

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

**FORM 11-K**

(Mark One)

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

For the fiscal year ended December 31, 2008

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

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

Commission file number 001-15885

**BRUSH ENGINEERED MATERIALS INC.  
SAVINGS AND INVESTMENT PLAN**

(Full Title of the Plan)

BRUSH ENGINEERED MATERIALS INC.  
6070 Parkland Blvd.  
Mayfield Hts., Ohio 44124

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

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**Brush Engineered Materials Inc.  
Savings and Investment Plan**

**Required Information**

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## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have audited the accompanying statements of net assets available for benefits of the Brush Engineered Materials Inc. Savings and Investment Plan as of December 31, 2008 and 2007, and the related statement of changes in net assets available for benefits for the year ended December 31, 2008. 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. We were not engaged to perform an audit of the Plan's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and 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 benefits of the Plan at December 31, 2008 and 2007, and the changes in its net assets available for benefits for the year ended December 31, 2008, in conformity with U.S. generally accepted accounting principles.

Our audits were performed for the purpose of forming an opinion on the financial statements taken as a whole. The accompanying supplemental schedule of assets (held at end of year) as of December 31, 2008 is presented for purposes of additional analysis and is not a required part of the 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 of 1974. This supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in our audits of the financial statements and, in our opinion, is fairly stated in all material respects in relation to the financial statements taken as a whole.

*s/ Ernst & Young LLP*

Cleveland, Ohio  
June 18, 2009

**Brush Engineered Materials Inc.  
Savings and Investment Plan  
Statements of Net Assets Available for Benefits**

|  | <b>December 31</b>           |                              |
|--|------------------------------|------------------------------|
|  | <b>2008</b>                  | <b>2007</b>                  |
| <b>Assets</b>                            |                              |                              |
| Investments                              | \$ 126,749,639               | \$ 175,479,723               |
| Contribution receivables:                |                              |                              |
| Employer                                 | 66,056                       | 98,352                       |
| Participants                             | 410,413                      | 317,546                      |
| Total contribution receivables           | <u>476,469</u>               | <u>415,898</u>               |
| Receivable from broker                   | -                            | 7,004,537                    |
| Pending sales                            | <u>219,711</u>               | <u>1,802</u>                 |
| <b>Net assets available for benefits</b> | <b><u>\$ 127,445,819</u></b> | <b><u>\$ 182,901,960</u></b> |

See accompanying notes to financial statements.

**Brush Engineered Materials Inc.**  
**Savings and Investment Plan**  
**Statement of Changes in Net Assets Available for Benefits**  
**Year Ended December 31, 2008**

|   |                              |
|---|------------------------------|
| <b>Additions</b>                              |                              |
| Net investment income:                        |                              |
| Interest and dividends                        | \$ 4,889,265                 |
| Contributions:                                |                              |
| Participants                                  | 8,889,390                    |
| Employer                                      | 2,993,836                    |
| Catch-up                                      | 416,989                      |
| Rollover                                      | 1,462,928                    |
|   | <u>13,763,143</u>            |
| Total additions                               | 18,652,408                   |
| <b>Deductions</b>                             |                              |
| Net depreciation in fair value of investments | 63,971,407                   |
| Benefits paid directly to participants        | 10,083,271                   |
| Administration fee                            | 23,038                       |
| Defaulted loans                               | <u>30,833</u>                |
| Total deductions                              | <u>74,108,549</u>            |
| Net decrease                                  | (55,456,141)                 |
| Net assets available for benefits:            |                              |
| Beginning of year                             | <u>182,901,960</u>           |
| End of year                                   | <u><u>\$ 127,445,819</u></u> |

See accompanying notes to financial statements.

**Brush Engineered Materials Inc.  
Savings and Investment Plan  
Notes to Financial Statements  
December 31, 2008 and 2007  
and Year Ended December 31, 2008**

**NOTE A – Description of the Plan**

The following description of the Brush Engineered Materials Inc. Savings and Investment Plan (the “Plan”) provides only general information. Participants should refer to the Summary Plan Description for a more complete description of the Plan’s provisions.

**General**

The Plan is a defined contribution plan that covers certain eligible employees of Brush Engineered Materials Inc. (Company) and participating employers who have adopted the Plan (Company reference includes participating employers where appropriate). The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

**Contributions**

The Plan provides for basic contributions by employees of up to 6% of their earnings through pre-tax (salary reduction), Roth or after-tax contributions. Currently, basic contributions are matched by the Company at the rate of 50% of such contributions. The rate at which such basic contributions are matched by the Company may be decreased or increased (up to a 100% rate) by action of the Company's Board of Directors.

An employee who makes basic contributions of 6% of earnings may also make supplemental contributions of up to 44% of earnings which are not matched by Company contributions and which may be made in any combination of pre-tax and/or after-tax contributions.

An employee's contributions made to the Plan on a pre-tax basis may not exceed certain IRS maximum amounts. The maximum amount is \$15,500 in 2008. If an employee will be 50 or older by the end of the plan year, and is making the maximum elective contribution for the year, he/she may make additional pre-tax “catch-up” contributions of up to 75% of earnings. In 2008, the maximum amount for a catch-up contribution is \$5,000. Employees can also designate such contributions as being made on a Roth 401(k) basis under the Plan.

Currently, participants can direct, in increments of 1%, their basic, supplemental, rollover, catch-up, Company matching, and transfer contributions (as described in the Plan) to be invested in any of the fund options offered by the Plan. Participants can also transfer amounts between fund options on each investment change date.

The Company made PAYSOP contributions to the Plan for plan years 1984 through 1986.

**Brush Engineered Materials Inc.**  
**Savings and Investment Plan**  
**Notes to Financial Statements – Continued**

**Vesting**

All employee and Company contributions are fully vested at all times.

**Participant Loans**

A participant may borrow funds from his/her account, provided such loan is secured by 50% of the value of the participant's account immediately prior to the loan and evidenced by a promissory note executed by the participant.

**Payment of Benefits**

At retirement, death or other termination, a participant (or his death beneficiary) is eligible to receive a distribution of all employee and Company contributions credited to the employee's account plus or minus any net gain or loss thereon.

The value of distributions and withdrawals is based on the value of a participant's account on the valuation date immediately preceding the date of distribution or withdrawal and is deducted from the participant's account as of such valuation date.

Distribution to a participant or a person designated by the participant as his death beneficiary is made under one or more (as applicable) of the following methods as elected by the participant (or in certain cases the death beneficiary):

- (i) Lump sum payment in cash;
- (ii) Lump sum payment in cash, except that a participant's interest in the Company Stock Fund and the PAYSOP contributions account will be paid in full shares of Common Stock of the Company, with any fractional shares being paid in cash; and
- (iii) Periodic distributions, not more frequently than monthly, of at least \$200.

**Insurance Policies**

Prior to July 1, 1989, participants who were employees of Williams Advanced Materials Inc. could have directed a portion of their contributions to be used to purchase insurance policies that were excluded from the former Williams Advanced Materials Inc. Savings and Investment Plan assets. Life insurance policies on the lives of participants, purchased under the former Williams Advanced Materials Inc. Savings and Investment Plan prior to July 1, 1989, may continue to be held.

**Plan Termination**

Although it has not expressed any intent to do so, the Company has the right under the Plan to terminate the Plan subject to the provisions of ERISA.

**Brush Engineered Materials Inc.  
Savings and Investment Plan  
Notes to Financial Statements – Continued**

**Note B – Summary of Accounting Policies**

**Basis of Accounting**

The financial statements of the Plan have been prepared on the accrual basis of accounting.

**Investment Valuation**

Investments are stated at fair value. Investment in the company stock fund is valued based on the latest reported closing price of the stock component and the actual cash held in the fund. The shares of registered investment companies are valued at quoted market prices that represent the net asset values of shares held by the Plan at the latest closing price. Investment in participation units of the money market funds are stated at fair value as determined by Fidelity Management Trust Company, the Trustee. Participant loans are valued at their outstanding balances, which approximate fair value.

Purchases and sales of securities are recorded on a trade-date basis. Interest and dividend income is recorded on the accrual basis.

**Use of Estimates**

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.



**Brush Engineered Materials Inc.  
Savings and Investment Plan  
Notes to Financial Statements - Continued**

**NOTE C – Investments**

During 2008, the Plan's investments (including investments purchased, sold, as well as held during the year) depreciated in fair value as determined by quoted market prices as follows:

|  | Net Realized<br>and Unrealized<br>Depreciation in<br>Fair Value of<br>Investments |
|--|---|
| Brush Engineered Materials Inc. Common Stock | \$ (13,811,851)   |
| Shares of registered investment companies    | (50,159,556)  |
|  | <u>\$ (63,971,407)</u>  |

Investments that represent 5% or more of fair value of the Plan's net assets are as follows:

|  | December 31<br>2008 | 2007          |
|--|---------------------|---------------|
| Brush Engineered Materials Inc. Common Stock                   | \$ 10,234,268       | \$ 19,519,563 |
| Fidelity Blue Chip Growth Fund                                 | 13,817,810          | 22,633,518    |
| Fidelity Diversified International Fund                        | 12,753,013          | 25,472,623    |
| Fidelity Money Market Trust: Retirement Money Market Portfolio | 23,926,443          | 17,901,883    |
| PIMCO Total Return Fund  | 15,512,139          | 12,855,553    |
| Spartan U.S. Equity Index Fund                                 | 10,906,344          | 17,991,975    |
| Vanguard Asset Allocation Fund                                 | 7,271,980           | 12,937,663    |

**NOTE D - Income Tax Status**

The Plan has received a determination letter from the Internal Revenue Service dated July 25, 2002, stating that the Plan is qualified under Section 401(a) of the Internal Revenue Code (Code) and, therefore, the related trust is exempt from taxation. Subsequent to the issuance of the determination letter, the Plan was amended. Once qualified, the Plan is required to operate in conformity with the Code to maintain its qualification. The Plan Administrator believes the Plan is being operated in compliance with the applicable requirements of the Code and, therefore, believes that the Plan, as amended, is qualified and the related trust is tax exempt. The Company submitted an application for a new determination letter on January 26, 2009, and the application is presently pending.

**Brush Engineered Materials Inc.**  
**Savings and Investment Plan**  
**Notes to Financial Statements - Continued**

**NOTE E - Transactions with Parties-in-Interest**

All legal and accounting expenses of the Plan are paid by the Company. All administrative fees are paid as noted above or pursuant to the trust by the Plan. Other than as described above, the Plan did not have any agreements or transactions with parties-in-interest.

During 2008, the Plan had the following transactions related to shares of Brush Engineered Materials Inc. Common Stock:

|           |              |
|-----------|--------------|
| Purchases | \$16,521,264 |
| Sales     | 12,922,979   |

**NOTE F - 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, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the statements of net assets available for benefits.

**NOTE G - Subsequent Event**

On January 1, 2009 the Company's Board of Directors acted to reduce the rate of employer matching contributions to 25% of the first 6% of employee deferrals. Effective April 4, 2009, the Company amended the Plan to reduce the rate of employer matching contributions to 0%, except with respect to certain locations not covered by the Company's pension plan.

After April 28, 2009 life insurance policies on the lives of participants, purchased under the former Williams Advanced Materials Inc. Savings and Investment Plan prior to July 1, 1989, may no longer be held.

**NOTE H - Recent Accounting Pronouncement**

In September 2006, the FASB issued Statement of Financial Accounting Standards No. 157, "Fair Value Measurements," (SFAS 157) effective for fiscal years beginning after November 15, 2007. SFAS 157 applies whenever other standards require (or permit) assets or liabilities to be measured at fair value. SFAS 157 clarifies the principle that fair value should be based on the assumptions market participants would use when pricing the asset or liability. In support of this principle, SFAS 157 establishes a fair value hierarchy that prioritizes the information used to develop those standards. The fair value hierarchy gives the highest priority to quoted prices in active markets and the lowest priority to unobservable data, for example, the reporting entity's own data. Under SFAS 157, fair value measurements are separately disclosed by level within the fair value hierarchy. SFAS 157 does not expand the use of fair value in any new circumstances. The Plan adopted SFAS 157 on January 1, 2008. The Company has evaluated the impact of adopting SFAS 157 and has determined it did not have a material impact on the Plan's financial statements.

**Brush Engineered Materials Inc.  
Savings and Investment Plan  
Notes to Financial Statements - Continued**

**NOTE I - Fair Value Measurements**

SFAS 157 defines fair value as the price that would be received to sell an asset or paid to transfer a liability (exit price) regardless of whether an observable liquid market price exists.

SFAS 157 establishes a fair value hierarchy that categorizes the inputs to valuation techniques that are used to measure fair value into three levels:

|         |   |
|---------|---|
| Level 1 | Observable inputs which reflect quoted prices for identical assets or liabilities in active markets at the measurement date.  |
| Level 2 | Observable inputs for assets or liabilities other than quoted prices included in Level 1 and it includes valuation techniques which use prices for similar assets and liabilities.            |
| Level 3 | Unobservable inputs which reflect the reporting entity's estimates of the assumptions that market participants would use in pricing the asset or liability, including assumptions about risk. |

The asset's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

The following is a description of the valuation methods used for assets measured at fair value. There have been no changes in methodologies used at December 31, 2008.

*Brush Engineered Materials Inc. Common Stock:* The fair values of these securities are based on observable market quotations for identical assets and are valued at the closing price reported on the active market on which the individual securities are traded.

*Registered investment companies:* The fair values of these securities are based on observable market quotations for identical assets and are priced on a daily basis at the close of business.

*Money market funds:* The carrying value approximates fair value.

*Participant loans:* Valued at their outstanding balances, which approximates fair value.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Plan believes its valuations methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement.

**Brush Engineered Materials Inc.  
Savings and Investment Plan  
Notes to Financial Statements - Continued**

The following table sets forth by level, within the fair value hierarchy, the Plan's assets at fair value as of December 31, 2008:

|                                 | <u>Level 1</u>        | <u>Level 2</u> | <u>Level 3</u>      | <u>Total</u>          |
|---------------------------------|-----------------------|----------------|---------------------|-----------------------|
| Brush Engineered Materials Inc. |                       |                |                     |                       |
| Common Stock                    | \$ 10,234,268         | \$ -           | \$ -                | \$ 10,234,268         |
| Registered investment companies | 87,995,230            | -              | -                   | 87,995,230            |
| Money market funds              | 24,596,781            | -              | -                   | 24,596,781            |
| Participant loans               | -                     | -              | 3,923,360           | 3,923,360             |
| Total investments               | <u>\$ 122,826,279</u> | <u>\$ -</u>    | <u>\$ 3,923,360</u> | <u>\$ 126,749,639</u> |

For participant loans measured at fair value on a recurring basis using significant unobservable inputs (Level 3) during 2008, a reconciliation of the beginning and ending balances is as follows:

|   | <u>Participant<br/>Loans</u> |
|---|------------------------------|
| Beginning balance, January 1, 2008                | <u>\$4,113,055</u>           |
| Purchases, sales, issuances and settlements (net) | (189,695)                    |
| Ending balance, December 31, 2008                 | <u>\$3,923,360</u>           |

**Brush Engineered Materials Inc.**  
**Savings and Investment Plan**  
**EIN: 34-1919973 Plan Number - 003**  
**Schedule H, Line 4i**  
**Schedule of Assets (Held at End of Year)**

**December 31, 2008**

| Identity of Issue  | Description<br>of Investment | Current<br>Value |
|--|------------------------------|------------------|
| Brush Engineered Materials Inc. Common Stock *                                 | 809,407.000 shares           | \$ 10,234,268    |
| Shares of registered investment companies:                                     |                              |                  |
| DFA U.S. Large Cap Value Fund  | 422,805.482 shares           | 5,669,822        |
| Fidelity Blue Chip Growth Fund*  | 525,192.306 shares           | 13,817,810       |
| Fidelity Diversified International Fund*                                       | 592,887.620 shares           | 12,753,013       |
| Fidelity Freedom 2000 Fund*  | 42,344.321 shares            | 425,560          |
| Fidelity Freedom 2005 Fund*  | 12,541.887 shares            | 105,226          |
| Fidelity Freedom 2010 Fund*  | 290,603.187 shares           | 3,010,649        |
| Fidelity Freedom 2015 Fund*  | 200,565.644 shares           | 1,716,842        |
| Fidelity Freedom 2020 Fund*  | 377,871.911 shares           | 3,797,613        |
| Fidelity Freedom 2025 Fund*  | 168,401.777 shares           | 1,385,947        |
| Fidelity Freedom 2030 Fund*  | 169,152.916 shares           | 1,650,932        |
| Fidelity Freedom 2035 Fund*  | 81,085.879 shares            | 651,120          |
| Fidelity Freedom 2040 Fund*  | 210,340.501 shares           | 1,175,803        |
| Fidelity Freedom 2045 Fund*  | 11,088.696 shares            | 72,964           |
| Fidelity Freedom 2050 Fund*  | 26,176.838 shares            | 169,102          |
| Fidelity Freedom Income Fund*  | 61,870.692 shares            | 591,484          |
| Harbor Small Cap Value Institutional Class                                     | 108,783.466 shares           | 1,442,469        |
| Morgan Stanley Institutional Fund, Inc. Small Company Growth Portfolio Class P | 162,174.310 shares           | 1,166,033        |
| PIMCO Total Return Fund Administrative Class                                   | 1,529,796.741 shares         | 15,512,139       |
| Spartan U.S. Equity Index Fund   | 341,891.663 shares           | 10,906,344       |
| Third Avenue Real Estate Value Fund  | 97,617.440 shares            | 1,459,381        |
| Vanguard Asset Allocation Fund   | 390,966.689 shares           | 7,271,980        |
| Vanguard Mid Capitalization Index Signal Fund                                  | 192,006.987 shares           | 3,242,998        |
|  |                              | 98,229,498       |
| Money market funds:  |                              |                  |
| Fidelity Employee Benefits Money Market Fund*                                  | 411,987.660 shares           | 411,988          |
| Fidelity Money Market Trust: Retirement Money Market Portfolio*                | 23,926,442.990 shares        | 23,926,443       |
| Fidelity U.S. Treasury Money Market Fund*                                      | 258,350.210 shares           | 258,350          |

|                     |   |                       |
|---------------------|---|-----------------------|
|                     |   | 24,596,781            |
| Participant loans * | Interest rates ranging from 1.25% to 5.08% with maturity dates through 2025 | 3,923,360             |
|                     |   | <u>\$ 126,749,639</u> |

\* Party-in-interest to the Plan.

SIGNATURE

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 thereunto duly authorized.

BRUSH ENGINEERED MATERIALS INC.  
SAVINGS AND INVESTMENT PLAN

Date: June 18, 2009

By: /s/ Michael C. Hasychak

Michael C. Hasychak  
Vice President, Treasurer and Secretary  
Brush Engineered Materials Inc.

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8 No. 33-363351) pertaining to the Savings and Investment Plan of Brush Engineered Materials Inc. of our report dated June 18, 2009, with respect to the financial statements and schedule of the Brush Engineered Materials Inc. Savings and Investment Plan included in this Annual Report (Form 11-K) for the year ended December 31, 2008.

*s/ Ernst & Young LLP*

Cleveland, Ohio  
June 18, 2009