

FORM PTO-1595  
1-31-92

07-20-2000

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To The Honorable Commissioner  
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Air Products and Chemicals, Inc.

Additional name(s) of conveying party(ies)  
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3. Nature of Conveyance:  
(X) Assignment ( ) Merger  
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Execution Date(s): March 16, 2000

2. Name and address of receiving party(ies):

Name: University of Pittsburgh

Street Address: 5<sup>th</sup> Avenue and Bigelow Boulevard

City: Pittsburgh

State PA ZIP 15260

Additional name(s) & address attached? ( ) YES (X) NO

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

B. Patent No.(s)

4401516

See "Attachment A Patent Property" attached hereto

Additional numbers attached? (X) YES ( ) NO

5. Name and address of party to whom  
correspondence concerning documents should  
be mailed:

Name: John W. Caldwell  
Internal Address: WOODCOCK WASHBURN KURTZ  
MACKIEWICZ & NORRIS LLP  
One Liberty Place - 46th Floor  
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1650 Market Street  
Philadelphia, Pennsylvania 19103-7301

6. Total number of applications and patents involved: 50

7. Total fee (37 CFR 3.41):.....\$2000.00

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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.

John W. Caldwell/28,938

Name of Person Signing/Reg. No.

Signature

June 21, 2000

Date

Total number of pages including cover sheet, attachments, and document: 12

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PATENT  
REEL: 010892 FRAME: 0714

**ATTACHMENT A  
PATENT PROPERTY**

1. Patent No.: 4,401,516  
Issued: August 30, 1983  
Title: Process for Separating Acetamidoethylene From Crude Preparation Products  
Inventor(s): David P. Matzinger  
Our Docket No.: UOPA-0003
  
2. Patent No.: 4,490,557  
Issued: December 25, 1984  
Title: Ethylidene Bisformamide, Its Preparation and Use in Preparing Poly(vinylamine) and Salts Thereof  
Inventor(s): Daniel J. Dawson  
Our Docket No.: UOPA-0004
  
3. Patent No.: 4,578,515  
Issued: March 25, 1986  
Title: Preparing N-Vinylformamide  
Inventor(s): Daniel J. Dawson & Kenneth M. Otteson  
Our Docket No.: UOPA-0005
  
4. Patent No.: 4,758,250  
Issued: July 19, 1988  
Title: Ammonia Separation Using Ion Exchange Polymeric Membranes and Sorbents  
Inventor(s): Daniel V. Laciak & Guido P. Pez  
Our Docket No.: UOPA-0006
  
5. Patent No.: 4,798,871  
Issued: January 19, 1987  
Title: Compositions Containing High Molecular Weight Poly(vinylamines) for Enhanced Oil Recovery  
Inventor(s): Ta-Wang Lai & Bheema R. Vijayendran  
Our Docket No.: UOPA-0014

6. Patent No.: 4,843,118  
Issued: June 27, 1989  
Title: Acidized Fracturing Fluids Containing High Molecular Weight Poly(vinylamines) for Enhanced Oil Recovery  
Inventor(s): Ta-Wang Lai & Bheema R. Vijayendran  
Our Docket No.: UOPA-0028
7. Patent No.: 5,136,094  
Issued: August 4, 1992  
Title: Process for the Synthesis of Secondary Formamides  
Inventor(s): Mark L. Listemann, Ronald Pierantozzi & Robert K. Pinschmidt, Jr.  
Our Docket No.: UOPA-0042
8. Patent No.: 4,804,793  
Issued: February 14, 1989  
Title: Drilling Mud Compositions Containing High Molecular Weight Poly(vinylamines)  
Inventor(s): Ta-Wang Lai & Bheema R. Vijayendran  
Our Docket No.: UOPA-0051
9. Patent No.: 4,795,770  
Issued: January 3, 1989  
Title: Cement Composition for Oil Well Drilling Holes Containing High Molecular Weight Poly(vinylamines)  
Inventor(s): Ta-Wang Lai & Bheema R. Vijayendran  
Our Docket No.: UOPA-0061
10. Patent No.: 5,144,074  
Issued: September 1, 1992  
Title: Process for the Synthesis of Carboxamides  
Inventor(s): Mark L. Listemann, Ronald Pierantozzi & John N. Armor  
Our Docket No.: UOPA-0071
11. Patent No.: 4,942,259  
Issued: July 17, 1990  
Title: Process for Preparing N-Vinyl Amides  
Inventor(s): Gene E. Parris & John N. Armor  
Our Docket No.: UOPA-0082

12. Patent No.: 4,921,621  
Issued: May 1, 1990  
Title: Hydrolyzed Co-polymers of N-Vinylamide and Acrylamide for Use as Waterloss Control Additives in Drilling Mud  
Inventor(s): Christine A. Costello, Robert K. Pinschmidt & Ta-Wang Lai  
Our Docket No.: UOPA-0094
13. Patent No.: 4,943,676  
Issued: July 24, 1990  
Title: Thermolysis of Poly(N-vinylformamide) to Poly(N-vinylamine)  
Inventor(s): Robert K., Pinschmidt, Jr. & Ta-Wang Lai  
Our Docket No.: UOPA-0100
14. Patent No.: 5,300,566  
Issued: April 5, 1994  
Title: Method for Preparing Poly-(vinylalcohol) -Co-Poly(Vinylamine) Via a Two-Phase  
Inventor(s): Robert K. Pinschmidt, Jr. & Ta-Wang Lai  
Our Docket No.: UOPA-0105
15. Patent No.: 4,996,322  
Issued: February 26, 1991  
Title: Separation of Amides with Molecular Sieves  
Inventor(s): Ronald Pierantozzi, Mildred A. Miller, Mark L. Listemann, Thomas R. Gaffney, Charles G. Coe  
Our Docket No.: UOPA-0106
16. Patent No.: 4,968,841  
Issued: November 6, 1990  
Title: Synthesis of Ethylidene Bisformamide from Vinyl Acetate  
Inventor(s): Mark L. Listemann, Ronald Pierantozzi & Robert K. Pinschmidt  
Our Docket No.: UOPA-0107
17. Patent No.: 5,086,111  
Issued: February 4, 1992  
Title: Amine Functional Polymers Containing Acetal Groups  
Inventor(s): Robert K. Pinschmidt, Jr. & Ta-Wang Lai  
Our Docket No.: UOPA-0112

18. Patent No.: 5,155,167  
Issued: October 12, 1992  
Title: Vinyl Alcohol Copolymers Containing Allylamine Functionality  
Inventor(s): Robert K. Pinschmidt, Jr., Ta-Wang Lai & Lawrence K. Wempe  
Our Docket No.: UOPA-0120
19. Patent No.: 4,973,410  
Issued: November 27, 1990  
Title: Crosslinked Vinylamine Polymer in Enhanced Oil Recovery  
Inventor(s): Robert K. Pinschmidt, Jr. & Bheema R. Vijayndran  
Our Docket No.: UOPA-0125
20. Patent No.: 4,952,656  
Issued: August 28, 1990  
Title: Manufacture of High Molecular Weight Poly(Vinylamines)  
Inventor(s): Ta-Wang Lai & Bheema R. Vijayndran  
Our Docket No.: UOPA-0129
21. Patent No.: 5,023,375  
Issued: June 11, 1991  
Title: Process for the Synthesis of Amides from Vinyl Acetate  
Inventor(s): Mark L. Listemann  
Our Docket No.: UOPA-0130
22. Patent No.: 5,117,056  
Issued: May 26, 1992  
Title: Preparation of N-(1-Alkoxyalkyl) Formamide and Bis Formamides  
Inventor(s): Mark L. Listemann & Robert K. Pinschmidt, Jr.  
Our Docket No.: UOPA-0135
23. Patent No.: 5,059,713  
Issued: October 22, 1991  
Title: Process for the Preparation of N-Vinyl Amides  
Inventor(s): John N. Armor & Gene E. Parris  
Our Docket No.: UOPA-0140
24. Patent No.: 5,233,077  
Issued: August 3, 1993  
Title: Preparation of N-Vinyl-O-Alkyl-Carbamate  
Inventor(s): Francis J. Waller  
Our Docket No.: UOPA-0145

25. Patent No.: 5,085,787  
Issued: June 20, 1990  
Title: Crosslinked Vinylamine Polymer in Enhanced Oil Recovery  
Inventor(s): Robert K. Pinschmidt, Jr., Bheema R. Vijayendran & Ta-Wang Lai  
Our Docket No.: UOPA-0149
26. Patent No.: 5,180,851  
Issued: January 19, 1993  
Title: Preparation of N-(L-Alkoxy Alkyl) Formamide and Alkylidene Bisformamides Using Amide Neutralized Ion Exchange Resins  
Inventor(s): Mark L. Listemann & Robert K. Pinschmidt, Jr.  
Our Docket No.: UOPA-0153
27. Patent No.: 5,380,403  
Issued: January 10, 1995  
Title: Amine Functional Poly(Vinyl Alcohol) for Improving Properties of Recycled Paper  
Inventor(s): Lloyd M. Robeson & Timothy L. Pickering  
Our Docket No.: UOPA-0158
28. Patent No.: 5,185,083  
Issued: February 9, 1993  
Title: Separation of Solids From Aqueous Suspensions Using Modified Amine Functional Polymers  
Inventor(s): John G. Smigo, Thomas P. McAndrew, Robert K. Pinschmidt, Jr. & Andrew F. Nordquist  
Our Docket No.: UOPA-0167
29. Patent No.: 5,232,553  
Issued: August 30, 1993  
Title: Fines Retention in Papermaking with Amine Functional Polymers  
Inventor(s): John G. Smigo, Robert K. Pinschmidt, Andrew F. Nordquist & Timothy L. Pickering  
Our Docket No.: UOPA-0175
30. Patent No.: 5,281,682  
Issued: January 25, 1994  
Title: Radiation Curable Compositions and Method of Use  
Inventor(s): David A. Cornforth, Dawn Fowler, Walter L. Renz  
Our Docket No.: UOPA-0183

31. Patent No.: 5,194,492  
Issued: January 2, 1992  
Title: Two-Phase Process for Preparing Poly(Vinylalcohol)-Co-Poly(Vinylamine)  
Inventor(s): Robert K. Pinschmidt, Jr., Ta-Wang Lai  
Our Docket No.: UOPA-0196
32. Patent No.: 5,840,978  
Issued: March 5, 1993  
Title: Process for Preparing Ethylidene Bisformamide  
Inventor(s): Andrew Francis Nordquist, Francis Peter Petrocelli, Robert Krantz Pinschmidt, Jr. & Yin Pang Tsui  
Our Docket No.: UOPA-0197
33. Patent No.: 5,324,787  
Issued: June 28, 1994  
Title: Modification of Poly(Vinylamine)  
Inventor(s): Robert K. Pinschmidt, Jr., John G. Smigo, Andrew F. Nordquist  
Our Docket No.: UOPA-0206
34. Patent No.: 5,280,077  
Issued: January 18, 1994  
Title: Process for the Synthesis of Oligomeric Vinylamines  
Inventor(s): William E. Carroll & Robert K. Pinschmidt, Jr.  
Our Docket No.: UOPA-0209
35. Patent No.: 5,281,307  
Issued: January 25, 1994  
Title: Crosslinked Vinyl Alcohol/Vinylamine Copolymers For Dry End Paper Addition  
Inventor(s): John G. Smigo, Lloyd M. Robeson, George Davidowich, Gerald D. Miller & William E. Carroll  
Our Docket No.: UOPA-0214
36. Patent No.: 5,519,093  
Issued: May 21, 1996  
Title: Synthesis of Amine Functional Co-and Terpolymers  
Inventor(s): Robert K. Pinschmidt, Jr. & Khalil Yacoub  
Our Docket No.: UOPA-0226

37. Patent No.: 5,401,808  
Issued: March 28, 1995  
Title: Poly(vinylammonium formate) and Process for Making Amidine-Containing Polymers  
Inventor(s): Michael E. Ford  
Our Docket No.: UOPA-0231
38. Patent No.: 5,391,710  
Issued: February 21, 1995  
Title: Production of Amine Functional Polymers Having Improved Purity  
Inventor(s): Michael E. Ford  
Our Docket No.: UOPA-0240
39. Patent No.: 5,418,016  
Issued: May 23, 1995  
Title: Coating Process Using Radiation Curable Composition  
Inventor(s): David A. Cornforth, Dawn Howell & Walter L. Renz  
Our Docket No.: UOPA-0249
40. Patent No.: 5,569,725  
Issued: October 29, 1996  
Title: N-Vinyl-N-Acyl Urea Resins  
Inventor(s): E. Eamon Carroll, Walter L. Renz, Andrew F. Nordquist & Robert K. Pinschmidt, Jr.  
Our Docket No.: UOPA-0262
41. Patent No.: 5,373,076  
Issued: December 13, 1994  
Title: Functional Oligomeric Vinylformamides and Vinylamines  
Inventor(s): Robert K. Pinschmidt, Jr. & William E. Carroll  
Our Docket No.: UOPA-0265
42. Patent No.: 5,367,035  
Issued: November 22, 1994  
Title: Poly(vinylammonium formate) and Process for Making the Same  
Inventor(s): Michael E. Ford  
Our Docket No.: UOPA-0272



43. Patent No.: 5,397,436  
Issued: March 14, 1994  
Title: Paper Wet-Strength Improvement with Cellulose Reactive Size and Amine Functional Poly (Vinyl Alcohol)  
Inventor(s): Lloyd M. Robeson, George Davidowich, Robert K. Pinschmidt  
Our Docket No.: UOPA-0273
44. Patent No.: 5,463,110  
Issued: October 31, 1994  
Title: Michael Adducts of N-Vinylformamide and Acrylic and Methacrylic Esters  
Inventor(s): Ning Chen, Louis Walter & Robert K. Pinschmidt, Jr.  
Our Docket No.: UOPA-0274
45. Patent No.: 5,393,842  
Issued: February 28, 1995  
Title: Poly(vinylammonium formate)  
Inventor(s): Michael E. Ford  
Our Docket No.: UOPA-0285
46. Patent No.: 5,436,299  
Issued: July 26, 1995  
Title: Decarbonylation of N-vinylformamide Copolymers  
Inventor(s): Michael E. Ford & John N. Armor  
Our Docket No.: UOPA-0286
47. Patent No.: 5,491,199  
Issued: February 13, 1996  
Title: One Step Production of Low Salt Vinylamine Polymers  
Inventor(s): Michael E. Ford & John N. Armor  
Our Docket No.: UOPA-0289
48. Patent No.: 5,728,878  
Issued: March 17, 1998  
Title: Functional N-Vinylformamides  
Inventor(s): Ning Chen, Louis Walter Renz, Robert Krantz Pinschmidt, Jr., William Eamon Carroll  
Our Docket No.: UOPA-0293

49. Patent No.: 5,672,731  
Issued: September 30, 1997  
Title: Functional N-Vinylformamides  
Inventor(s): Ning Chen, Louis Walter Renz, Robert Krantz Pinschmidt, Jr.,  
William Eamon Carroll  
Our Docket No.: UOPA-0302

50. Patent No.: 5,712,411  
Issued: January 27, 1998  
Title: N-Vinylformamidopropionates and Process for their Synthesis  
Inventor(s): Ning Chen, Louis Walter Renz, Robert Krantz Pinschmidt, Jr.,  
William Eamon Carroll  
Our Docket No.: UOPA-0308

## ASSIGNMENT

WHEREAS, **AIR PRODUCTS AND CHEMICALS, INC.**, hereinafter referred to as the ASSIGNOR, a Corporation of Delaware, having its principal place of business at **7201 Hamilton Boulevard, Allentown, PA 18195-1501** is the owner of certain inventions or improvements for which applications for Letters Patent have been made or for which Letters Patent have been issued, all of which are listed on Attachment A hereto (hereafter Patent Property); and

WHEREAS, **UNIVERSITY OF PITTSBURGH**, hereinafter referred to as the ASSIGNEE, a non-profit organization existing under the laws of the **Commonwealth of Pennsylvania**, having its principal place of business at 5<sup>th</sup> Avenue and Bigelow Boulevard, Pittsburgh, PA 15260 is desirous of acquiring the entire right, title and interest in and to the said Patent Property in any and all countries;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, ASSIGNOR has donated, assigned, transferred and set over, and by these presents do hereby donate, assign, transfer and set over to said ASSIGNEE, the entire right, title and interest in and to said Patent Property and any and all continuations, divisions and renewals of and substitutes for said Patent Property and to and under any and all additional Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and the full right to sue for and recover all profits and damages recoverable for past infringement of the same, and assign to and authorize said ASSIGNEE to file applications for Letters Patent in all countries, to be held and enjoyed by said ASSIGNEE, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Letters Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by ASSIGNOR had this assignment, sale and transfer not been made.

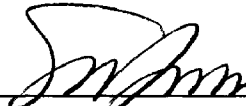
It is hereby covenanted that ASSIGNOR has full right to convey the entire interest herein assigned, and that ASSIGNOR has not executed and will not execute any agreement in conflict herewith, and ASSIGNOR further covenants and agrees that it will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said Patent Property in said assignee, its successors, assigns, nominees, or legal representatives, and ASSIGNOR agrees to communicate to said ASSIGNEE or to its nominee all known facts respecting said Patent Property, to testify in any legal proceedings, to sign all lawful papers to execute all disclaimers and divisional, continuing, reissue and foreign applications, to make all rightful oaths, and generally to do everything possible to aid said ASSIGNEE, its successors, assigns, nominees and legal representatives to obtain and enforce for its or their own benefit proper patent protection for said inventions or improvements in any and all countries, all at the expense, however, of said ASSIGNEE, its successors, assigns, nominees or legal representatives.

AND ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States and any official of any country or countries foreign to the United States whose duty it is to issue patents on applications as aforesaid, to issue to said ASSIGNEE, as assignee of the entire right, title and interest, any and all Letters Patent for Patent property, including any and all Letters Patent of the United States which may be issued and granted on or as a result of any applications included in said Patent Property, in accordance with the terms of this assignment.

IN WITNESS WHEREOF, the undersigned, being properly authorized to execute this Assignment, hereunto sets their hand and seal.

AIR PRODUCTS AND CHEMICALS

mzm

By:   
Dr. Stanley M. Morris


Its: Vice President of Technology

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF LEHIGH :

On this 16th day of March, year of 2000, before me, the undersigned officer, personally appeared Dr. Stanley M. Morris, who acknowledged himself/~~herself~~ to be the Vice President of Technology of Air Products and Chemicals, Inc., a corporation, and that he/~~she~~ as such Vice President of Technology, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself/~~herself~~ as Vice President of Technology.

  
Notary Public

