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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 11-K

FOR ANNUAL REPORTS OF EMPLOYEE STOCK PURCHASE, SAVINGS  
AND SIMILAR PLANS PURSUANT TO SECTION 15(d) OF THE  
SECURITIES EXCHANGE ACT OF 1934

(Mark One):

- ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE  
SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2009

OR

- TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE  
SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 1-14601

A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

ARCH CHEMICALS, INC. CONTRIBUTING EMPLOYEE OWNERSHIP PLAN

B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:

Arch Chemicals, Inc.  
501 Merritt 7  
Norwalk, Connecticut 06851

Exhibit Index is p. 23  
Total Pages = 24

REQUIRED INFORMATION

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Financial Statements and Supplemental Schedule

December 31, 2009 and 2008

(With the Report of Independent Registered  
Public Accounting Firm Thereon)



KPMG LLP  
Stamford Square  
3001 Summer Street  
Stamford, CT 06905

## Report of Independent Registered Public Accounting Firm

The Administrator  
Arch Chemicals, Inc. Contributing Employee Ownership Plan:

We have audited the accompanying statements of net assets available for plan benefits of the Arch Chemicals, Inc. Contributing Employee Ownership Plan (the Plan) as of December 31, 2009 and 2008, and the related statements of changes in net assets available for plan benefits for the years then ended. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for plan benefits of the Plan as of December 31, 2009 and 2008, and the changes in net assets available for plan benefits for the years then ended in conformity with U.S. generally accepted accounting principles.

Our audits were performed for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental Schedule H, Line 4i – Schedule of Assets (Held at End of Year) is presented for the purpose of additional analysis and is not a required part of the basic financial statements but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act 1974. This supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

**KPMG LLP**

Stamford, Connecticut  
June 25, 2010

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Statements of Net Assets Available for Plan Benefits

December 31, 2009 and 2008

	<b>2009</b>	<b>2008</b>
<b>Assets:</b>		
Investments, at fair value (notes 4 and 9):		
Mutual funds	\$ 93,328,924	71,139,531
Common/collective trusts	56,027,644	43,469,821
Common stock	41,041,660	33,212,558
Total investments, at fair value	190,398,228	147,821,910
Participant loans	4,451,921	3,822,595
Employer contribution receivable	789,357	721,807
Net assets available for plan benefits (with investments at fair value)	195,639,506	152,366,312
Adjustment from fair value to contract value for fully benefit-responsive investment contracts	1,085,372	2,411,849
Net assets available for plan benefits	\$ 196,724,878	154,778,161

See accompanying notes to financial statements.

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Statements of Changes in Net Assets Available for Plan Benefits  
Years ended December 31, 2009 and 2008

	<b>2009</b>	<b>2008</b>
Additions (deductions) to net assets attributed to:		
Investment income (loss) (note 4):		
Net appreciation (depreciation) in fair value of investments	\$ 29,947,215	(55,836,043)
Dividends	3,486,298	4,940,706
Interest	458,969	956,404
Net investment income (loss)	33,892,482	(49,938,933)
Interest from participant loans	238,986	274,529
Contributions:		
Participant	7,795,140	7,472,144
Employer	3,894,627	3,217,431
Rollover	3,368,521	481,322
Total contributions	15,058,288	11,170,897
Administrative and other expenses	(205,509)	(202,284)
Benefits paid to participants in cash	(6,808,046)	(10,305,750)
Benefits paid to participants in stock	(1,264)	(162,254)
Transfers out to other plan	(228,220)	(54,837)
Net increase (decrease)	41,946,717	(49,218,632)
Net assets available for plan benefits at beginning of year	154,778,161	203,996,793
Net assets available for plan benefits at end of year	\$ 196,724,878	154,778,161

See accompanying notes to financial statements.

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Notes to Financial Statements

December 31, 2009 and 2008

**(1) Summary of Significant Accounting Policies**

**(a) Basis of Presentation**

The accompanying financial statements have been prepared on the accrual basis.

Reclassifications of prior-year data have been made, where appropriate, to conform to the 2009 presentation.

**(b) Use of Estimates**

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and changes therein, and disclosure of contingent assets and liabilities. Actual results could differ from those estimates.

**(c) Asset Valuation and Income Recognition**

Arch Chemicals, Inc. Contributing Employee Ownership Plan's (the Plan or CEOP) investments are stated at fair value. Participant loans are stated at cost plus accrued interest, which approximates fair value given the interest rates and maturity dates of such loans. See note 9 for further discussion.

Purchases and sales of securities are recorded on a trade-date basis. All income is determined on an accrual basis. Bond interest accrues daily and dividends are recorded on the ex-dividend date.

**(d) Benefit Payments**

Benefit payments are recorded when paid.

**(2) Description of the Plan**

The following description of Arch Chemicals, Inc. (Arch, the Plan Sponsor or the Employer) Contributing Employee Ownership Plan (the Plan or CEOP) provides only general information. Participants should refer to the Plan Prospectus/Summary Plan Description for a more complete description of the Plan's provisions.

**(a) General**

The Plan is a defined contribution plan sponsored by Arch and is intended to satisfy the qualification requirements under Sections 401(a) and 401(k) of the Internal Revenue Code of 1986, as amended (the Code). In addition, a portion of the Plan is intended to qualify as an employee stock ownership plan (ESOP) under Section 4975(e)(7) of the Code. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended (ERISA). The Plan is administered by the Arch CEOP Administrative Committee.

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On February 8, 1999, Olin Corporation (Olin) completed the spin-off of its specialty chemical businesses as Arch. Under the terms of the spin-off, Olin distributed to its holders of common stock as of the close of business on February 1, 1999 one Arch common share for every two shares of Olin common stock.

Effective as of the spin-off of Arch, the Olin Corporation Contributing Employee Ownership Plan (Olin CEOP) was converted into a multiple employer plan covering employees of Olin and its affiliated companies, and employees of Arch and its affiliated companies (collectively, the Employers). The Olin CEOP was administered as a single plan.

On January 22, 2001, Arch adopted the CEOP, a single employer plan, and effective March 1, 2001, was no longer a participating employer in the Olin CEOP. As of March 1, 2001, all Arch participant balances were transferred to the CEOP.

On October 10, 2008 Arch completed the acquisition of the water treatment chemicals business of Advantis, a North American manufacturer and marketer of branded swimming pool, spa and surface water treatment chemicals. During 2009 and 2008, \$2,947,611 and \$0 was rolled over by former Advantis employees.

**(b) Participation and Contributions**

Employees of the Employer and certain subsidiaries of the Employer are eligible to participate in the Plan on the day coinciding with their date of hire.

Participants can make both tax-deferred contributions and after-tax contributions, the earnings on which are taxable. Effective December 1, 2009, participants can also make after-tax Roth 401(k) contributions to the Plan, the earnings on which are not taxable. For 2009 and 2008, the maximum amount of combined tax-deferred and/or Roth 401(k) contributions that could have been made to the CEOP was \$16,500 and \$15,500, respectively. The maximum amount of tax deferred and/or Roth 401(k) contributions is based on IRS guidelines and is calculated based on eligible pay and the percentage of participant pay elected to contribute to the Plan. Combined tax-deferred and after-tax contributions may not exceed 75% of participants' eligible compensation, up to statutory limits. Effective January 1, 2009, restrictions on contributions by highly compensated employees, as defined, were eliminated due to the adoption of a "safe harbor" matching contribution effective January 1, 2009, which enabled the Plan to qualify as a Qualified Automatic Contribution Arrangement (QACA).

Participants who are age 50 and older at any time during a Plan year may make "catch-up contributions" in that year. These contributions are additional tax-deferred contributions that eligible participants are permitted to make in excess of the annual IRS tax-deferred contribution limit. For 2009 and 2008, the maximum amount of "catch-up contributions" was \$5,500 and \$5,000, respectively. Additionally, effective January 1, 2009, "catch-up contributions" are eligible for employer matching contributions due to the adoption of the "safe harbor" matching contribution.

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The Employer provides a matching contribution, which effective January 1, 2009, was 100% of a participant's first 1% of eligible pay and 50% of a participants' next 5% of eligible pay contributed to the Plan. Arch also provides an annual performance match, which is based on Arch's actual earnings per share (EPS) as a percent of the target EPS as established by the Compensation Committee each year. The performance matching contribution totaled \$789,357 and \$721,807 for the Plan years ended December 31, 2009 and 2008, respectively. All Employer matching contributions are invested in the Arch Common Stock Fund. Participants who are at least 50 years old but have not been credited with three years of service may elect to transfer balances attributable to Employer matching contributions out of the Arch Common Stock Fund once every 12 months. Participants who have been credited with at least three years of service may elect to transfer anytime, (subject to applicable US securities laws) the value of their Employer matching contributions out of the Arch Common Stock Fund to any other fund(s) available in the Plan.

**(c) Investment Elections**

During 2009 and 2008, the amounts contributed to the Plan were invested in one or more of the following investment options at the direction of the participants, except for Employer matching contributions as discussed above. Below is a description of each investment option offered by the Plan:

*JP Morgan Stable Asset Income Fund* – This fund seeks to preserve the value of money invested, perform better than the average money market fund, and earn consistent returns. The fund invests in a variety of interest-paying securities offered with a companion investment contract called a “benefit responsive wrap.” See footnote 2(f).

*PIMCO Total Return Fund* – This fund seeks total return consistent with preservation of capital. The fund invests at least 65% of assets in debt securities, including U.S. government securities, corporate bonds, and mortgage-related securities. It may invest up to 20% of assets in securities denominated in foreign currencies. The portfolio duration generally ranges from three to six years.

*PIMCO Real Return Fund* – The fund seeks maximum real return, consistent with preservation of real capital and prudent investment management. The fund seeks its investment objective by investing under normal circumstances at least 80% of its net assets in inflation-indexed bonds of varying maturities issued by the U.S. and non-U.S. governments, their agencies or instrumentalities, and corporations.

*BlackRock S&P 500 Equity Index Fund-I*– The fund seeks to capture earnings and growth through investing in the same stocks held in the S&P 500 Index. These stocks represent 500 of the largest and most established public companies in the U.S. (based on the market value of their shares), and account for more than 75% of the market capitalization of all publicly traded stocks in the U.S. Prior to 2009 this fund was formally known as the Barclays Global Investors S&P 500 Equity Index Fund.



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*T. Rowe Price Equity Income Fund* – This fund’s objective is to provide dividend income as well as long-term capital appreciation through investments in common stocks of established companies. The fund pursues this objective by investing at least 80% of the fund’s net assets in common stocks, with 65% in the common stocks of companies paying above-average dividends, with prospects for both increasing dividends and capital appreciation.

*American Funds Growth Fund of America* – This fund seeks to invest in companies that offer opportunities for long-term growth, such as cyclical companies, those in depressed industries, and turnaround or value situations. Common stocks, convertibles, preferred stocks, U.S. government securities, bonds and cash are held by the fund. Up to 15% of the assets may be invested in securities of issuers located outside the United States and not included in the S&P 500. Up to 10% may be invested in debt securities rated below investment grade.

*Perkins Mid Cap Value Fund* – This fund seeks capital appreciation. In pursuing that goal the fund invests at least 80% of its assets in equity securities of companies whose market capitalization falls at the time of purchase, within the 12-months average of the capitalization range of the Russell Midcap Value Index. The fund focuses on companies that have fallen out of favor with the market. These companies generally have a low price relative to their assets, earnings, cash flow or business franchise.

*Turner Midcap Growth Fund* – The fund seeks capital appreciation. The fund invests primarily (at least 80% of its net assets) in common stocks of equity securities of U.S. companies with medium market capitalizations that the fund believes has strong earnings growth potential.

*Managers Special Equity Fund* – This fund seeks long-term capital appreciation by investing primarily in common stocks of U.S. companies. These companies have small to medium-market capitalizations and are in the early stages of their corporate life cycle or are not yet well recognized, or they may be more established firms experiencing accelerated earnings growth. Investment in this fund was discontinued and replaced with the Wells Fargo Advantage Small Cap Growth Fund (see description below) effective July 10, 2009.

*Wells Fargo Advantage Small Cap Growth Fund* – Effective July 10, 2009, this fund replaced the Managers Special Equity Fund. This investment seeks long-term capital appreciation. Under normal circumstances, it invests at least 80% of the net assets in equity securities of small-capitalization companies with market capitalization of less than \$2 billion (measured at the time of purchase). The fund’s investment strategy is to identify and invest in rapidly growing small capitalization companies that are in an early or transitional stage of their development.

*Target Small Capitalization Value Fund* – The fund seeks above-average capital appreciation. To achieve the objective, the fund invests in stocks of small companies that are believed to be undervalued and have an above-average potential to increase in price, given the company’s sales, earnings, book value, cash flow and recent performance. The fund normally invests at least 80% of its assets in common stocks of companies with a total market capitalization of less than \$2.5 billion (measured at the time of purchase).

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*Harbor International Fund* – This fund seeks long-term total return, principally from growth of capital. The fund invests primarily in equity securities, principally common and preferred stocks of foreign companies, including those located in emerging market countries. Companies in the fund's portfolio generally have market capitalizations in excess of \$1 billion. In selecting stocks for the fund's portfolio, the subadviser looks for companies with the following characteristics: businesses that the subadviser believes offer value, low price/earnings multiples relative to other stocks in each country/industry and above average, long-term earnings expectation not reflected in the price.

*American Funds EuroPacific Growth Fund* – This fund seeks long-term growth of capital by investing in growing companies based in Europe and the Pacific Basin. Generally, the fund will invest at least 80% of assets in equity securities of issuers located in these areas. The fund may hold cash money market instruments and other fixed income securities.

*Arch Common Stock Fund* – This fund invests in the publicly traded common stock of Arch Chemicals, Inc. (the Plan Sponsor). See footnote 2(e) for further description of the provisions and restrictions of the fund.

*Arch Pre-mixed Portfolio (Conservative)* – This investment option is a pre-mixed portfolio created specifically for the CEOP, using the Plan's other available investment options. It is designed to seek a balance of modest returns and low volatility by investing in a diversified mix of funds emphasizing income related investments. The Plan's fixed income options make up the largest portion of the portfolio (60%) but it also is invested in stock funds (40%) to provide the potential for growth as well as increased diversification. As this investment option is a pre-mixed portfolio using the Plan's other available investment options, amounts invested through this investment option are included in the balances of the other options in these financial statements and footnotes and in Schedule H, Line 4i.

*Arch Pre-mixed Portfolio (Moderate)* – This investment option is a pre-mixed portfolio created specifically for the CEOP, using the Plan's other available investment options. It is designed to seek moderate returns by investing in a diversified mix of funds emphasizing both growth and income related investments. Stock funds make up 65% of the portfolio, emphasizing growth related investments. The stock holdings are broadly diversified across large U.S. companies, international companies and small U.S. companies. The portfolio also invests in fixed income options (35%) to provide diversification and reduce volatility while adding stability of principal and income. As this investment option is a pre-mixed portfolio using the Plan's other available investment options, amounts invested through this investment option are included in the balances of the other options in these financial statements and footnotes and in Schedule H, Line 4i.

*Arch Pre-mixed Portfolio (Aggressive)* – This investment option is a pre-mixed portfolio created specifically for the CEOP, using the Plan's other available investment options. It is designed to seek higher potential returns by investing in a diversified mix of funds emphasizing growth related investments. Stock funds make up 100% of the portfolio, and are

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broadly diversified across large U.S. companies, international companies and small U.S. companies. As this investment option is a pre-mixed portfolio using the Plan's other available investment options, amounts invested through this investment option are included in the balances of the other options in these financial statements and footnotes and in Schedule H, Line 4i.

**(d) *Olin Common Stock Fund***

Only Participants who were Participants in the Olin CEOP at the time of the spin-off of Arch from Olin may have account balances that are invested in the Olin Common Stock Fund. Such Participants may retain existing investments in the Olin Common Stock Fund, but no new contributions or transfers may be made in or to this fund. Participants may transfer any portion of their Olin Common Stock Fund balances to any of the other funds offered by the Plan. Any dividends issued on the stock held in the Olin Common Stock Fund are automatically reinvested into the Arch Common Stock Fund.

**(e) *Arch Common Stock Fund***

As of February 8, 1999, the specialty chemical businesses of Olin were spun off into a new publicly traded company, Arch Chemicals, Inc. In order to effect the spin-off, a stock dividend was issued to Olin shareholders, including participants in the Olin CEOP, of one share of Arch common stock for each two shares of Olin common stock then outstanding. These shares were deposited in the unitized Arch Common Stock Fund in the Olin CEOP.

As of the spin-off, each Plan participant having an account balance containing Olin common stock was credited with an opening account balance in the Arch Common Stock Fund. The amount credited to each participant's initial Arch Common Stock Fund account balance was calculated by (i) dividing the value of such participant's Olin Common Stock Fund account by the total value of all participants' accounts in the Olin Common Stock Fund, and then (ii) multiplying the percentage determined under (i) above by the value of the Arch common stock the Plan trustee received as a stock dividend. The balances in all Arch employees' accounts of the Arch Common Stock Fund were transferred to the Plan on March 1, 2001.

Dividends paid to participants are re-invested in the Arch Common Stock Fund. Each participant is entitled to exercise voting rights attributable to the shares of his or her account and is notified by the Trustee prior to the time such rights are to be exercised.

The number of shares in the Arch Common Stock Fund to be credited to a participant's account is determined by dividing the participant's contribution plus the amount of Employer matching contributions attributable to such contribution for the preceding pay cycle by the share value of a share as of the close of business on the date on which the contributions were credited. Additional shares are credited to a participant's account to reflect payment of dividends on the common shares credited to that account based on the value of a share as of the day the dividend is credited.

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Effective November 1, 2009, the Plan was amended and the Arch Common Stock Fund was designated as the ESOP portion of the Plan.

**(f) JPMorgan Stable Asset Income Fund**

The JPMorgan Stable Asset Income Fund is a stable value fund that is a common collective trust fund. The fund may invest in guaranteed investment contracts (GICs and synthetic GICs), money market funds, corporate and government bonds, mortgage-backed securities, bond funds, and other fixed income securities. The contracts held by the fund are considered to be fully benefit-responsive investment contracts as defined in the Accounting Standards Codification (ASC) 946, *Financial Services – Investment Companies*. Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value. Contract value represents contributions made to the fund, plus accrued interest, less participant withdrawals.

A synthetic GIC consists of two components: 1) a portfolio of bonds and other assets that are owned by the fund, and 2) contracts, also known as wrap contracts, that provide market and cash flow protection. The wrap contracts are obligated to provide an interest rate not less than zero. These contracts provide that realized and unrealized gains and losses on the underlying assets are not reflected in the net assets of the fund as part of the fair value, but rather amortized, over the duration of the underlying assets, through adjustments to the future interest crediting rate. The counterparties to the wrapper contracts held by the JPMorgan Stable Asset Income Fund are major financial institutions with credit ratings ranging from AA- to AA at December 31, 2009.

At December 31, 2009 and 2008 there were three investment contracts held by the JPMorgan Stable Asset Income fund. Each of the Plan's proportionate interest in the contracts had fair values of \$6,437,000 and \$6,135,000 at December 31, 2009 and 2008, respectively. These fair values represented the fair values of the Plan's proportionate interest in the underlying investments as none of the wrapper contracts had any value.

**Factors that Impact Future Crediting Rates**

The following factors impact the future crediting rates of wrap contracts:

- Duration of the underlying assets
- Difference between the market value and contract value of the underlying assets
- Current yield of the underlying assets

**Basis and Frequency of Determining Interest Crediting Rates**

The wrap contract crediting rates are reset on a calendar quarterly basis.

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**Terminations at Other than Contract Value**

GICs generally do not permit issuers to terminate the agreement prior to the scheduled maturity date. Wrap contracts are evergreen contracts that contain termination provisions. Wrap agreements permit the fund's investment manager to terminate upon notice at any time at market value and provide for automatic termination of the wrap contract if the contract value or the market value of the contract equals zero. The issuer is not excused from paying the excess contract value when the market value equals zero. Wrap contracts permit the issuer to terminate at market value and provide that the fund may elect to convert such termination to an Amortization Election as described below. In addition, if the fund defaults in its obligation under the agreement (including the issuer's determination that the agreement constitutes a nonexempt prohibited transaction as defined under ERISA) and such default is not cured within the time permitted by any cure period, then the wrap contract may be terminated by the issuer and the fund will receive the market value as of the date of termination. The wrap contracts permit the issuer or the investment manager to elect at any time to convert the underlying assets to a declining duration strategy whereby the contract would terminate at a date which corresponds to the duration of the underlying assets on the date of the amortization election (Amortization Election). After the effective date of an Amortization Election, the underlying assets must conform to the guidelines agreed upon by the wrap issuer and the investment manager for the Amortization Election period. Such guidelines are intended to result in contract value equaling market value of the underlying assets by such termination date.

**Limitations on the Ability of the Fund to Transact at Contract Value**

The fully benefit-responsive investment contracts provide that Plan participant initiated withdrawals permitted under the Plan will be paid at contract value. Wrap contracts provide for withdrawals associated with 1) certain events that are not in the ordinary course of Plan operations and 2) events that the issuer determines will have a material adverse effect on the issuer's financial interest. These withdrawals will be paid with a market value adjustment to the contract value amount of such withdrawal as defined in such contracts.

**Average Yield Calculation**

	<u>2009</u>	<u>2008</u>
Average yield for JP Morgan Stable Asset Income Fund:		
Based on actual earnings*	3.51%	6.22%
Based on interest rate credited to participants**	2.17	3.66

\* Computed by dividing the annualized earnings of the Fund by the fair value of the investments of the fund.

\*\* Computed by dividing the annualized earnings credited to participants in the Fund by the fair value of the investments of the fund.

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**(g) Vesting and Benefit Provision**

Participants are fully vested in their contributions to the Plan.

Participants become 100% vested in the Employer matching contributions and earnings thereon upon the completion of two years of service or as a result of death, total disability or attainment of age 65. Nonbargaining and certain bargaining participants can become partially vested in accordance with the schedule set forth below:

Years of service	Percentage vested
Less than one year	—%
One year but fewer than two	50
Two or more years	100

Upon termination of service for any reason, a participant may elect to receive his or her entire vested balance in either a lump-sum amount or in annual installments up to 15 years, or for his or her life expectancy, if greater.

Distributions from the Plan are generally paid in cash. Distributions from the Olin Common Stock Fund or Arch Common Stock Fund, at the election of the distributee, can be paid in shares of common stock with any fractional interest in a share of common stock paid in cash.

**(h) Transfers between Funds**

Participants may elect to transfer balances attributable to employee contributions from any fund to any other fund, except such participants may not transfer balances to the Olin Common Stock Fund. Participants may transfer balances daily, with no limitation on the frequency. A participant may elect to transfer any percentage of the balance in the fund from which the transfer is made.

Participants who are at least 50 years old but have not been credited with three years of service may elect to transfer balances attributable to Employer matching contributions out of the Arch Common Stock Fund once every 12 months. Participants who have been credited with at least three years of service may elect to transfer at anytime, (subject to applicable US securities laws) the value of their Employer matching contributions out of the Arch Common Stock Fund to any other fund(s) available in the Plan.

**(i) Participant Accounts**

The Plan is a defined contribution plan under which a separate individual account is established for each participant's tax-deferred contributions and/or after-tax contributions including Roth 401(k) contributions, if any. Each participant's account is credited with the participant's contribution and allocations of (a) the Employer's matching contribution and (b) Plan investment fund(s) earnings (losses). Allocations are based on participant accounts balances, as defined. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested balance.

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**(j) Loan Provision**

All eligible participants may participate in the loan program under the Plan. The maximum loan amount is generally the lesser of \$50,000 or 50% of the value of the participant's vested account balance. Under the Plan, employees may have a maximum of three outstanding loans at any time. The loans are funded from the participants' accounts, reducing the account balance by the loan amount, and are reflected as participant loans in the accompanying financial statements. The term of the loans may be up to five years, or up to 15 years if the purpose of the loan is the purchase of a primary residence. The interest rate on these loans is fixed at the current prime rate at the time the loan is originated. The interest rates on outstanding loans ranged from 3.25% to 9.50% in 2009 and from 4.0% to 9.50% in 2008.

**(k) Payment of Benefits**

Upon termination of employment, death, attainment of age 59½, and certain hardships, as defined by the Plan, participants may elect to withdraw amounts from the Plan. In addition to attainment of age 59½ and hardship withdrawals, participants may also elect to withdraw their tax-deferred contributions and vested contributions as an "in-service" withdrawal, as defined in the Plan document. In order for earnings from participants' Roth 401(k) accounts to be tax-free when withdrawn, the participant's first Roth 401(k) contribution to the Plan must have existed for at least five years.

**(l) Administrative and Other Expenses**

Costs and expenses of administering the Plan are generally paid by the Plan. Certain administrative expenses are paid by the general assets of the Employer or by participants, as applicable.

**(m) Trust Fund Management**

JPMorgan Chase Bank, N.A. is the Trustee of the Plan. Under the terms of the Trust Agreement between the Trustee and Arch, the Trustee is responsible for the safekeeping of Plan assets in the trust funds and the maintenance of records relating to receipts and disbursements from the trust funds. The Trustee invests funds in compliance with the terms of the Plan and makes payments from the trust funds as directed by participants and Arch.

**(n) Recordkeeper**

JPMorgan Retirement Plan Services, LLC is the Recordkeeper for the Plan. There are revenue sharing agreements between certain funds and JPMorgan Chase Bank, N.A.

**(o) Plan Termination**

Although it has not expressed any intent to do so, the Employer has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to the provisions of ERISA. In the event of Plan termination, participants will become 100% vested in their Employer matching contributions.

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**(3) Forfeitures of Employer Matching Contributions**

Any forfeitures of nonvested Employer matching contributions and related earnings, equivalent to the market value of forfeited shares plus dividends not reinvested, will be applied to reduce subsequent Employer matching contributions. Forfeitures used to reduce Employer matching contributions were \$74,086 and \$0 for the Plan years ended December 31, 2009 and 2008, respectively. The unallocated balance of forfeitures was \$9,654 and \$74,821 at December 31, 2009 and 2008, respectively.

**(4) Investments**

The Plan's investments that exceeded 5% of net assets available for plan benefits as of December 31, 2009 and 2008 are as follows:

Description of Investment	2009	2008
Arch Chemicals Common Stock Fund*	\$ 35,565,286	27,681,006
BlackRock S&P 500 Equity Index Fund-I	30,665,242	22,352,498
PIMCO Total Return Fund	25,737,692	21,956,075
American Funds Growth Fund of America	9,989,683	**
American Funds EuroPacific Growth Fund	11,718,911	8,321,523
JP Morgan Stable Asset Income Fund***	25,362,403	21,117,323
Harbor International Fund	10,382,912	**

\* Includes nonparticipant-directed holdings

\*\* Investment did not exceed 5% of net assets at year end

\*\*\* At fair value. Contract value was \$26,447,775 and \$23,529,172 at December 31, 2009 and 2008, respectively.

The following table presents the net appreciation (depreciation) in fair value of investments (including investments bought, sold and held during the year) for the plan years ended December 31, 2009 and 2008, respectively:

	Total	
	2009	2008
Mutual funds	\$ 17,365,157	(31,242,041)
Common/collective trusts	6,460,796	(12,561,339)
Common stock	6,121,262	(12,032,663)
Total net appreciation (depreciation)	\$ 29,947,215	(55,836,043)



**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Notes to Financial Statements

December 31, 2009 and 2008

**(5) Nonparticipant-Directed Investments**

Information about the net assets and the significant components of the changes in net assets for nonparticipant-directed investments, are as follows:

	<u>2009</u>	<u>2008</u>
Arch Common Stock Fund net assets at beginning of year	\$ 27,681,006	38,160,499
Changes in net assets to the Arch Common Stock Fund:		
Employer contributions	3,905,828	4,301,584
Employee contributions-directed investments and net transfers in from other plans	516,160	471,148
Dividends	1,034,206	1,000,974
Net appreciation (depreciation)	5,976,387	(11,177,783)
Loan repayments (principal and interest)	335,128	266,729
Benefits paid to participants and net transfers out	(1,288,789)	(1,846,945)
Administrative expenses	(1,320)	(1,600)
Loans issued	(157,272)	(133,701)
Other (disbursements) receipts	(37,830)	1,902
Transfers to participant-directed investments	(2,398,218)	(3,361,801)
Net increase (decrease)	<u>7,884,280</u>	<u>(10,479,493)</u>
Arch Common Stock Fund net assets at end of year	\$ <u>35,565,286</u>	<u>27,681,006</u>

**(6) Federal Income Taxes**

The Internal Revenue Service has determined and informed the Plan Sponsor by a letter dated September 5, 2003, that the Plan is qualified under Section 401(a) of the Code, as amended, and the related trust is exempt from Federal income taxes under Section 501(a) of the Code. Although the Plan has been amended since receiving the determination letter, the Plan administrator and the Plan's tax counsel believe that the Plan is designed and is currently being operated in compliance with the applicable requirements of the IRC.

**(7) Related-Party Transactions**

Certain Plan investments are shares of mutual funds and common/collective trusts managed by JPMorgan Chase Bank, N.A., the Plan trustee. In addition, the Plan invests in common stock of Arch. These transactions qualify as party-in-interest transactions that are exempt from the prohibited transaction rules.

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Notes to Financial Statements

December 31, 2009 and 2008

**(8) Reconciliation to Form 5500**

	<b>2009</b>	<b>2008</b>
Net assets available for plan benefits per the financial statements	\$ 196,724,878	154,778,161
Less adjustment from fair value to contract value for fully benefit-responsive investment contracts	(1,085,372)	(2,411,849)
Net assets available for plan benefits per the Form 5500	\$ 195,639,506	152,366,312
	<b>2009</b>	<b>2008</b>
Change in net assets available for plan benefits per the financial statements	\$ 41,946,717	(49,218,632)
Less adjustment from contract value to fair value for fully benefit-responsive investment contracts – current year	(1,085,372)	(2,411,849)
Add adjustment from contract value to fair value for fully benefit-responsive investment contracts – prior year	2,411,849	285,297
Net income (loss) per the Form 5500	\$ 43,273,194	(51,345,184)

**(9) Fair Value Measurements**

Valuation techniques required by ASC 820, *Fair Value Measurements and Disclosures*, are based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Plan's market assumptions. These two types of inputs create the following fair value hierarchy:

- Level 1 – Quoted prices (unadjusted) for identical assets and liabilities in active markets that the Plan has the ability to access at the measurement date.
- Level 2 – Quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; and inputs other than quoted prices that are observable for the asset or liability, including interest rates, yield curves and credit risks, or inputs that are derived principally from or corroborated by observable market data through correlation.
- Level 3 – Significant inputs to the valuation model are unobservable and are primarily based on internally derived assumptions surrounding the timing and amount of expected cash flows.

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Notes to Financial Statements

December 31, 2009 and 2008

The following section describes the valuation methodologies the Plan uses to measure different investments at fair value.

**Investments**

The Plan's investments are stated at fair value. Quoted prices in active markets are used to determine the fair values of investments, with the exception of the BlackRock S&P 500 Equity Index Fund-I and the JP Morgan Stable Asset Income Fund. The investments which are valued using quoted prices in active markets are included in Level 1.

The investment contracts held by the JP Morgan Stable Asset Income Fund are presented at fair value on the statements of net assets available for plan benefits. The investments in these fully benefit-responsive investment contracts are then adjusted to contract value, which is equal to the principal balance plus accrued interest, less participant withdrawals. An investment contract is generally valued at contract value, rather than fair value, to the extent it is fully benefit-responsive. Fair value of fully benefit-responsive investment contracts is calculated using a discounted cash flow model which considers recent fee bids as determined by recognized dealers, discount rate, duration of the underlying portfolio securities and the credit-worthiness of the issuer. There are no imposed redeemable restrictions nor does the Plan have any contractual obligations to further invest in this fund. The JP Morgan Stable Asset Income Fund is included in Level 2.

The BlackRock S&P 500 Equity Index Fund-I is valued using a combination of quoted prices from active markets and prices from inactive markets. The BlackRock S&P 500 Equity Index Fund-I is included in Level 2.

The Plan asset allocation at December 31, 2009 and 2008 was:

		2009	2008
<b>Asset category:</b>			
Equity		71%	69%
Fixed income		29	31
<b>Total</b>		<b>100%</b>	<b>100%</b>

The JP Morgan Stable Asset Income Fund, PIMCO Total Return Fund and PIMCO Real Return Fund are all fixed income funds. Additionally, a portion of the Arch Pre-mixed Portfolio (Conservative) investment option and the Arch Pre-mixed Portfolio (Moderate) investment option consist of fixed income investments. All other funds principally consist of equity investments.

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Notes to Financial Statements

December 31, 2009 and 2008

The following table displays, by level, the fair values of each of the Plan's investments that are measured at fair value and that are subject to the disclosure requirements of ASC 820 at December 31, 2009:

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>
Mutual funds	\$ 93,328,924	—	—	93,328,924
Common/collective trusts	—	56,027,644	—	56,027,644
Common stock	41,041,660	—	—	41,041,660
Total investments, at fair value	<u>\$ 134,370,584</u>	<u>56,027,644</u>	<u>—</u>	<u>190,398,228</u>

The following table displays, by level, the fair values of each of the Plan's investments that are measured at fair value and that are subject to the disclosure requirements of ASC 820 at December 31, 2008:

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>
Mutual funds	\$ 71,139,531	—	—	71,139,531
Common/collective trusts	—	43,469,821	—	43,469,821
Common stock	33,212,558	—	—	33,212,558
Total investments, at fair value	<u>\$ 104,352,089</u>	<u>43,469,821</u>	<u>—</u>	<u>147,821,910</u>

**(10) Risks and Uncertainties**

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, changes in the values of investment securities could materially affect amounts reported in the statement of net assets available for Plan benefits.

**ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN**

Schedule H, Line 4i – Schedule of Assets (Held at End of Year)

December 31, 2009

Identity of issuer, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par, or maturity value	Historical cost	Current value
PIMCO	Total Return Fund	**	\$ 25,737,692
PIMCO	Real Return Fund	**	4,454,243
Wells Fargo	Advantage Small Cap Growth Fund	**	5,677,236
T. Rowe Price	Equity Income Fund	**	7,546,672
Perkins	Mid Cap Value Fund	**	9,425,383
Turner	Mid Cap Growth Fund	**	2,741,297
Target	Small Capitalization Value Fund	**	3,611,011
Harbor	International Fund	**	10,382,912
American Funds	Growth Fund of America	**	9,989,683
American Funds	EuroPacific Growth Fund	**	11,718,911
BlackRock	S&P 500 Equity Index Fund-I	**	30,665,242
* JPMorgan	Stable Asset Income Fund	**	25,362,403
* Arch Chemicals, Inc.	Arch Chemicals, Inc. Common Stock, Par value \$1.00	\$ 29,471,501	35,565,286
Olin Corporation	Olin Corporation Common Stock, Par value \$1.00	**	3,884,114
Participant-directed brokerage account	Various mutual funds/common stock investments	**	3,636,143
* Participant loans	Participant Loan Fund (1,205 outstanding loans with interest rates ranging from 3.25% – 9.50%, and maturity dates ranging from 2010 to 2024)	**	4,451,921
	Total investments		<u>\$ 194,850,149</u>

\* Party-in-interest to the Plan.

\*\* Historical cost omitted as these investments are participant-directed

See accompanying Report of Independent Registered Public Accounting Firm.

SIGNATURES

*The Plan.* Pursuant to the requirements of the Securities Exchange Act of 1934, the trustees (or other persons who administer the employee benefit plan) have duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: June 25, 2010

ARCH CHEMICALS, INC. CONTRIBUTING  
EMPLOYEE OWNERSHIP PLAN

By: Members of the Arch CEOP  
Administrative Committee

/s/ H. Anderson  
H. Anderson  
Vice President, Human Resources

/s/ W.P. Bush  
W.P. Bush  
Treasurer

/s/ L.S. Mercede  
L.S. Mercede  
Director of Compensation and Benefits

/s/ R.A. Barnes  
R.A. Barnes  
Director, Human Resources and  
Corporate Security Officer

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>	
23	Consent of Independent Registered Public Accounting Firm	24



KPMG LLP  
Stamford Square  
3001 Summer Street  
Stamford, CT 06905

**Consent of Independent Registered Public Accounting Firm**

The Board of Directors  
Arch Chemicals, Inc.:

We consent to the incorporation by reference in the Registration Statements (333-133815 and 333-54098) on Form S-8 of Arch Chemicals, Inc. of our report dated June 25, 2010 with respect to the statements of net assets available for plan benefits of the Arch Chemicals, Inc. Contributing Employee Ownership Plan as of December 31, 2009 and 2008, the related statements of changes in net assets available for plan benefits for the years then ended, and the supplemental schedule of schedule H, Line 4i – Schedule of Assets (Held at End of Year) as of December 31, 2009 which report appears in the December 31, 2009 annual report on Form 11-K of the Arch Chemicals, Inc. Contributing Employee Ownership Plan.  
Stamford, CT

KPMG LLP

June 25, 2010