

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

(Address of Principal Executive Offices)

18195-1501

(Zip Code)

Air Products and Chemicals, Inc. Retirement Savings Plan

(Full Title of the Plan)

Stephen J. Jones, Senior 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)

610-481-4911

(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	Proposed maximum aggregate offering price	Amount of registration fee⁽¹⁾
Common Stock, par value \$1	4,000,000	\$50.06	\$200,240,000.00	\$11,173.39

In addition, pursuant to Rule 416(c) under the Securities Act of 1933, this registration statement also covers an indeterminate amount of interests to be offered or sold pursuant to the employee benefit plan described herein.

- (1) 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 12 March 2009 (i.e., \$50.06 per share).

EXPLANATORY NOTE

This updated registration Statement is being filed to reflect the Company's amendment and restatement of the Air Products and Chemicals, Inc. Retirement Savings and Stock Ownership Plan including to rename it the Air Products and Chemicals, Inc. Retirement Savings Plan (the "Plan") and to register additional shares of common stock of the Company for distribution under the Plan.

PART I

INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

The information specified in Item 1 and Item 2 of Part I of the Registration Statement is omitted from this filing in accordance with the provisions of Rule 428 under the Securities Act and the introductory note to Part I of the Registration Statement. The documents containing the information specified in Part I will be delivered to the participants in the Plan covered by this Registration Statement as required by Rule 428(b)(1).

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The Company incorporates by reference in this Registration Statement the following documents and information previously filed with the Securities and Exchange Commission (the "Commission"):

- The Company's Annual Report on Form 10-K for the year ended September 30, 2008.
- The Company's Quarterly Report on Form 10-Q for the fiscal quarter ended December 31, 2008.
- The Company's Current Reports on Form 8-K to the extent filed with the Commission after September 30, 2008.
- The Plan's Annual Report on Form 11-K for the year ended September 30, 2007.
- The description of the Common Stock contained in the Company's registration statement on Form S-8 (File No. 033-31195) including any amendment or report subsequently filed for the purpose of updating that description.

All documents filed with the Commission by the Company pursuant to Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act, subsequent to the date of this Registration Statement and 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 reference in this Registration Statement and to be a part hereof from the date of filing of such documents.

Any statement contained herein or in a document incorporated or deemed to be incorporated herein by reference shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any subsequently filed document which also is, or is deemed to be, incorporated by reference herein modified or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Item 4. Description of Securities.

Note applicable.

Item 5. Interests of Named Experts and Counsel.

Note applicable.

Item 6. Indemnification of Directors and Officers.

Section 145 of the Delaware 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, are filed as an exhibit to the registrant's Annual Report on Form 10-K for the fiscal years ended September 30, 1987 and September 30, 1996, respectively.

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. Air Products and Chemicals, Inc. Retirement Savings Plan (incorporated by reference to Exhibit 10.27 to the Company's Form 10-K Report for the fiscal year ended September 30, 2007)

23. Consents 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 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.

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>
<hr/> <u>/s/ John E. McGlade</u> John E. McGlade	Director, Chairman of the Board, President and Chief Executive Officer (Principal Executive Officer)	19 March 2009
<hr/> <u>/s/ Paul E. Huck</u> Paul E. Huck	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	19 March 2009
<hr/> <u>/s/ M. Scott Crocco</u> M. Scott Crocco	Vice President and Corporate Controller (Principal Accounting Officer)	19 March 2009
<hr/> * Mario L. Baeza	Director	19 March 2009
<hr/> * William L. Davis, III	Director	19 March 2009
<hr/> * Michael J. Donahue	Director	19 March 2009
<hr/> * Ursula O. Fairbairn	Director	19 March 2009
<hr/> * W. Douglas Ford	Director	19 March 2009
<hr/> * Edward E. Hagenlocker	Director	19 March 2009

Signature

Title

Date

*

Director

19 March 2009

Evert Henkes

*

Director

19 March 2009

Margaret G. McGlynn

*

Director

19 March 2009

Charles H. Noski

*

Director

19 March 2009

Lawrence S. Smith

EXHIBIT INDEX

<u>Exhibit</u>		<u>Page</u>
4.	Air Products and Chemicals, Inc. Retirement Savings Plan (incorporated by reference to Exhibit 10.27 to the Company's Form 10-K Report for the fiscal year ended September 30, 2007)	N/A
23.1	Consent of Independent Registered Public Accounting Firm	
23.2	Consent of Independent Registered Public Accounting Firm	
24.	Power of Attorney	

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 presently held by the registrant as treasury shares 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.

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Air Products and Chemicals, Inc.:

We consent to the use of our reports dated 25 November 2008, with respect to the consolidated balance sheets of Air Products and Chemicals, Inc. and subsidiaries (the Company) as of 30 September 2008 and 2007, and the related consolidated income statements and consolidated statements of shareholders' equity and of cash flows for each of the years in the three-year period ended 30 September 2008, the related financial statement schedule and the effectiveness of internal control over financial reporting as of 30 September 2008, which are included in the Company's annual report on Form 10-K for the year ended 30 September 2008 and incorporated herein by reference.

Our reports on the consolidated financial statements and schedule refer to the Company's adoption of Financial Accounting Standards Board (FASB) Interpretation No. 48, "Accounting for Uncertainty in Income Taxes," effective 1 October 2007, Statement of Financial Accounting Standards No. 158, "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans," as of 30 September 2007, and FASB Interpretation No. 47, "Accounting for Conditional Asset Retirement Obligations," effective 30 September 2006.

/s/ KPMG LLP

Philadelphia, Pennsylvania
19 March 2009

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Air Products and Chemicals, Inc.:

We consent to the use of our report dated 24 March 2008, with the respect to the statements of net assets available for benefits of the Air Products and Chemicals, Inc. Retirement Savings Plan (the Plan) as of 30 September 2007 and 2006 and the related statements of changes in the net assets available for benefits for each of the years in the two-year period ended 30 September 2007, and the related supplemental schedule of assets (held at end of year) as of 30 September 2007, included in the Plan's annual report on Form 11-K for the year ended 30 September 2007 and incorporated herein by reference.

Our report on the financial statements and related supplemental schedule refers to the Plan's adoption of Financial Accounting Standards Board Staff Position AAG INV-1 and SOP 94-4-1, *Reporting of Fully Benefit Responsive Investment Contracts Held by Certain Investment Companies Subject to the AICPA Investment Company Guide and Defined-Contribution Health and Welfare and Pension Plans*, as of 30 September 2007 and 2006.

/s/ KPMG LLP

Philadelphia, Pennsylvania
19 March 2009

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints JOHN E. McGLADE or PAUL E. HUCK or STEPHEN J. JONES, 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 E. McGlade</u> John E. McGlade	Director and Chairman of the Board (Principal Executive Officer)	20 November 2008
<u>/s/ Mario L. Baeza</u> Mario L. Baeza	Director	20 November 2008
<u>/s/ William L. Davis, III</u> William L. Davis, III	Director	20 November 2008
<u>/s/ Michael J. Donahue</u> Michael J. Donahue	Director	20 November 2008

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<hr/> <i>/s/ Ursula O. Fairbairn</i> Ursula O. Fairbairn	Director	20 November 2008
<hr/> <i>/s/ W. Douglas Ford</i> W. Douglas Ford	Director	20 November 2008
<hr/> <i>/s/ Edward E. Hagenlocker</i> Edward E. Hagenlocker	Director	20 November 2008
<hr/> <i>/s/ Evert Henkes</i> Evert Henkes	Director	20 November 2008
<hr/> <i>/s/ Margaret G. McGlynn</i> Margaret G. McGlynn	Director	20 November 2008
<hr/> <i>/s/ Charles H. Noski</i> Charles H. Noski	Director	20 November 2008
<hr/> <i>/s/ Lawrence S. Smith</i> Lawrence S. Smith	Director	20 November 2008