
**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, 2005

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.
17876 St. Clair Avenue
Cleveland, Ohio 44110

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

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

Required Information

	Page No.
Report of Independent Registered Public Accounting Firm	1
Statements of Net Assets Available for Benefits — December 31, 2005 and 2004	2
Statement of Changes in Net Assets Available for Benefits — Year Ended December 31, 2005	3
Notes to Financial Statements	4-8
Schedule required to be filed under ERISA	
Schedule H, Line 4i, Schedule of Assets (Held at End of Year)	9
Signature	10
Exhibits	
23.1 Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm	11

Report of Independent Registered Public Accounting Firm

Brush Engineered Materials Inc. Savings and Investment Plan

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, 2005 and 2004, and the related statement of changes in net assets available for benefits for the year ended December 31, 2005. 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 audit 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, 2005 and 2004, and the changes in its net assets available for benefits for the year ended December 31, 2005, 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, 2005 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 27, 2006

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

	December 31	
	2005	2004
Assets		
Investments	\$132,880,323	\$127,946,467
Contribution receivables:		
Employer	87,852	35,166
Participants	<u>277,773</u>	<u>220,327</u>
Total contribution receivables	<u>365,625</u>	<u>255,493</u>
Pending sales	<u>127,852</u>	<u>143,229</u>
Net assets available for benefits	<u>\$133,373,800</u>	<u>\$128,345,189</u>
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, 2005

Additions

Net investment income:	
Net appreciation in fair value of investments	\$ 1,818,082
Interest and dividends	<u>3,209,111</u>
	5,027,193
Contributions:	
Participants	6,884,892
Employer	2,331,817
Employee PreTax Catch-up	182,896
Rollover	<u>244,174</u>
	9,643,779
Total additions	14,670,972

Deductions

Benefits paid directly to participants	9,620,515
Administration fee	14,844
Defaulted loans	<u>7,002</u>
Total Deductions	9,642,361

Net increase	5,028,611
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Net assets available for benefits:	
Beginning of year	<u>128,345,189</u>
End of year	<u>\$133,373,800</u>

See accompanying notes to financial statements.

**Brush Engineered Materials Inc.
Savings and Investment Plan
Notes to Financial Statements
December 31, 2005 and 2004
and Year Ended December 31, 2005**

NOTE A — Description of the Plan

The following description of the Brush Engineered Materials Inc. Savings and Investment Plan (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 either pre-tax (salary reduction) 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 \$14,000 in 2005. 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 2005, the maximum amount for a catch-up contribution is \$4,000.

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.

Beginning March 1, 2006, employees can also contribute on a Roth 401(k) basis under the Plan.

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 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 June 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.

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

Plan Termination

Although it has not expressed any intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to the provisions of ERISA.

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 2005, the Plan's investments (including investments purchased, sold as well as held during the year) appreciated in fair value as determined by quoted market prices as follows:

	Net Realized and Unrealized Appreciation in Fair Value of Investments
Brush Engineered Materials Inc. Common Stock	\$ (1,663,173)
Shares of registered investment companies	<u>3,481,255</u>
	<u>\$ 1,818,082</u>

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

	December 31	
	<u>2005</u>	<u>2004</u>
Vanguard Asset Allocation Fund	\$11,565,947	\$11,309,695
PIMCO Total Return Fund	10,703,419	10,614,399
Brush Engineered Materials Inc. Common Stock	11,935,549	14,797,022
TORRAY Fund	9,675,093	11,341,183
Fidelity Blue Chip Growth Fund	21,869,742	22,967,192
Fidelity Diversified International Fund	16,178,179	13,108,927
Fidelity Money Market Trust: Retirement Money Market Portfolio	9,838,066	10,029,905
Spartan U.S. Equity Index Fund	17,404,236	17,789,887

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

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.

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 by the Plan Other than as described above or pursuant to the trust agreement, the Plan did not have any agreements or transactions with parties-in-interest.

During 2005, the Plan had the following transactions related to shares of Brush Engineered Materials Inc. Common Stock:

Purchases	\$8,252,372
Sales	9,731,187

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

Effective April 3, 2006, Thin Film Technology, Inc. 401(k) Profit Sharing Plan was merged into and made a part of the Plan. Further, Thin Film Technology, Inc. adopted and became an Employer under the Plan for eligible employees of all location effective April 3, 2006.

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, 2005

Identity of Issue	Description of Investment	Current Value
Brush Engineered Materials Inc. Common Stock *	751,818.000 shares	\$ 11,935,549
Shares of registered investment companies:		
Vanguard Asset Allocation Fund	456,610.613 shares	11,565,947
Vanguard Midcap IDX Adm Fund	57,534.324 shares	4,601,595
3rd Avenue Real Estate Val	69,396.082 shares	2,037,469
Harbor Small Cap Value IS	88,576.787 shares	1,756,478
PIMCO Total Return Fund	1,019,373.226 shares	10,703,419
MSI Small Company Growth Fund	159,308.659 shares	1,961,090
TORRAY Fund	247,952.154 shares	9,675,093
Fidelity Blue Chip Growth Fund*	506,713.218 shares	21,869,742
Fidelity Diversified International Fund*	497,178.199 shares	16,178,179
Fidelity Freedom Income Fund*	23,131.140 shares	263,001
Fidelity Freedom 2000 Fund*	66,359.810 shares	810,253
Fidelity Freedom 2005 Fund*	14,596.023 shares	162,308
Fidelity Freedom 2010 Fund*	133,603.616 shares	1,877,131
Fidelity Freedom 2015 Fund*	77,432.640 shares	894,347
Fidelity Freedom 2020 Fund*	202,744.874 shares	2,982,377
Fidelity Freedom 2025 Fund*	35,397.937 shares	423,359
Fidelity Freedom 2030 Fund*	65,944.122 shares	990,481
Fidelity Freedom 2035 Fund*	7,284.836 shares	89,094
Fidelity Freedom 2040 Fund*	92,245.748 shares	814,530
Spartan U.S. Equity Index Fund*	394,117.667 shares	<u>17,404,236</u>
		107,060,129
Money market funds:		
Fidelity Employee Benefits Money Market Fund*	586,145.95 shares	586,146
Fidelity Money Market Trust: Retirement Money Market Portfolio*	9,838,066.140 shares	<u>9,838,066</u>
		10,424,212
Participant Promissory Notes *		
	1.54 - 9.91 with maturity dates through 2020	<u>3,460,433</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**

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

Date: June 29, 2006

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 27, 2006, 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, 2005.

/s/ Ernst & Young LLP
Cleveland, Ohio
June 27, 2006