKS: DE CB

CHINA	GRNT	91104641.0 05JUN1991	91104641.0 19DEC1997	1058091 22JAN1992	05JUN1991 DL	CPA 05JUN2006
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GERMANY	GRNT	91305100.9 05JUN1991	P69103579.2 24AUG1994	0460943 11DEC1991	05JUN1991	94 05JUN2011
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JAPAN	GRNT	159883/91 05JUN1991	2520060 17MAY1996		17MAY1996 09	KURAU 05JUN2011
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RUSSIAN FEDERAT	GRNT	4895648 05JUN1991	2059025 27APR1996		05JUN1991	05JUN2011
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UNITED KINGDOM	GRNT	91305100.9 05JUN1991	0460943 24AUG1994	0460943 11DEC1991	05JUN1991	94 05JUN2011
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USA	GRNT	333816 06JUN1990	5075035 24DEC1991		24JUN1992 SE	24DEC2008
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016329-1 ADVAN

ASSIGNEE: PRAKAR S.T. TECHNOLOGY, INC.
INVENTOR: FINICLE, ROBER

BORON NITRIDE CRUCIBLE (AMENDED)

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX/ PAID AGENT EXPIR/ABAND DATE
USA	GRNT	750296 27AUG1991	5156750 27OCT1992		27APR1993	27OCT2009

PATENT

REEL: 011642 FRAME: 0086

DATE 21AUG2000 CLIENT: 7H MASTER LIST REPORT 31A101 PAGE 20

CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016459 ADVAN CFQ
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: SHAFTER, GREGO 693545 NULITE/BORON NITRIDE COMPOSITE BREAK RING

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING SCHED THRU	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	92303848.3 29APR1992	0511840 25OCT1995	0511840		29APR2012
CANADA	ABND	2067532 29APR1992	2067532 09JUL1996		29APR1992	SIN 29APR2012
GERMANY	REMARKS: DROP PER TMR 21FEB97 EPC ABND	92303848.1 29APR1992	P69205618.1 25OCT1995	0511840	29APR1992	29APR2012
JAPAN	REMARKS: ABND PER TMR 21FEB97 ABND	135693/92 30APR1992	2772305 24APR1998		24APR1998 02	30APR2012
UNITED KINGDOM	REMARKS: ABND PER SOURCE 26DEC97 EPC ABND	92303848.3 29APR1992	0511840 25OCT1995	0511840	29APR1992	29APR2012

016459-1 ADVAN NULITE/BORON NITRIDE COMPOSITE

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING SCHED THRU	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	038754 29MAR1993				

ASSIGNEE: PRAXAIR S.T. TECHNOLOGY, INC.
REMARKS: ABND PER SOURCE 26DEC97

016465 ADVAN EL 544611 A GRAPHITE CHUCK FOR A STARTER FILAMENT IN THE MANUFACTURE OF POLYCRYSTALLINE SILICON AND METHOD OF PROTECTION

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING SCHED THRU	TAX PAID AGENT EXPIR/ABAND DATE
JAPAN	ABND	418179/90 25DEC1990	2536397 05SEP1996		05SEP1996	25DEC2010
KOREA (SOUTH)	REMARKS: DROP PER SOURCE 16DEC97 ABND	21578/90 24DEC1990	102429 23JUL1996	3734/96 21MAR1996	21MAR1996	21MAR2011

REMARKS: DROP PER FAX 18MAR98

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016465-1 ADVAN EL

ASSIGNEE: ADVANCED CERAMIC CORPORATION
INVENTOR: GILBERT MICHAEL/EDGE JOHN B WALSH PAUL J

A GRAPHITE CHUCK FOR A STARTER FILAMENT IN THE MANUFACTURE
OF POLYCRYSTALLINE SILICON AND METHOD OF PROTECTION

COUNTRY

USA

SUB TYPE STATUS APPLICATION
CASE CASE NO. FILE DATE

GINT

790079

PATENT NUMBER/ ISSUE DATE
5277934

PUBLIC NUMBER/ DATE

TAX/ WORKING STRT DATE
11JUL1994

TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
SCHD THRU DATE

11JAN2011

ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.

016496 ADVAN EL

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY, LI

570739 NONAQUEOUS BINDER COMPOSITION FOR SLIP CASTING OR COLD
FORMING AND METHOD

COUNTRY

JAPAN

SUB TYPE STATUS APPLICATION
CASE CASE NO. FILE DATE

GINT

232407/91

PATENT NUMBER/ ISSUE DATE
2767657

PUBLIC NUMBER/ DATE

TAX/ WORKING STRT DATE
10APR1998

TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
SCHD THRU DATE

21AUG2011

KOREA (SOUTH)

GINT

14367/91

10APR1998

111032

22AUG1996 04

22AUG2011

USA

GINT

837606

5236986

22AUG1996

24FEB1994

24AUG2010

ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.

016496-1 ADVAN

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY

NON AQUEOUS BINDER COMPOSITION METAL

COUNTRY

USA

SUB TYPE STATUS APPLICATION
CASE CASE NO. FILE DATE

GINT

044677

PATENT NUMBER/ ISSUE DATE
5429781

PUBLIC NUMBER/ DATE

TAX/ WORKING STRT DATE
04JAN1996

TAX/ TAX PAID AGENT EXPIR/ABAND ATTY
SCHD THRU DATE

04JUL2012

ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.

PATENT

REEL: 011642 FRAME: 0088

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

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CASE NUMBER CLIENT/ DIVISION ATTORNEY YOUR REFERENCE NUMBER PRIORITY TITLE

016708

ADVAN CEO
ASSIGNEE: ADVANCED CERAMICS CORP.
INVENTOR: SHAFFER, GREGO

693546 NULLITE/YTTRIA STABILIZED ZIRCONIA/BORON NITRIDE COMPOSITES

COUNTRY

EUROPE

SUB TYPE STATUS APPLICATION NUMBER/ FILE DATE

ABND 92303849.1 0511841
29APR1992 08NOV1995

PATENT NUMBER/ ISSUE DATE PUBLIC NUMBER/ DATE TAX/ WORKING SCHD THRU PAID AGENT EXPIR/ABAND ATTY DATE

29APR2012

CANADA

REMARKS: DROP CTYS PER TMR 21FEB97
ABND 2067531
29APR1992

29APR1992

SIN

29APR2012

GERMANY

REMARKS: ABND PER TMR 21FEB97
EPC ABND 92303849.1 P6205882.6
29APR1992 08NOV1995

0511841 29APR1992

29APR2012

JAPAN

REMARKS: DROP PER TMR 21FEB97
ABND 135694/92
30APR1992

30APR2012

UNITED KINGDOM

REMARKS: ABND PER SOURCE 26DEC97
EPC ABND 92303849.1
29APR1992

0511841

0511841 29APR1992

29APR2012

USA

REMARKS: DROP PER TMR 21FEB97
ABND 693546 5120683
30APR1991 09JUN1992
ASSIGNEE: PRAXAIR S.I. TECHNOLOGY, INC.
REMARKS: ABND PER SOURCE 26DEC97

09DEC1992

09JUN2009

016708-1

ADVAN
ASSIGNEE: UNION CARBIDE COATINGS SERVICE
INVENTOR: SHAFFER, GREGO

METHOD OF PRODUCING NULLITE/YT

COUNTRY

USA

SUB TYPE STATUS APPLICATION NUMBER/ FILE DATE

ABND 824219 5134098
23JAN1992 28JUL1992

PATENT NUMBER/ ISSUE DATE PUBLIC NUMBER/ DATE TAX/ WORKING SCHD THRU PAID AGENT EXPIR/ABAND ATTY DATE

28JUL2009

ASSIGNEE: UNION CARBIDE CANADA LTD.
REMARKS: ABANDONED PER TMR 09/10/99

PATENT

REEL: 011642 FRAME: 0089

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

REPORT 31A101

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CASE NUMBER
CLIENT/ DIVISION
ATTORNEY YOUR REFERENCE
PRIORITY TITLE

016891 ADVAN EL

810910 METHOD FOR RESISTANCE HEATING OF METAL USING A PYROLYTIC
BORON NITRIDE COATED GRAPHITE BOAT

ASSIGNEE: ADVANCED CERAMIC CORP.
INVENTOR: MORRIS, JOSEPH

COUNTRY	SUB CASE NO.	TYPE CASE	STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE	ATTY
EUROPE			GRNT	93030212.0 23APR1993	0621351 07JUL1999	0621351 26OCT1994	03JUL1993	CPA	03JUL2013
CHINA			GRNT	93107926.8 03JUL1993	25MAR1999 0621351	11JAN1995 0621351	23APR1993		23APR2013
GERMANY			EPC GRNT	93030212.0 23APR1993	07JUL1999	26OCT1994	0621351		23APR2013
HONG KONG			REG PEND	23APR1993					23APR2013
JAPAN			GRNT	119228/93 23APR1993	2665673 27JUN1997		27JUN1997 02	KURAU	23APR2013
KOREA (SOUTH)			GRNT	7043/93 27APR1993	177836 19NOV1998		19NOV1998	NAM	19NOV2013
TAIWAN			GRNT	82103377 30APR1993	NI-69830 21JAN1995		21JAN1995		30APR2013
UNITED KINGDOM			EPC GRNT	93030212.0 23APR1993	0621351 07JUL1999	0621351 26OCT1994	23APR1993		23APR2013
USA			GRNT	810910 20DEC1991	5239612 24AUG1993		24FEB1994		24AUG2010

ASSIGNEE: PRATAIR S.T. TECHNOLOGY, INC.

DATE 21AUG2000

CLIENT: 7M

MASTER LIST

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CASE NUMBER
CLIENT/ ATTORNEY
DIVISION REFERENCE NUMBER
PRIORITY TITLE

016969

ADVANCE EL
ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: GILBERT, MICHAEL, TIMOTHY,

953156 PYROLYTIC BORON NITRIDE HEATING UNIT

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT GRNT		93922354.1 24SEP1993	0663138 15JAN1997	0663138 19JUL1995		24SEP2013

REMARKS: DE FR GB SE

CANADA	PCT GRNT		2141340 24SEP1993	2141340 12JAN1999		24SEP1993	NILNE 24SEP2013
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FRANCE	EPC GRNT		93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993	24SEP2013
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GERMANY	EPC GRNT		93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993	24SEP2013
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JAPAN	PCT GRNT		509175/94 24SEP1993	2702609 03OCT1997		03OCT1997 05	24SEP2013
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KOREA (SOUTH)	PCT GRNT		701156/95 24SEP1993	174587 05NOV1998		05NOV1998	05NOV2013
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SWEDEN	EPC GRNT		93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993 EP	PATRA 24SEP2013
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UNITED KINGDOM	EPC GRNT		93922354.1 24SEP1993	0663138 15JAN1997	0663138	24SEP1993	24SEP2013
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USA	GRNT		953156 29SEP1992	5343022 30AUG1994		28FEB1995	30AUG2011
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ASSIGNEE: PRAAIR S.T. TECHNOLOGY, INC.

020000

ADVANCE EL

69801 FLUIDIZED BED REACTOR ARRANGEMENT AND METHOD FOR FORMING A METAL CARBIDE COATING ON A SUBSTRATE CONTAINING GRAPHITE...

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: LENNARTZ, JEFFE

COUNTRY	SUB CASE NO.	TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	PCT GRNT		94920036.4 25MAY1994	0658219 24MAR1999	0658219 21JUN1995		25MAY2014
CHINA	PCT GRNT		94190542.1 25MAY1994	94190542.1 16JUL1999	1112790 29NOV1995	25MAY1994	25MAY2014
GERMANY	EPC GRNT		94920036.4 25MAY1994	0658219 24MAR1999	0658219 21JUN1995	25MAY1994	25MAY2014
UNITED KINGDOM	EPC GRNT		94920036.4 25MAY1994	0658219 24MAR1999	0658219 21JUN1995	25MAY1994	25MAY2014
USA	ABND		069801 01JUN1993				

COMMENTS: *PLEASE VERIFY CASE ISSUED ON 16JUL99 PER AGENT.

REMARKS: ABAND PER SOURCE 1/20/99

PATENT

REEL: 011642 FRAME: 0091

DATE 21AUG2000

CLIENT: 7M

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CASE NUMBER CLIENT/ ATTORNEY YOUR PRIORITY TITLE
DIVISION REFERENCE NUMBER

020000-1 ADVAN

95/0396875 FLUIDIZED BED REACTOR ARRANGEMENT AND METHOD FOR FORMING A

METAL CARBIDE COATING ON A SUBSTRATE CONTAINING GRAPHITE...

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: LEMMARTZ

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	CON GRNT	396875 01MAR1995	5498442 12MAR1996		12SEP1996	12MAR2013

REMARKS: CON OF 069801

020014

ADVAN EL

037751 BORON NITRIDE COMPOSITES BASED ON ALUMINUM NITRIDE AND MOLLITE

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY, L.

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
EUROPE	ABND	94301845.7 15MAR1994	0616988 13AUG1997	0616988		15MAR2014

CHINA
REMARKS: DROP PER CNTRY 16DEC97
ABND 94103604.9 26MAR1994

26MAR1994 PA 26MAR2014

GERMANY
REMARKS: ABND PER THR 11NOV97
EPC ABND 94301845.7 15MAR1994
13AUG1997 0616988 15MAR1994 97 15MAR2014

JAPAN
REMARKS: ABND PER SOURCE 16DEC97
ABND 51859/94 23MAR1994
02MAY1997 2643216 02MAY1997 05 23MAR2014

UNITED KINGDOM
REMARKS: DROP PER SOURCE 16DEC97
EPC ABND 94301845.7 15MAR1994
13AUG1997 0616988 15MAR1994 15MAR2014

USA
REMARKS: ABND PER SOURCE 16DEC97
ABND 037751 26MAR1993
09AUG1994 5336454 09FEB1995 09AUG2011

REMARKS: ABND PER THR 11NOV97

020014-1

ADVAN EL

CERAMIC COMPOSITE & METHOD

ASSIGNEE: ADVANCED CERAMICS CORPORATION
INVENTOR: MONTGOMERY

COUNTRY	SUB TYPE STATUS	APPLICATION NUMBER/ FILE DATE	PATENT NUMBER/ ISSUE DATE	PUBLIC NUMBER/ DATE	TAX/ WORKING STRT DATE	TAX PAID AGENT EXPIR/ABAND DATE
USA	ABND	212501 11MAR1994	5401696 28MAR1995		28SEP1995 SE	28MAR2012

REMARKS: DROP PER THR 12FEB98

PATENT

RECORDED: 03/22/2001

REEL: 011642 FRAME: 0092