



**SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549****FORM S-8****REGISTRATION STATEMENT UNDER THE  
SECURITIES ACT OF 1933****AIR PRODUCTS AND CHEMICALS, INC.**

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

23-1274455

(I.R.S. Employer Identification No.)

7201 Hamilton Boulevard, Allentown, Pennsylvania 18195-1501

(Address of Principal Executive Offices) (Zip Code)

Air Products and Chemicals, Inc. Deferred Compensation Plan

(Full Title of the Plan)

W. Douglas Brown, Vice President, General Counsel and Secretary  
Air Products and Chemicals, Inc., 7201 Hamilton Boulevard, Allentown, PA 18195-1501

(Name and Address of Agent for Service)

610-481-7350

(Telephone Number, Including Area Code, of Agent for Service)

## CALCULATION OF REGISTRATION FEE

Titles of securities to be registered	Amount to be Registered	Proposed maximum offering price per share/obligation	Proposed maximum aggregate offering price	Amount of registration fee
Common Stock, par value \$1	700,000 <sup>(1)</sup>	\$74.88	\$52,416,000	\$1,609.17 <sup>(2)</sup>
Deferred Compensation Obligations <sup>(3)</sup>	\$35,757,515 <sup>(4)</sup>	N/A	\$35,757,515 <sup>(4)</sup>	\$1,097.76
			\$88,173,515	\$2,706.93

- (1) 656,793 previously registered but unused shares of Common Stock from Form S-8 (File No. 333-31578) filed by Air Products and Chemicals, Inc. to register shares of the same class under the predecessor plans to this Plan are carried forward under this Form S-8.
- (2) The registration fee with respect to these shares has been computed in accordance with paragraphs (c) and (h) of Rule 457, based upon the average of the reported high and low sales prices of shares of Common Stock on March 9, 2007 (i.e., \$74.88 per share).
- (3) The deferred compensation obligations are unsecured obligations of Air Products and Chemicals, Inc. to pay deferred compensation in the future in accordance with the terms of the Air Products and Chemicals, Inc. Deferred Compensation Plan.
- (4) Estimated solely for purposes of determining the registration fee.

## TABLE OF CONTENTS

PART I

PART II

Item 3. Incorporation of Documents by Reference

Item 4. Description of Securities

Item 5. Interests of Named Experts and Counsel

Item 6. Indemnification of Directors and Officers

Item 7. Exemption from Registration Claimed

Item 8. Exhibits

Item 9. Undertakings

SIGNATURES

EXHIBIT INDEX

EX-5: OPINION ON LEGALITY

EX-23: CONSENT OF KPMG LLP

EX-24: POWER OF ATTORNEY

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**PART I**

**INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS**

The document(s) containing the information specified in Part I of Form S-8 will be sent or given to participating employees as specified by Rule 428(b)(1) of the Securities Act of 1933, as amended. These document(s) and the documents incorporated by reference herein pursuant to Item 3 of Part II hereof, taken together, constitute a prospectus that meets the requirements of Section 10(a) of the Securities Act of 1933, as amended.

**PART II**

**INFORMATION REQUIRED IN THE REGISTRATION STATEMENT**

**Item 3. Incorporation of Documents by Reference.**

The documents listed in clauses (a), (b) and (c) below are incorporated herein by this reference thereto, and all documents subsequently filed by the registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Securities Exchange Act of 1934, prior to the filing of a post-effective amendment which indicates that all securities offered have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by this reference in this registration statement and to be a part hereof from the date of filing of such documents.

(a) The registrant's Annual Report on Form 10-K for the year ended September 30, 2006.

(b) All other reports filed by the registrant pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by the registrant document referred to in (a) above.

(c) The description of the Common Stock contained in the registration statement filed by the registrant to register such securities under Section 12 of the Securities Exchange Act of 1934, including any amendment or report filed for the purpose of updating such description.

Any statement contained in a document incorporated or deemed to be incorporated by reference in this registration statement shall be deemed to be modified or superseded for purposes of this registration statement to the extent that a statement contained in this registration statement or in any other contemporaneously or subsequently filed document which also is or is deemed to be incorporated by reference in this registration statement modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed,

## [Table of Contents](#)

except as so modified or superseded, to constitute a part of this registration statement.

### **Item 4. Description of Securities.**

The Air Products and Chemicals, Inc. Deferred Compensation Plan (the “Plan”) is an unfunded deferred compensation plan intended to comply with the requirements of Section 409A of the Internal Revenue Code of 1986, as amended (the “Internal Revenue Code”). Under the Plan, the Registrant provides eligible employees, as defined therein, the opportunity to elect to defer a specified percentage of their cash compensation derived from base salary and incentive compensation or bonus awards. The Plan also provides nonelective deferred compensation intended to supplement the Registrant’s tax qualified defined contribution plan with respect to compensation that cannot be included in the qualified plan due to limits imposed by the Internal Revenue Code and certain incentive compensation not covered by the qualified plan. The obligations of the Registrant under the Plan (the “Obligations”) are unsecured general obligations of the Registrant to pay the deferred compensation in the future in accordance with the terms of the Plan and will rank *pari passu* with other unsecured and unsubordinated indebtedness of the Registrant from time to time outstanding.

The amount of compensation to be deferred with respect to each participating eligible employee (individually, a “Participant” and collectively, the “Participants”) is determined in accordance with the Plan based on elections by each Participant or Internal Revenue Code and coverage limits imposed on such Participant’s qualified plan participation. Each Obligation is payable on a date or dates selected by each Participant at the time of enrollment. The Obligations are credited to a deferred cash account which accrues interest at an industrial bond rate. All deferred compensation under the Plan is initially credited to the deferred cash account option, and Participant’s are periodically permitted to elect to transfer such amounts to a deferred Company Stock account option which replicates investment in the Registrant’s Common Stock.

Except as required by law, a Participant’s right or the right of any other person to the Obligations is not assignable by voluntary or involuntary assignment, including, without limitation, bankruptcy, garnishment, attachment, or other creditor’s process. The Obligations are not subject to redemption, in whole or in part, prior to the distribution dates specified by each Participant, except in the event of a Participant’s death or upon change in control of the Registrant. The Registrant reserves the right to amend or terminate the Plan at any time; provided, however, that no such action shall reduce a Participant’s account under the Plan without the Participant’s written consent.

No amounts are set aside or assets pledged for the payment of the Obligations, which will normally be satisfied from the general assets of the

## [Table of Contents](#)

Registrant. However, the Registrant has entered into a trust agreement with a trustee under a grantor trust pursuant to which the trust will pay the Obligations from its assets, if any, in the event the Company fails or is unable to pay the Obligations, including upon a change in control of the Registrant. Currently, the trust's only asset is an agreement by the Registrant to transfer treasury shares of the Registrant's Common Stock upon the occurrence of certain events. The assets of the trust are subject to the claims of the Registrant's creditors.

### **Item 5. Interests of Named Experts and Counsel.**

Not applicable.

### **Item 6. Indemnification of Directors and Officers.**

Section 145 of the Delaware General Corporation Law gives corporations the power to indemnify officers and directors under certain circumstances.

Article Ninth of the registrant's Restated Certificate of Incorporation, as amended, contains provisions which provide for indemnification of certain persons (including officers and directors). The Restated Certificate of Incorporation, and its amendment, also eliminate, to the maximum extent permitted by the Delaware General Corporation Law, the personal liability of directors for monetary damages for breach of fiduciary liability. Article V of the Registrant's bylaws also provides for mandatory indemnification of directors and officers in accordance with and to the full extent permitted by Delaware General Corporation Law and for mandatory advancement of expenses upon receipt of the required undertaking.

The registrant maintains insurance that generally insures the officers and directors of the registrant and its subsidiaries (as defined in said policy) against liabilities incurred in such capacities, and insures the registrant with respect to amounts to which officers and directors become entitled as indemnification payments from the registrant, subject to certain specified exclusions and deductible and maximum amounts. The registrant also maintains a policy of insurance that insures, among others, certain officers and directors of the registrant and certain of its subsidiaries against liabilities incurred for Breach of Fiduciary Duty (as defined in said policy) with respect to their performance of their duties and responsibilities in connection with certain pension and retirement plans of the registrant and certain of its subsidiaries, subject to certain specified exclusions and deductible and maximum amounts.

### **Item 7. Exemption from Registration Claimed.**

Not applicable.

**Item 8. Exhibits.**

4. Rights Agreement, dated as of 19 March 1998, between the Company and First Chicago Trust Company of New York. (Filed as Exhibit 1 to the Company's Form 8-A Registration Statement dated 19 March 1998, as amended by Form 8-A/A dated 16 July 1998.)
5. Opinion on legality.
23. Consent of KPMG LLP.
24. Power of Attorney

**Item 9. Undertakings.**

*(a) Rule 415 offering.*

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (1)(i) and 1(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the

## Table of Contents

offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

*(b) Filings incorporating subsequent Exchange Act Documents by Reference.*

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

*(h) Filing of Registration Statement on Form S-8.*

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described under Item 6 above, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liability (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.



SIGNATURES

*The Registrant.* Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the Township of Upper Macungie, Commonwealth of Pennsylvania, on this 16th day of March 2007.

AIR PRODUCTS AND CHEMICALS, INC.  
(Registrant)

By \_\_\_\_\_ /s/ W. Douglas Brown  
W. Douglas Brown\*  
Vice President, General Counsel  
and Secretary

\_\_\_\_\_  
\* W. Douglas Brown, Vice President, General Counsel and Secretary, by signing his name hereto, signs this registration statement on behalf of the registrant and, for each of the persons indicated by asterisk on pages 6 and 7 hereof, pursuant to a power of attorney duly executed by such persons, which is filed with the Securities and Exchange Commission herewith.

[Table of Contents](#)

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the date indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ John P. Jones III</u> John P. Jones III	Director, Chairman of the Board and Chief Executive Officer (Principal Executive Officer)	16 March 2007
<u>/s/ Paul E. Huck</u> Paul E. Huck	Vice President and Chief Financial Officer (Principal Financial Officer and Accounting Officer)	16 March 2007
<u>*</u> Mario L. Baeza	Director	16 March 2007
<u>*</u> William L. Davis, III	Director	16 March 2007
<u>*</u> Michael J. Donahue	Director	16 March 2007
<u>*</u> Ursula O. Fairbairn	Director	16 March 2007
<u>*</u> W. Douglas Ford	Director	16 March 2007
<u>*</u> Edward E. Hagenlocker	Director	16 March 2007
<u>*</u> Evert Henkes	Director	16 March 2007

[Table of Contents](#)

<u>Signature</u>	<u>Title</u>	<u>Date</u>
* Margaret G. McGlynn	Director	16 March 2007
* Charles H. Noski	Director	16 March 2007
* Lawrence S. Smith	Director	16 March 2007

EXHIBIT INDEX

<u>Exhibit</u>		<u>Page</u>
4.	Rights Agreement, dated as of 19 March 1998, between the Company and First Chicago Trust Company of New York. (Filed as Exhibit I to the Company's Form 8-A Registration Statement dated 19 March 1998, as amended by Form 8-A/A dated 16 July 1998.)	11
5.	Opinion on legality	10
23.	Consent of KPMG LLP	11
24.	Power of Attorney	12

No opinion of counsel is being filed because the Common Stock to be distributed in connection with the Plan will consist exclusively of previously issued shares that are purchased by the Plan Trustee in the open market and will not constitute original issuance shares; further, no opinion is being furnished with respect to ERISA compliance because the Plan covered by the registration statement is not subject to the requirements of ERISA.

16 March 2007

Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, PA 18195

Re: Air Products and Chemicals, Inc. Deferred Compensation Plan

Ladies and Gentlemen:

This opinion is being submitted in connection with a Registration Statement on Form S-8 (“Registration Statement”) of Air Products and Chemicals, Inc. (the “Corporation”) being filed with the Securities and Exchange Commission under the Securities Act of 1933, as amended, related to the registration of: \$37,757,515 of deferred compensation obligations (“Deferred Compensation Obligations”) offered pursuant to the Air Products and Chemicals, Inc. Deferred Compensation Plan, as amended (the “Plan”).

I am an Assistant Secretary and Counsel of the Corporation. I am familiar with the Registration Statement on Form S-8 filed by the Company on 16 March 2007. In conjunction with the furnishing of this opinion, I have examined the Plan, the Registration Statement, and such other documents of the Company as I deemed necessary or appropriate for purposes of the opinion expressed herein.

Based upon the foregoing I advise you that, in my opinion, when issued in accordance with the provisions of the Plan, the Deferred Compensation Obligations will be valid and binding obligations of the Company, enforceable in accordance with their terms, except as enforcement thereof may be limited by bankruptcy, insolvency, or other laws of general applicability relating to or affecting enforcement of creditors’ rights or by general equity principles.

This opinion speaks as of today’s date and is limited to present statutes, regulations, and judicial interpretations. In rendering such opinion, I assume no obligation to revise or supplement this opinion should the present laws be changed by legislative or regulatory action, judicial decision, or otherwise or should the Plan be amended, modified, or terminated in accordance with its terms.

I consent to the filing of this opinion as an exhibit to the Registration Statement and to the use of my name wherever appearing in the Registration Statement and any amendment thereto.

Very truly yours,

/s/ Mary T. Afflerbach  
\_\_\_\_\_  
Mary T. Afflerbach  
Governance Counsel and  
Assistant Corporate Secretary

Consent of Independent Registered Public Accounting Firm

To the Board of Directors  
Air Products and Chemicals, Inc.:

We consent to the use of our reports dated 12 December 2006, with respect to the consolidated balance sheets of Air Products and Chemicals, Inc. and subsidiaries as of 30 September 2006 and 2005, and the related consolidated statements of income, cash flows, and shareholders' equity for each of the years in the three-year period ended 30 September 2006, the related financial statement schedule, management's assessment of the effectiveness of internal control over financial reporting as of 30 September 2006, and the effectiveness of internal control over financial reporting as of 30 September 2006, incorporated herein by reference.

Our reports with respect to the consolidated financial statements and related financial statement schedule refer to the Company's adoption of Financial Accounting Standards Board Interpretation No. 47, "Accounting for Conditional Asset Retirement Obligations", and Statement of Financial Accounting Standards No. 123 (R) "Share Based Payments" and related interpretations. Our reports also refer to the Company having changed the composition of its reportable segments for the fiscal year ended 30 September 2006 and the 30 September 2005 and 2004 amounts presented in the consolidated financial statements relating to reportable segments having been restated to conform to the 30 September 2006 composition of reportable segments.

/s/ KPMG LLP

Philadelphia, Pennsylvania  
16 March 2007

**POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints JOHN P. JONES III or PAUL E. HUCK or W. DOUGLAS BROWN, acting severally, his/her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him/her and in his/her name, place and stead, in any and all capacities, to sign one or more Registration Statements, and any amendments thereto, which may be required in connection with (i) the registration of Common Stock, Preferred Stock, Depositary Shares, Debt Securities, and Warrants, including the registration of Common Stock for issuance under any employee benefit or compensation plan, (ii) the registration of interests under any employee benefit or compensation plan maintained by the Company or (iii) any fundamental change in the information contained in such Registration Statements, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he/she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities and Exchange Act of 1933, this Power of Attorney has been signed below by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ John P. Jones III</u> John P. Jones III	Director, Chairman of the Board, and Chief Executive Officer (Principal Executive Officer)	16 November 2006
<u>/s/ Mario L. Baeza</u> Mario L. Baeza	Director	16 November 2006
<u>/s/ William L. Davis, III</u> William L. Davis, III	Director	16 November 2006

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Michael J. Donahue</u> Michael J. Donahue	Director	16 November 2006
<u>/s/ Ursula O. Fairbairn</u> Ursula O. Fairbairn	Director	16 November 2006
<u>/s/ W. Douglas Ford</u> W. Douglas Ford	Director	16 November 2006
<u>/s/ Edward E. Hagenlocker</u> Edward E. Hagenlocker	Director	16 November 2006
<u>/s/ Evert Henkes</u> Evert Henkes	Director	16 November 2006
<u>/s/ Margaret G. McGlynn</u> Margaret G. McGlynn	Director	16 November 2006
<u>/s/ Charles H. Noski</u> Charles H. Noski	Director	16 November 2006
<u>/s/ Lawrence S. Smith</u> Lawrence S. Smith	Director	16 November 2006