

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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 OR 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported) May 13, 2009

Brush Engineered Materials Inc.

(Exact name of registrant as specified in its charter)

<u>Ohio</u> (State or other jurisdiction of incorporation)	<u>001-15885</u> (Commission File Number)	<u>34-1919973</u> (IRS Employer Identification No.)
<u>6070 Parkland Blvd., Mayfield Hts., Ohio</u> (Address of principal executive offices)		<u>44124</u> (Zip Code)

Registrant's telephone number, including area code 216-486-4200

Not Applicable
(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- ☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- ☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- ☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- ☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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Item 7.01 Regulation FD Disclosure

On May 13, 2009, Brush Engineered Materials Inc. updated the “Current Investor Update,” a slide presentation on its website, a copy of which is attached hereto as Exhibit 99.1. This slide presentation shows the Company’s corporate strategy and the financial results through the first quarter of 2009.

Item 9.01 Financial Statements and Exhibits

Exhibits:

<u>Exhibit Number</u>	<u>Description of Exhibit</u>
99.1	Current Investor Update

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

May 13, 2009

Brush Engineered Materials Inc.

By: Michael C. Hasychak

Michael C. Hasychak
Vice President, Treasurer and Secretary

Forward-Looking Statements

These slides contain “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. These statements involve known and unknown risks, uncertainties and other factors that could cause the actual results of the Company to differ materially from the results expressed or implied by these statements, including health issues, litigation and regulation relating to our business, our ability to achieve profitability, significant cyclical fluctuations in our customers’ businesses, competitive substitutes for our products, risks associated with our international operations, including foreign currency rate fluctuations, energy costs and the availability and prices of raw materials and other factors disclosed in periodic reports filed with the Securities and Exchange Commission. Consequently these forward-looking statements should be regarded as the Company’s current plans, estimates and beliefs.

The Company does not undertake and specifically declines any obligation to publicly release the results of any revisions to these forward-looking statements that may be made to reflect any future events or circumstances after the date of such statements or to reflect the occurrence of anticipated or unanticipated events.



Brush Engineered Materials Inc.

Profile

- Publicly traded since 1956: NYSE-listed since 1972
- Founded 1931 as Brush Beryllium Company, recently celebrated 75th anniversary
 - Building off earlier pioneering technical work at Brush Laboratories
 - Initial scope was development of commercial markets
- With onset of WW II and post war period, significant growth in defense and eventually, aerospace applications
- Mid-70s: major expansion of new commercial markets including automotive electronics, telecommunications and computer
- Today, commercial markets represent over 90% of revenues*

*See 2009 Revenue by Market



Brush Engineered Materials Inc. Profile

- A leading manufacturer of high performance specialty engineered materials and services ... *an enabling materials technology company*
- Four segments...with operations, service centers and major office locations in North America, Europe and Asia
- Serving long-term growth oriented global markets from consumer electronics to heavy mining equipment



Brush Engineered Materials – Core Competency

A common approach to markets and a common culture across our operating companies

- Collaborating with customers worldwide to solve material application challenges ... *with a focus on enabling technology and services*
- "Own" a Niche orientation ... non-commodity
- Focus on global growth and service
- Constantly looking ahead to realign product and service portfolios towards favorable trends ... targeted to achieve strong profitable growth
- Employees who are *passionately* focused on exceeding customer expectations



Overview

- Company: Brush Engineered Materials Inc.
founded 1931, publicly traded since 1956
- NYSE Ticker: BW
- Shares Outstanding: Approximately 20.2 million at 4/3/09
- Market Cap: Approximately \$284 million at 4/3/09
- Component of: S&P Super Composite 1500, Russell 2000
S&P Small Cap 600
- Annual Revenue: \$910 million @ 12/31/08
- Q1 2009 Revenue: \$135 million @ 4/3/09
- Diluted EPS: \$(0.40) which includes a net inventory
valuation charge, severance costs due to manpower
reductions and a pension benefit resulting from the
reduction in workforce, or \$(0.36) excluding the
above items.
- Debt to Total Capitalization:
(net of cash) 10% at 4/3/09



2008 Recap

- Sales of \$910 million
- Diluted earnings per share of \$0.89*
- Acquisition of assets of Techni-Met, Inc. for \$86.5 million
 - Techni-Met produces precision precious metal coated flexible polymeric films used in a variety of high-end applications, including diabetes diagnostic test strips.
- Contract with Government to build new beryllium pebbles plant
- Perpendicular media product qualifications progressing

*Includes certain non-operating items. The operating run rate is \$1.44. See Reconciliation of Non-GAAP Financial Measures



Reconciliation of Non-GAAP Financial Measures

	Fourth Quarter Ended		Twelve Months Ended	
	<u>Dec. 31, 2008</u>	<u>Dec. 31, 2007</u>	<u>Dec. 31, 2008</u>	<u>Dec. 31, 2007</u>
GAAP Diluted EPS	(\$0.16)	0.60	\$0.89	\$2.59
Benefit on sale of ruthenium inventory	0.00	0.00	0.00	(0.70)
Lower of cost of market ruthenium inventory charge	0.30	0.02	0.50	0.15
Loss on sale of a subsidiary	0.00	0.00	0.00	0.02
Accounts receivable correction related to 2007	0.00	(\$0.04)	0.09	(0.09)
Discrete tax items & other	0.00	0.00	(0.06)	0.00
Non-recurring purchase accounting costs	0.00	0.00	0.02	0.00
Litigation settlement in 2007	0.00	(0.27)	0.00	(0.27)
Non-GAAP Operating Run Rate	\$0.14	\$0.31	\$1.44	\$1.70

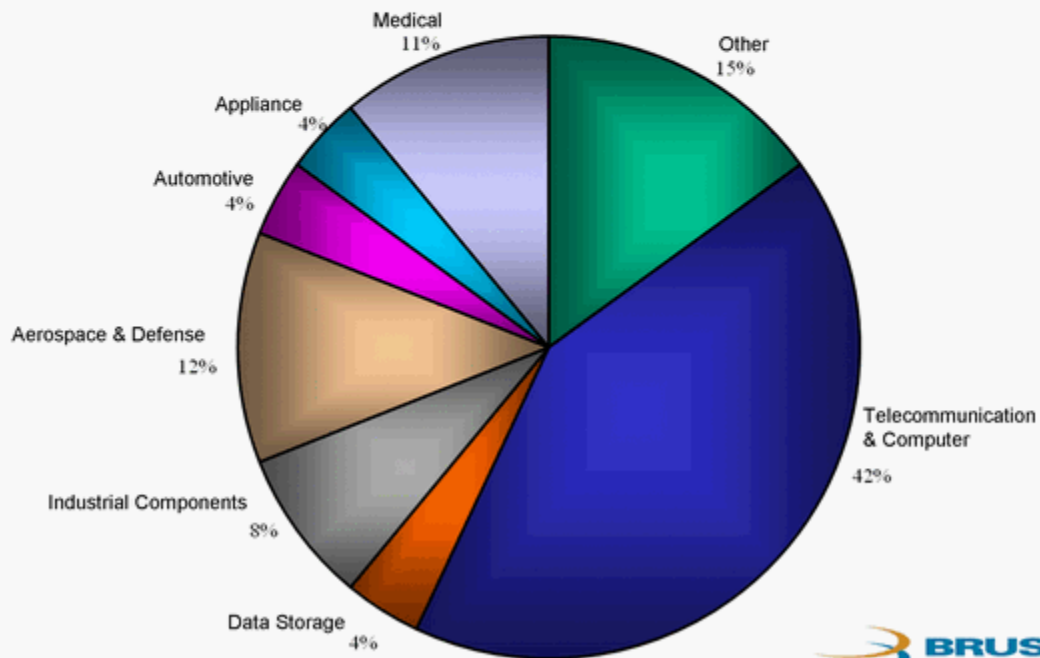
Q-1 2009 Recap

- Revenue \$91 million or 40% below prior year driven by global events and supply chain inventory adjustments
 - Consumer electronics markets especially weak
 - Defense and medical were up in Q-1
- Net loss was \$(0.40) a share and was expected
- No real recovery noted in the quarter, albeit the bottom does appear to have occurred
- Cost reduction and cash control actions were significant
 - Variable margins 2.0 pts above prior year on \$91 million less sales
 - Overheads down due to cost reductions
 - Pension “curtailment” helped the P&L by \$0.04 a share
- Severance and inventory charges hurt the P&L by \$(0.08) a share



Global Leader in High Performance Engineered Materials

Q1 2009 Revenue by Market



Strength in Challenging Times

Balance Sheet as of 12/31/08

- Revolver
 - \$240 mm committed facility, matures November 2012
 - More than \$200 million in availability

Markets

- Market Strength
 - Stronger position in medical, defense, optics and solar
 - Market diversification in wireless and photonics, telecommunication and computer, oil & gas, heavy equipment and aerospace
-

Advancing the World's Technologies

- Strong customer collaboration ... providing enabling technology solutions and service
- Materials that meet design challenges requiring
 - Strength
 - Electrical conductivity
 - Weight reduction
 - Reflectivity
 - Reliability
 - Miniaturization
 - Corrosion resistance
 - Thermal conductivity
- Targeting profitable growth applications in growing markets

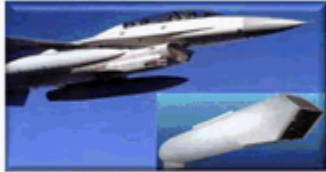


Typical End Uses



Defense

Notebook computers
& network servers



Cellular phones, i-Pods™ and other
wireless communication devices



Commercial
Aerospace



Electronic components
in cars and trucks

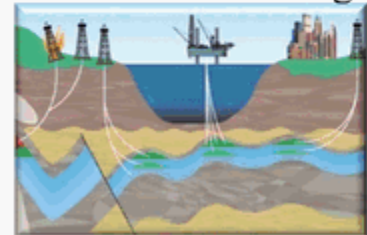


Data Storage

Medical
Devices



Industrial products for
Oil & Gas and Mining



 **BRUSH**
ENGINEERED MATERIALS

Applications - Cell Phones

Grounding Clips and Audio Jacks (Alloy):

- Brush 60
- Alloy 25/190/290

Internal Antenna Contacts (Alloy):

- Brush 60/17410
- Alloy 25/190/290

Internal Electronics (WAM):

- Thin Film Materials – Power amplifiers, SAW and BAW devices, filters, and IC's
- Frame Lid Assemblies for SAW
- Thin Film Material for backlight applications using LED technology
- Shield Cleaning

Micro Mezzanine Connectors for LCD Screen (Alloy):

- Brush 60

Battery Contacts (Alloy):

- Brush 60
- Alloy 25/190/290

I/O Connector Contacts (Alloy):

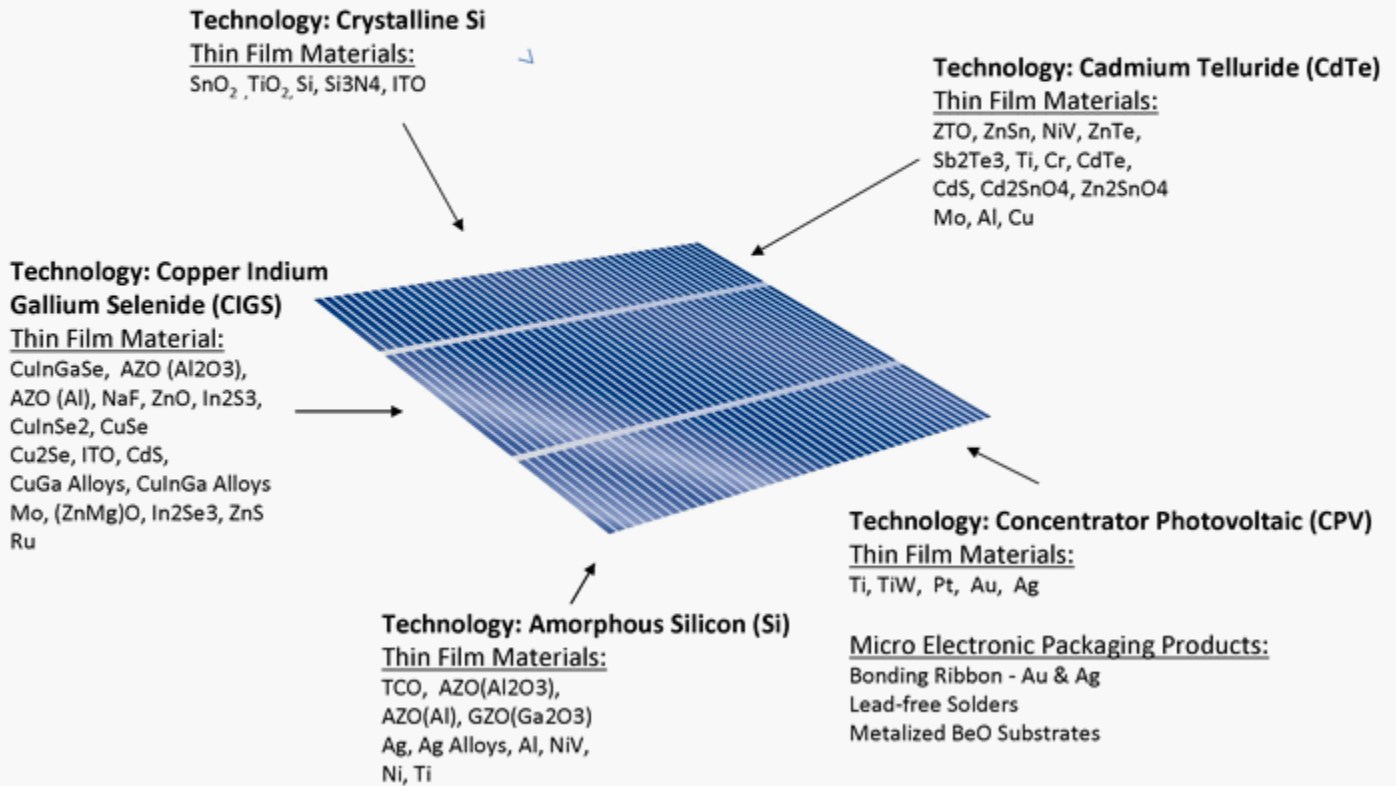
- Brush 60/17410
- Alloy 25/190/290

Other Cell Phone Applications:

- **Circuit Board and IC Inspection** (Electrofusion/ Be Products):
 - PF-60 Be; IF-1 Be; AlBeMet 162
- **RoHS Compliance Assurance** (Electrofusion):
 - PF-60 Be; IF-1 Be



Applications – Photovoltaic (Solar)



Applications – Oil & Gas

Wellhead Control Equipment (Alloy):

- Brush Alloy 25
- ToughMet® 3

Structural Rig Components (Alloy):

- ToughMet® 3

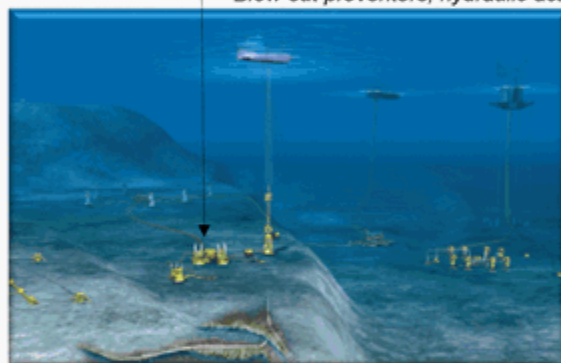


Drill Bits (Alloy):

- Brush Alloy 25
- ToughMet® 3

Directional Drilling Equipment (Alloy):

- Brush Alloy 25
 - ToughMet® 3
- MWD, LWD, MPT Systems*



Under Water Wellhead Equipment (Alloy):

- Brush Alloy 25
- ToughMet® 3

Blow out preventers, hydraulic actuators

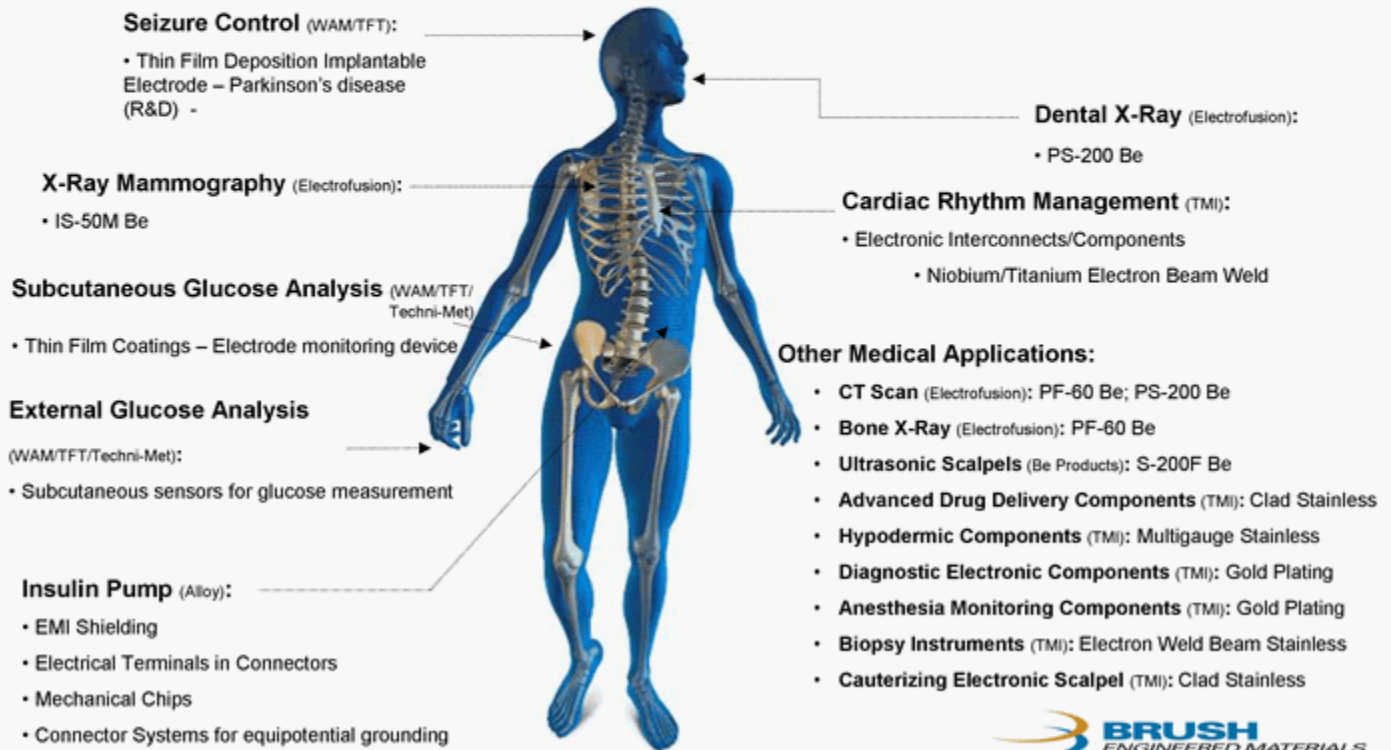
Other Oil & Gas Applications:

- In Situ Elemental Analysis (Electrofusion):
 - PF-60 Be; IF-1 Be
- Down Hole X-Ray Inspection (Electrofusion):
 - PS-200 Be

Applications – Aerospace



Applications – Medical



Investment Highlights and Strengths

- Global Leader in High Performance Engineered Materials
- Unique Status as Fully Integrated Provider of Beryllium-Containing Products
- Broad Metallurgical Capabilities in Precious and Non-precious Metals
- Global Sales and Distribution Network
- Sales Based on End User Specifications
- Niche Oriented Product Offerings
- Strong Value Proposition in Served Markets
- Strategic Customer Relationships
- Significant Technical Capabilities
- Positive Long-term Market Trends
- Strong Growth in New Products, a culture of Innovation
- High Barriers to Entry
- Capacity to Support Profitable Market Growth
- Strong Balance Sheet
- Strong Cash Flow



Brush Engineered Materials Inc.

Organized into Four Separate Reportable Segments

- **Advanced Material Technologies and Services**

Advanced Material Technologies and Services consists of Williams Advanced Materials Inc. (WAM) and Zentrix Technologies Inc.*

- **Specialty Engineered Alloys**

The Specialty Engineered Alloys segment consists of Alloy Products which includes bulk and strip form copper-based alloy products, hydroxide and the Company's line of ToughMet® materials

- **Beryllium and Beryllium Composites**

The Beryllium and Beryllium Composites segment consists of Beryllium Products including beryllia ceramic manufactured by Brush Ceramic Products Inc.

- **Engineered Material Systems**

The Engineered Material Systems segment consists of Technical Materials, Inc.

*Beginning 1/1/09, Zentrix is included in Advanced Material Technologies and Services



Advanced Material Technologies and Services

Q1 2009 Sales: \$80.1 million

Williams Advanced Materials (WAM)

\$80.1 million; 59%

- Precious, non-precious and specialty metal products for high reliability applications
- Products include precious and non-precious metal vapor deposition targets, frame lid assemblies, clad and precious metal preforms, high temperature braze materials, ultra fine wire, sealing lids for the semiconductor/hybrid markets and specialty inorganic materials
- Industries served include magnetic and optical data storage, semiconductor, performance film, wireless, photonics, precision optics and medical



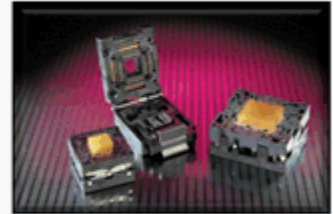
Specialty Engineered Alloys

Q1 2009 Sales: \$36.9 million

Alloy Products

\$36.9 million; 27%

- Copper and nickel-based alloy materials, most of which incorporate beryllium
- Strip products are used in electronic connectors including PDA's, wireless communications equipment, notebook and network computers and automotive electronics that require high strength, formability and electrical conductivity
- Bulk products are rod, bar, tube and plate products for heavy equipment and aerospace bushings and bearings, oil & gas components and plastic mold materials where strength, corrosion and wear resistance, thermal conductivity and lubricity are critical performance requirements



 **BRUSH**
ENGINEERED MATERIALS

Beryllium and Beryllium Composites

Q1 2009 Sales: \$13.0 million

Beryllium Products

\$13.0 million; 10%

- Pure beryllium and aluminum-beryllium composites for a variety of high-performance applications in the defense, space, industrial, scientific equipment, electronics (including acoustics), medical, automotive electronics and optical scanning markets, where stiffness, strength, lightweight, dimensional stability, reflectivity and x-ray/nuclear properties are critical.



Engineered Material Systems

Q1 2009 Sales: \$5.4 million

Technical Materials, Inc. (TMI)

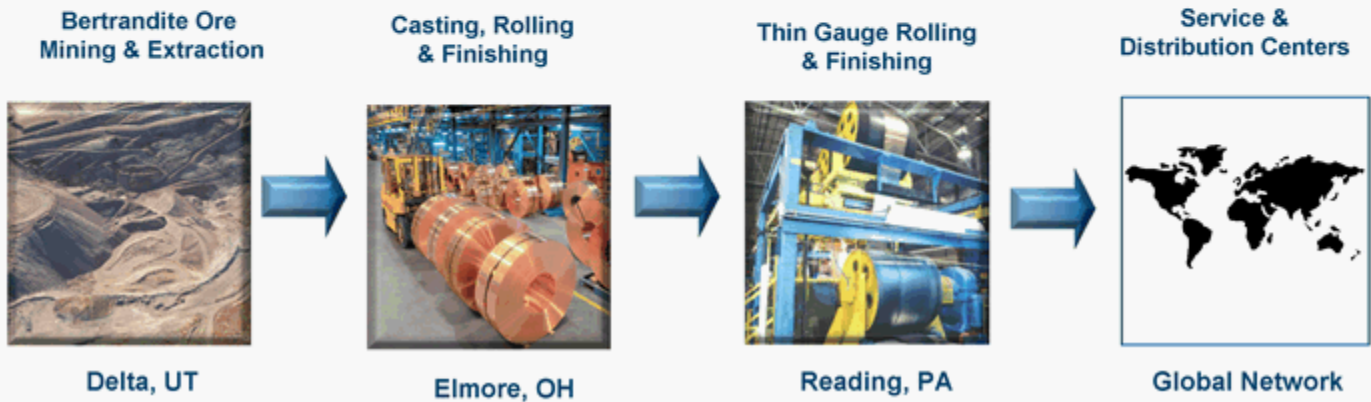
\$5.4 million; 4%

- Engineered material systems, including clad, plated and electron beam welded metals used in demanding connector applications
- Combines precious and non-precious metals in strip form for use in complex electrical components for telecommunications and computer systems, data storage, automotive electronics, semiconductors, energy, defense and medical applications



Fully Integrated Beryllium Producer

- Beryllium and beryllium alloys are critical to many high performance applications
 - Strong
 - Lightweight
 - Good formability
 - High reliability
 - Thermal and electrical conductivity
 - Corrosion and wear resistant
- Operate the only active bertrandite ore mine in the developed world
 - 7,500 acres in Juab County, Utah
 - Approximately 100 years of proven reserves



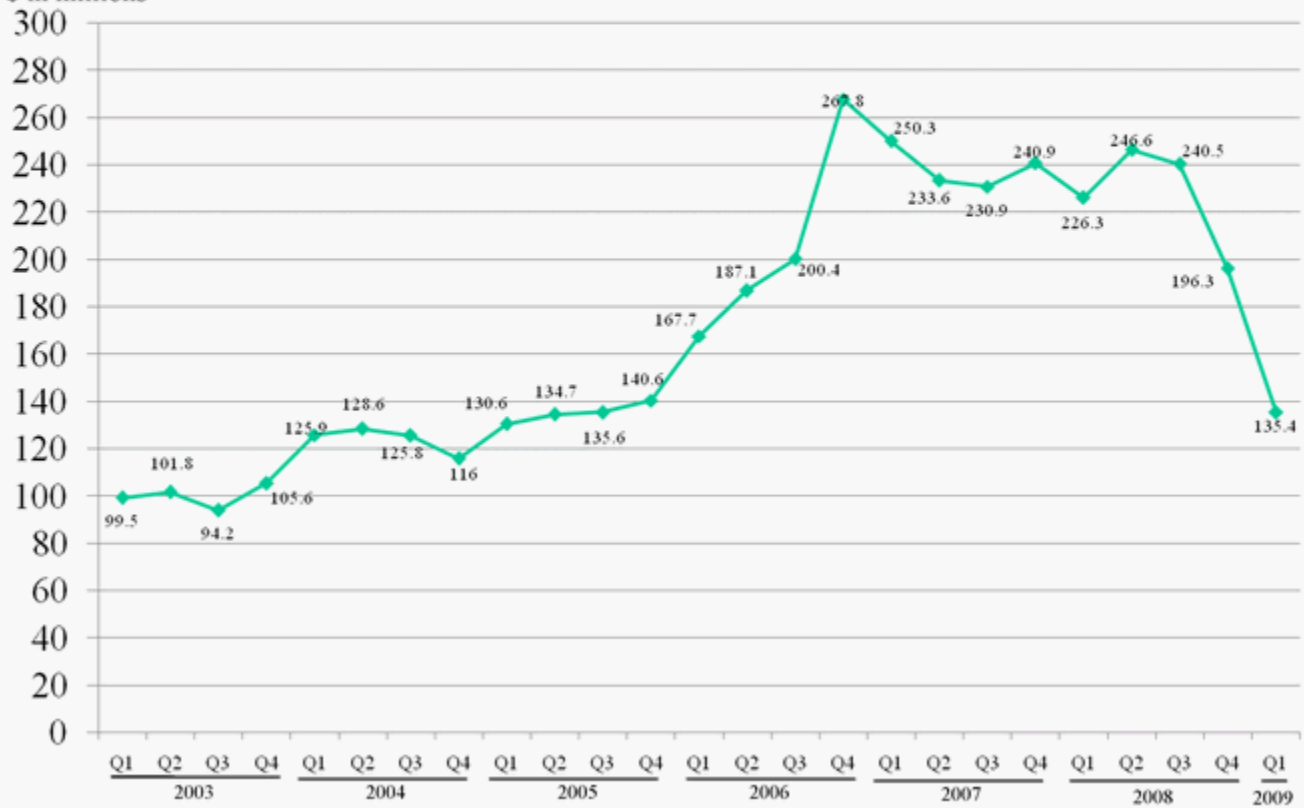
Key Financial Statistics

\$ in millions	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Sales	\$541.3	\$763.1	\$955.7	\$909.7
EBIT	19.5	43.8	84.5	28.1
Interest	6.4	4.1	1.8	2.0
Taxes	(4.7)	(9.9)	29.4	7.7
EPS	0.92	2.45	2.59	0.89
G.P.%	20.3%	21.2%	20.6%	16.7%
O.P.%	3.6%	5.7%	8.8%	3.1%
Depreciation & Amort.	21.7	24.6	23.9	33.8
Capital Spending*	13.8	15.5	30.1	27.9
Debt	57.2	49.0	35.5	41.8
Cash	10.6	15.6	31.7	18.5
Debt/Total Cap.	21%	15%	9%	11%

*Net of reimbursements under government contracts in 2007 and 2008

Historical Revenue by Quarter

\$ in millions



Long-term Positive Market Trends

- Electronic component manufacturers are being driven by end user demands to produce products that are smaller, lighter, faster and have more functionality
 - Increased electronic component performance characteristics require materials that have enhanced mechanical, electrical and thermal properties
 - Opportunity for growth in thin film physical vapor deposition (PVD) products in the data storage, semiconductor, solar and medical markets
 - Increasingly rigorous material requirements in the aerospace, defense, oil & gas and renewable energy markets continues to drive growing demand for high performance copper alloys
-

Capacity to Support Profitable Market Growth

Well-positioned to support rapid sales growth with minimal incremental cash investment

- Operating with available excess capacity in Alloy Products
 - WAM's Brewster, New York facility doubled its capacity in 2007
 - Brush Wellman Inc.'s Elmore, Ohio facility is partnering with the U.S. Department of Defense for the construction and start up of a \$90.4 million primary beryllium facility. Brush Wellman's contribution for this expansion, including the research and development, technology, land, buildings and ongoing operations is valued at \$23.2 million. Construction began in July of 2008 and is expected to be completed in April 2010.
-

Our ongoing value creation initiatives are focused in three key areas

Growth

- Expanding and diversifying the revenue base
 - Targeting profitable niche growth applications in growing markets
 - New product innovation and service
- Ongoing global expansion
- Strategic acquisitions, fast accretion

Margin Improvement

- Lean Sigma-driven operating efficiency improvement
- New higher value added products
- Cost reductions

Fixed and Working Capital Utilization

- Inventory turn improvement
 - Lean Sigma-driven factory utilization gains
-

New Products - Growing Applications

Product	Market	Driver	Division
PVD Magnetic Media	Hard Disk Drive	Increase Storage capacity	WAM
PVD – UMB	Consumer Electronics	Miniaturization	WAM
PVD - Evap Pro™ III	Compound Semi-conductor	Miniaturization	WAM
Chamber Service	PVD Customers	Service demands	WAM
PVD - Visilid	Optics	IR Wavelength	WAM
Eco-Ru™ Sputtering Target	Hard Disk Drive	Lower of Cost Ownership	WAM
Thin Film	Medical	Lower Cost of Ownership	WAM
Thin Film	Solar	Building Integrated & Photovoltaic	WAM

New Products - Growing Applications

Product	Market	Driver	Division
Precious Metal Rod	Medical	Miniaturization	WAM
PVD Solar Materials	Solar	Thin Film Solar (cost/watt)	WAM
High Intensity LEDs	Lighting Systems	Lower Energy Usage	WAM
Alloy 390 Strip	Portable Electronics	Miniaturization and Reliability	Alloy
ToughMet®	Oil & Gas, Aerospace, Heavy Equipment	Reliability	Alloy
Li Ion Battery Interconnects	EV, HEV and commercial battery packs	Increasing energy density	TMI
Clad Stainless- Aluminum Strip	Hard Disk Drive Capacity	Increase Storage	TMI

New Products - Growing Applications

<u>Product</u>	<u>Market</u>	<u>Driver</u>	<u>Division</u>
Truextent™ speaker domes	Professional Audio	Improved acoustic performance	Be
High purity beryllium	Semi-conductor	Increase lifetime	Be
AlBeWeld fabricated Structures	Defense and aerospace	Improved cost and delivery	Be

Balance Sheet

(\$ in millions)

	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Balance Sheet Debt**	\$ 72.5*	\$57.2	\$48.9	\$35.5	\$41.8
Debt to Debt Plus Equity	26%	21%	15%	9%	11%

*2000 Balance Sheet debt includes major equipment lease

**Note - Excludes precious metal consignment
and other leases of: \$30.2 \$55.5 \$72.1 \$80.0 \$104.1

Segment Sales Review

\$ in millions	2007		2008		1Q 2009	
	<u>\$</u>	<u>%</u>	<u>\$</u>	<u>%</u>	<u>\$</u>	<u>%</u>
Advanced Material Technologies and Services ¹	\$533.5	56%	\$480.3	53%	\$80.1	59%
Specialty Engineered Alloys	290.0	30%	299.9	33%	36.9	27%
Beryllium and Beryllium Composites	60.5	6%	63.6	7%	13.0	10%
Engineered Material Systems	70.9	8%	65.9	7%	5.4	4%
Other	<u>0.8</u>	<u>0%</u>	<u>0.0</u>	<u>0%</u>	<u>0.0</u>	<u>0%</u>
TOTAL	\$955.7	100%	\$909.7	100%	\$135.4	100%

¹Effective 1/1/09 Zentrix Technologies Inc. became a part of this segment. Previously it was included in Other. Previous years have been restated to reflect this change.



Segment Earnings

\$ in millions

	<u>2007</u>	<u>2008</u>	<u>1Q 2009</u>
Advanced Material Technologies and Services ¹	\$60.5	\$10.9	\$0.7
Specialty Engineered Alloys	7.6	5.8	(10.9)
Beryllium and Beryllium Composites	7.8	8.4	1.8
Engineered Material Systems	4.7	5.9	(2.6)
Other	<u>3.9²</u>	<u>(2.9)</u>	<u>(0.4)</u>
TOTAL	\$84.5	\$28.1	\$(11.4)

¹Effective 1/1/09 Zentrix Technologies Inc. became a part of this segment. Previously it was included in Other. Previous years have been restated to reflect this change.

²The Other segment earnings of \$3.9 million in 2007 is primarily due to a gain in Q4 recorded as a result of a legal settlement



Brush Engineered Materials Inc.
Organized into Four Separate Reportable Segments

- *Advanced Material Technologies and Services*
 - Specialty Engineered Alloys
 - Beryllium and Beryllium Composites
 - Engineered Material Systems
-

Advanced Material Technologies and Services (Williams Advanced Materials Inc.) Vision

- Globally Recognized High Quality/Technology Supplier of Products and Services for “State Of The Art”, Emerging and Leading Edge Markets and Industries.
- Williams will Create a “Unique” Business Model with its Central Focus being to Relentlessly Strive for Product Differentiation through a Combination of Technology, Services and Quality, Providing “Remarkable” Solutions.
- Our Business Values and Corporate Integrity will be the Cornerstone of the way we relate to our Customers, Partners, Suppliers, the Communities we Reside and most Importantly our Employees.

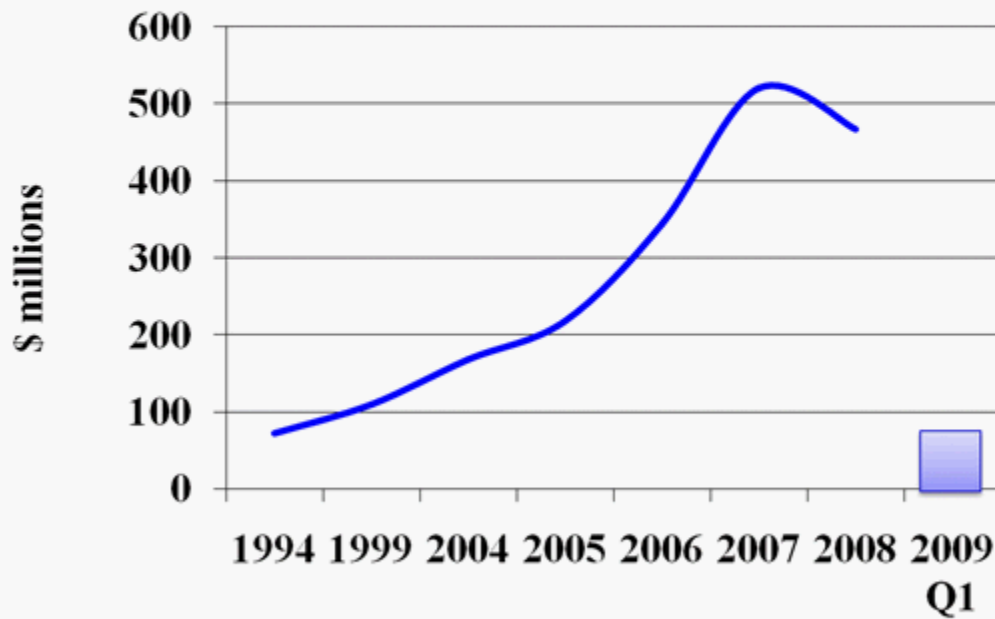


What We Do

Williams Advanced Materials develops, manufactures and markets materials, thin film deposition technology and services of unique value for the Magnetic and Optical Data Storage, Medical, Wireless, Photonics, Semiconductor, Optics, Security, Hybrid Microelectronics, Defense and Performance Coating industries. We also have identified key segments on emerging technologies such as Photovoltaic, Solid State Memory, Flexible Cable, and Nanotechnology. Williams' products are primarily based on specialty and unique materials and thin film processes used in high reliability and performance applications.



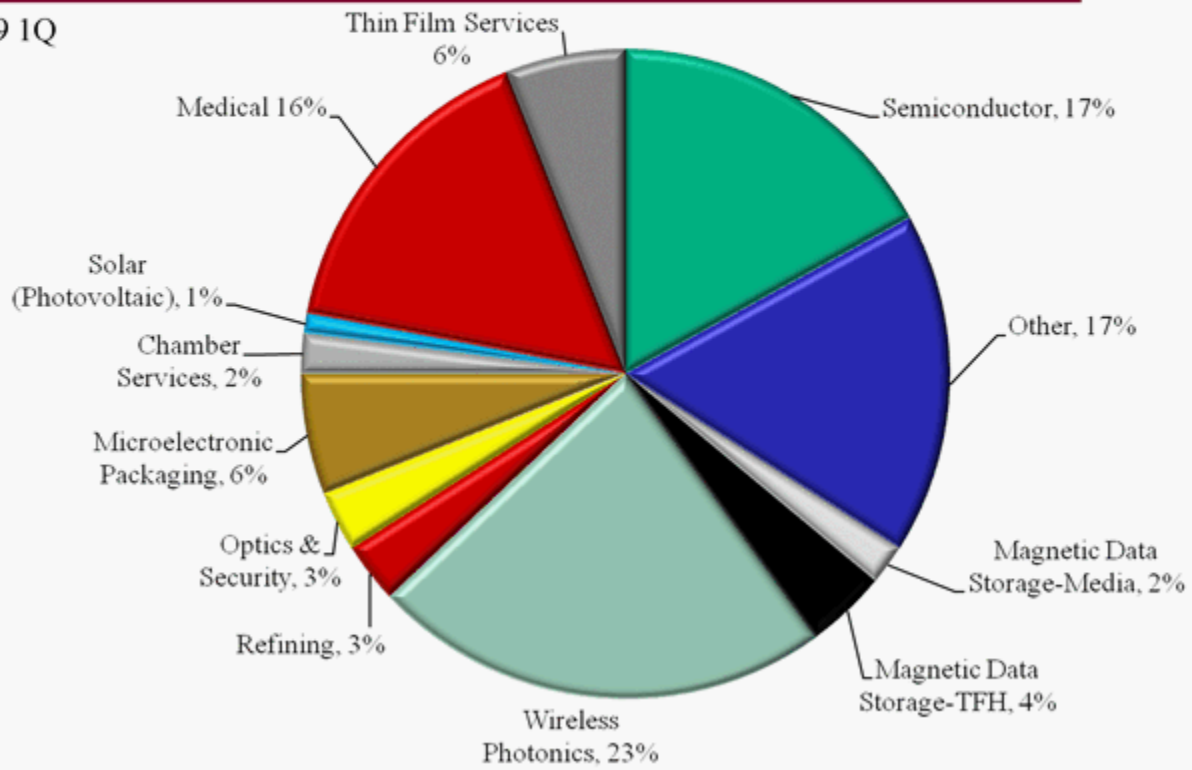
Sales History



Q1 2009
\$61 Million

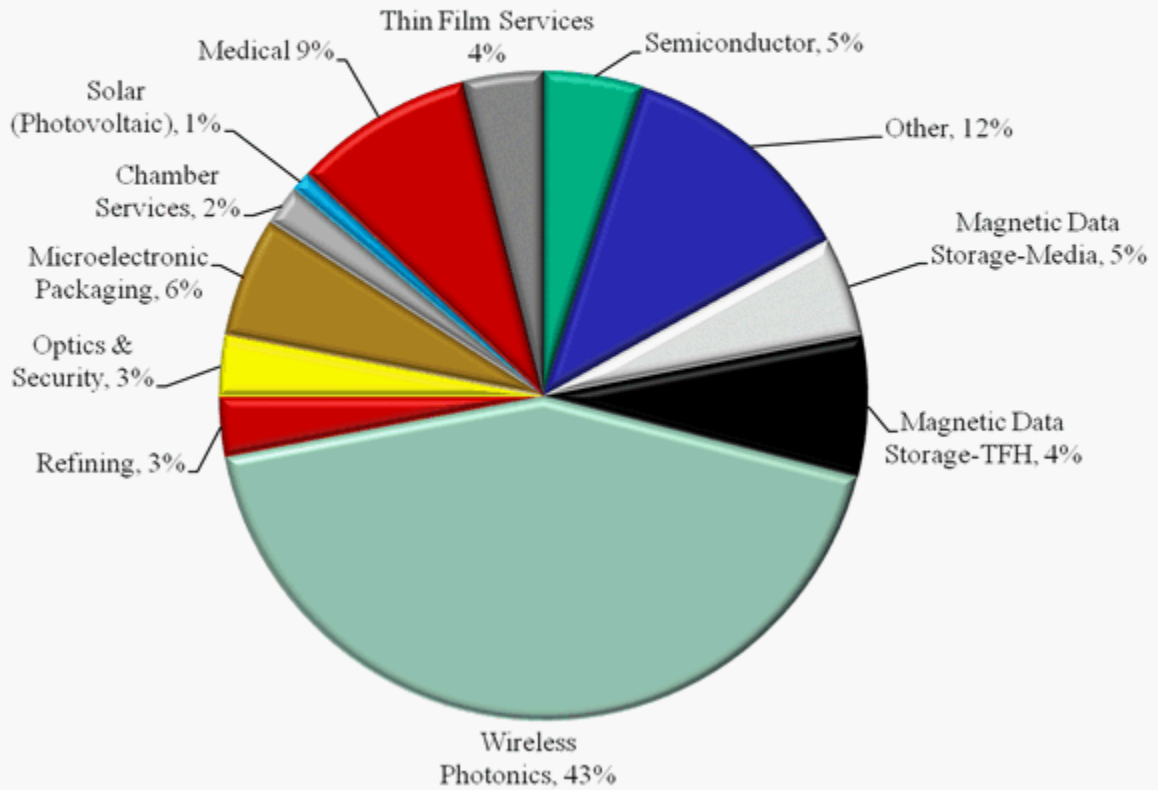
Revenue by Market

2009 1Q

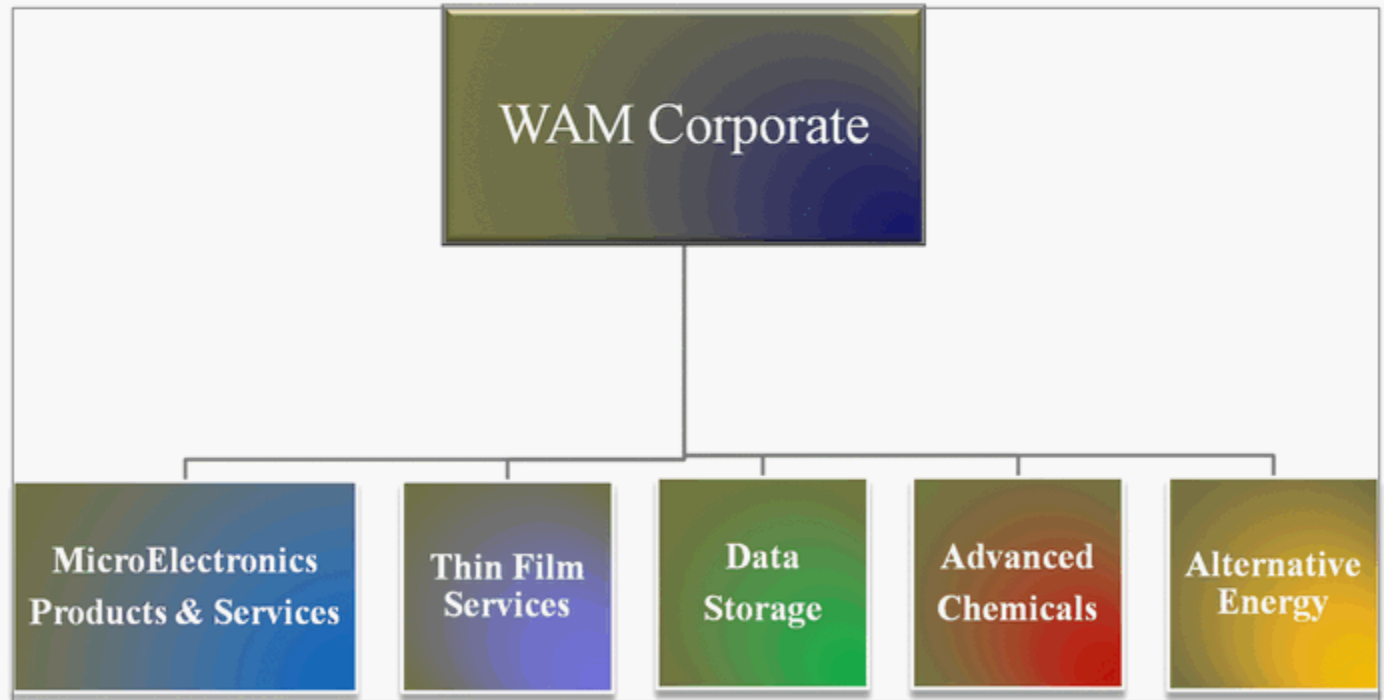


Revenue by Market

2008

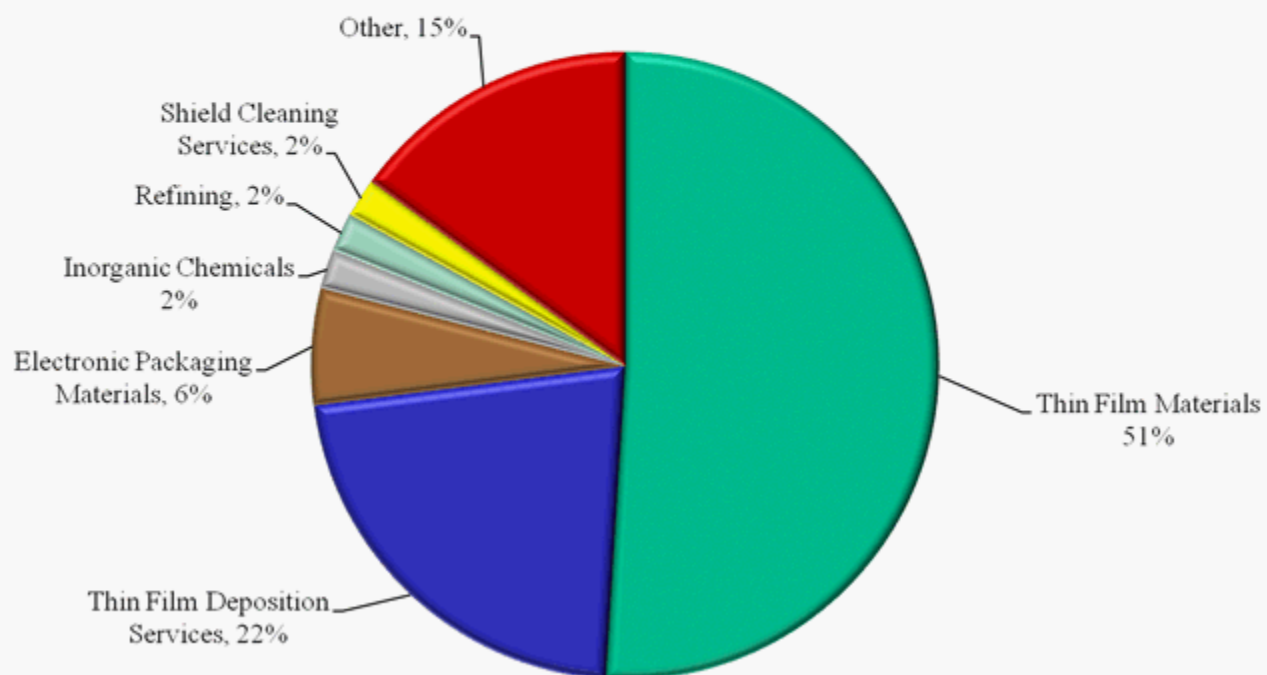


2009 Business Structure



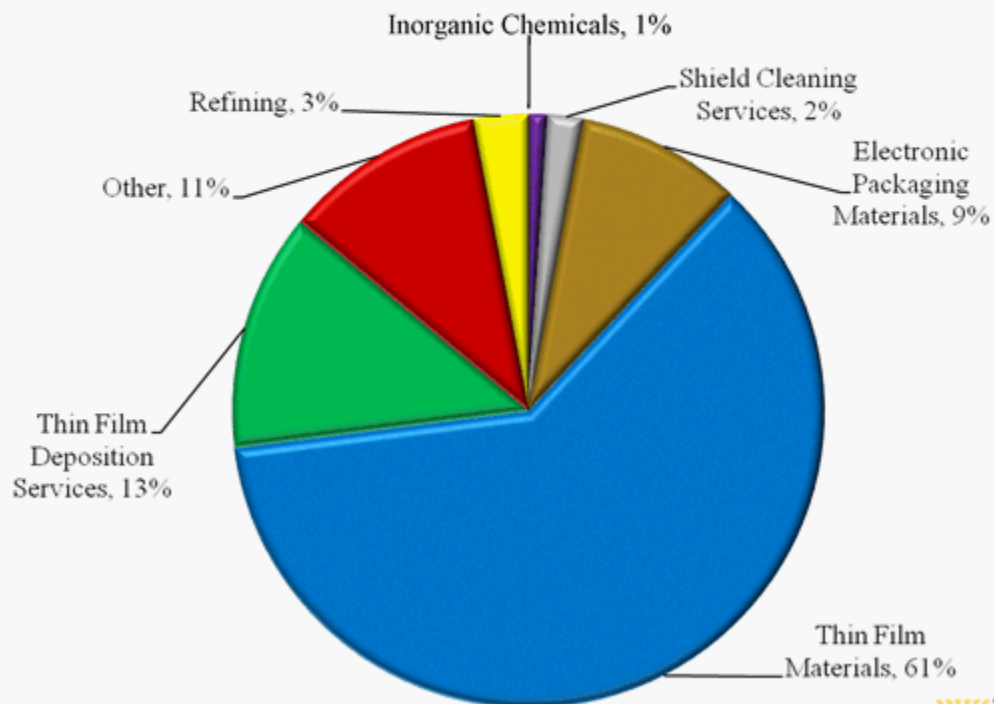
Product Mix

Product Mix by Sales – Q1 2009



Product Mix

2008

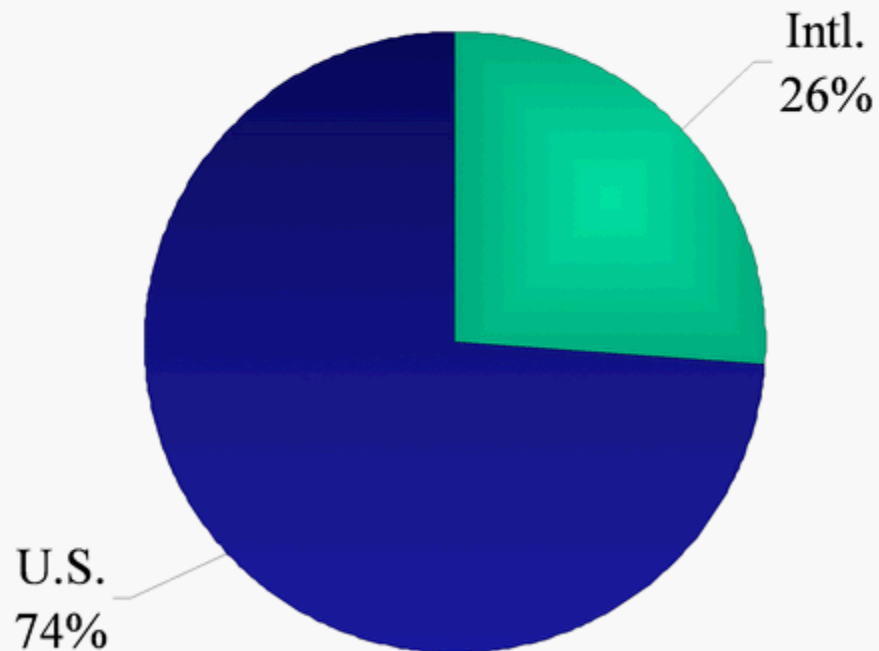


Augmentation History

▪ Williams Precious Metals Acquired in	1987
▪ Advanced Materials Technology	1989
▪ Hydrostatics Inc.	1994
▪ Pure Tech Inc.	1998
▪ Wheatfield (Greenfield)	1998
▪ Semi Alloys Inc	2001
▪ Honeywell FLA (Technology)	2003
▪ OMC Scientific Ireland	2004
▪ Thin Film Technology	2005
▪ CERAC inc.	2006
▪ Suzhou, China (Greenfield)	2007
▪ Louny, Czech Republic (Greenfield)	2007
▪ Techni-Met	2008



International/Domestic Revenue 2008



Thin Film Products

- **PVD Materials**

- Precious Metal Target Materials
- Non-Precious Metal, Cermets, Ceramics
 - Vacuum Induction Melting
 - Hot Pressing
 - Vacuum Hot Pressing
 - Hot Isostatic Pressing
- EVAPro™ Grade Evaporation Materials
- Localized Target Bonding

- **Chamber Services**

- Shield Cleaning and Conditioning
- Arc Spraying – Electro-polishing
- PM Refining and Upgrading
- Logistics Support



Buffalo
Brewster
Milwaukee
Wheatfield
Singapore
Taiwan
Santa Clara
Ireland
Suzhou,
China
Louny, Czech

Packaging Materials

- FLA/Combo-Lid®
- Seam Seal/Microlid™
- Preforms
- Clad Materials
- Braze Materials
- Ni Alloys
- Dental
- Packages (Zentrix)



Buffalo
Singapore
Wheatfield
Buellton
WAM
Taiwan
WAM Philippines

Engineered Thin Films

- Various Deposition Technologies
- Optical Films
- Hybrid Thin Films
- Web Coatings
- CVD Coatings
- Slitting
- Sensors Manufacturing
- Microelectronics Windows



Buellton, CA

Windsor, CT



WAM Headquarters



Buffalo, NY USA –

- 100,000 Sq. Ft. overall, 6,500 Sq. Ft. of clean-room, state-of-the-art machining/ milling/rolling/stamping/ cladding centers, target bonding, high purity refining/recycling, metals casting & automated plating
- Full analytical capabilities, product Research & Development.



Specialty Alloys Operations



Wheatfield, NY

- 30,000 Sq. Ft. with volume vacuum casting, rolling, annealing, powder atomizing and machining. 10 acres for expansion.
- Shield metal recovery and cleaning / Clean room packaging



Williams Thin Film Products Operations



Brewster, NY USA –

- 80,000 Sq. Ft. with vacuum melting, hot-pressing, milling, hot & cold rolling, automated machining, grinding, powder metallurgy lab, particle sizing and target bonding capabilities.
- Dedicated R&D staff and capabilities to support rapid new product development in key markets.



Techni-Met



Windsor, CT

- 2 facilities - total of 75,000 sq. ft.
- 48 employees – two (2) shift operations.
- High Value Added Precision Coated Materials.
- Continuous Vacuum Deposition of Inorganic Materials onto Rolls of Flexible Polymeric Films and other Substrates.



Device Type	Percentage of Respondents
Smartphone	100%
Tablet	99%
Feature Phone	98%
Smartwatch	97%



Milwaukee, WI

- Subsidiary of WAM
- Physical Vapor Deposition (PVD) materials for ophthalmic, optic and performance applications.
- Specialty Inorganic Materials
- Unique technologies in chemical and powder processing



Thin Film Technology (TFT)



Buellton, CA

- Subsidiary of WAM
- Thin film coating and substrate patterning.
- Visi-Lid™ supply chain management.
- Capabilities: Electron Beam Evaporation, DC/RF Magnetron Sputtering, Photolithography (Substrate Patterning), Dicing, Tooling design, In House Machine shop



Suzhou - China



Suzhou, China

- 20,000 Sq ft.
 - Target & Evaporation materials manufacturing, Target bonding services, Distribution, Warehousing, Sourcing, MgF manufacturing and packaging
 - Located near Shanghai Airport and close to many technology centers located in Eastern China.
 - Markets Served: Semiconductor, UBM, Security and Optics
-

Far East Operations

WAM Far East Ltd.



Singapore

- Target bonding, bonding wire production, Combo-Lids® assembly



Subic Bay, Philippines

- Combo-Lids®, low-cost lids and preform - assembly, inspection and packaging.

WAM TAIWAN



Taoyuan County, Taiwan

- Target bonding, evaporation materials & bonding wire.



OMC - Limerick



Limerick, Ireland – OMC Scientific, Ltd.

- Subsidiary of WAM
- Provides precision parts cleaning and reconditioning services for film Physical Vapor Deposition (PVD) customers in Europe.
- Unique technology applied to opportunities in North America and Asia.
- Efforts focused in the semiconductor, magnetic media and other technology based markets.



OMC- Czech



Louny, Czech Republic

- Provides precision parts cleaning and reconditioning services for film Physical Vapor Deposition (PVD) customers in central and eastern Europe
 - State of the art cleaning, stripping and packaging operations
 - Machining capabilities for Optical Media and other PVD segments
 - Markets Served: Semiconductor, Compound Semiconductor, UBM, MEMS, Data Storage
-

Global Service and Support

- **Sales and Applications Engineering support**

Buffalo, New York
Brewster, New York
Tucson, Arizona
Santa Clara, California
Buellton, California
Milwaukee, Wisconsin
Dallas, Texas
Windsor, Connecticut

Tokyo, Japan
Taoyuan, Taiwan
Singapore
Manila, Philippines
London, England
Seoul, Korea
Limerick, Ireland
Shanghai, China

- **Representative**

Italy
Germany

France
Israel

China
India



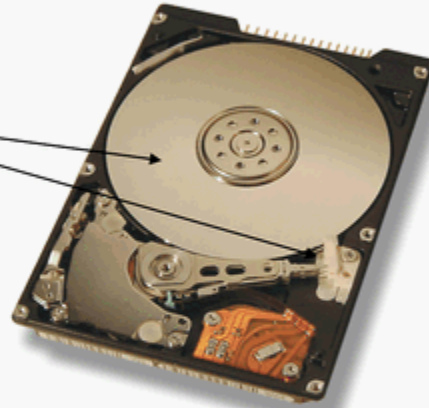
New Product and Technology Development

- Optical Filters
- Bio-Sensors
- Materials for Thin Film PV (Solar): Cu(I)Ga(S), CdS, CdTe, TCO Materials, etc
 - Ag Alloys for Solar backside contact
- New Cleaning Methods for Shield Cleaning & Material Reclamation
- Magnetic Data Storage
 - Media Materials; Oxide Gen II and Eco-Ru
 - Head Materials Heusler Alloys & FePt
- Flexible Solar Cells



Key Markets – Magnetic Head and Media

- Sputtering Targets/ Evaporation Materials (Precious Metals, Alloys, Non-Precious Metals, Alloys, Magnetic Materials, Heusler Alloys and Oxides)
- Chamber Services complement materials offering.



*Example – Hard Disk Drive PMR
Material Stack*

Recording Layer	CoCrPt + Oxide
Orient Interlayer	Ru
Soft Underlayer	Iron & Cobalt Based Alloys
AFC Layer	Ru
Soft Underlayer	Iron & Cobalt Based Alloys
Substrate (Glass or Aluminum)	



Applications - Cell Phones

Internal Electronics (WAM):

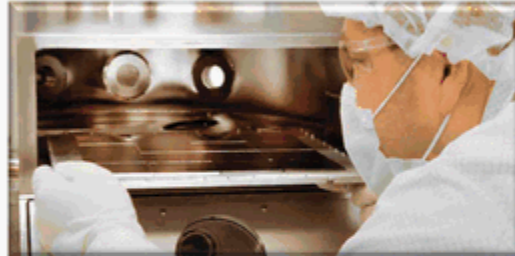
- Thin Film Materials for the manufacturing of Power amplifiers, SAW and BAW devices, filters, and IC's
- Frame Lid Assemblies for SAW device packaging
- Thin Film Material for backlight applications using LED technology
- Shield Cleaning Services enabling lowest cost to market value package solutions



Key Markets - Medical (Sensor) Applications

Thin Film Deposition Services

- Batch Sensor Electrode Manufacturing
- Roll to Roll Strip Sensor Manufacturer
- Metal Deposition and Precision Slitting



Williams Thin Film Products

- Sputter & Evaporation Materials for Sensor Manufacturing
- Refining and Recovery
- Shield Cleaning Services



Key Markets - Thin Film and Electronic Packaging Materials & Services

Night Vision (Defense)

Thin Film Deposition Services

- Coated Infrared Optics
- Hermetic Windows for FPA Packaging
- Flexible Interconnects



Williams Thin Film Materials

- Sputtering Targets for FPA Manufacturing
- High Purity Infrared Coating Materials

Electronic Packaging Materials

- Precision Machined Components
- High Purity Solder Materials



Key Markets - Defense Applications

Aerospace

Thin Film Technology

- Large Area Coating of Irregular Shaped Flight Components
- Coatings on Composite Materials
- Thin film hybrid circuits
- Specialty Engineered Films



Williams Thin Film Products

- Sputter & Evaporation Materials for critical surfaces

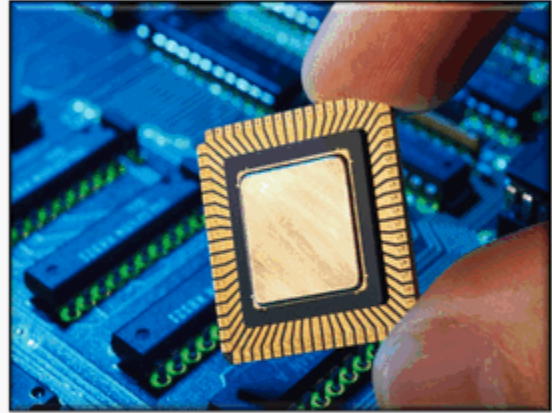
Williams Advanced Materials

- Hermetic Combo Lids
- High Purity Solder Materials
- Precision Machined Components



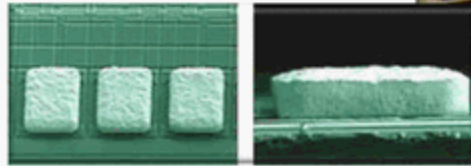
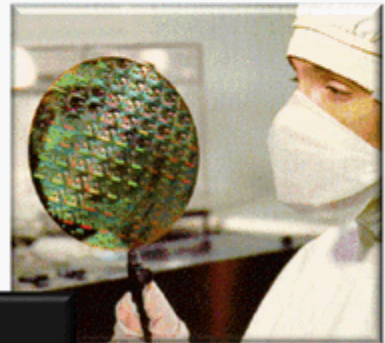
Key Markets – Semiconductor Packaging

- High reliability semiconductor packaging materials.
- Applications focused in space, military and satellite market segments.

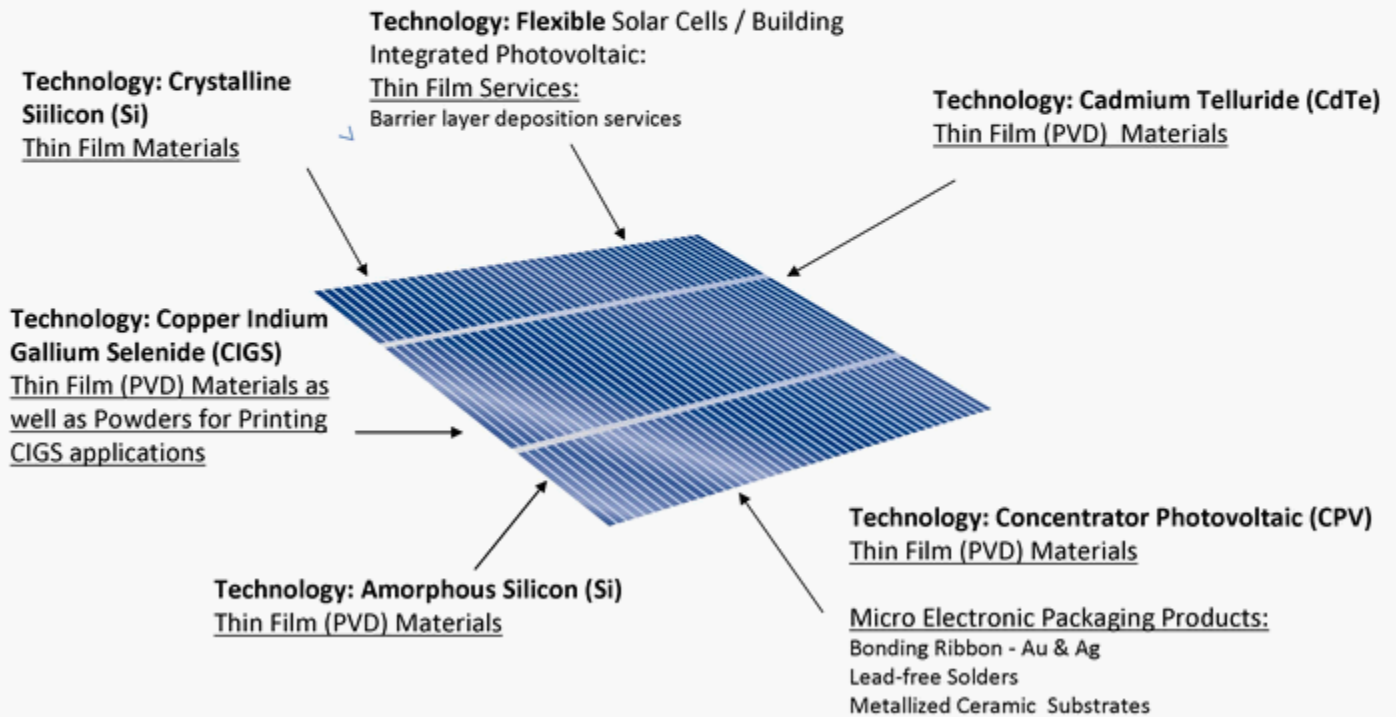


Key Markets – Semiconductor Wafer Fabrication

- Thin film materials and chamber services for silicon wafer and UBM (Under Bump Metallization) technologies.
- Numerous commercial and military microelectronic applications.

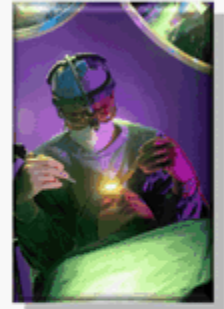


Applications – Photovoltaic (Solar)



Optics Markets

- **Security**
 - ZnS , MgF_2 , SiO_2
- **Laser optics**
 - ThF_4 , YF_3 , SiO_2 , Ge
- **Communications**
 - SiO_2 , Ta_2O_5 , Nb_2O_5 ,
 - LaB_6 Cathodes
- **Ophthalmics**
 - SiO_2 , Al_2O_3 , Ti_3O_5 , Cr-SiO



Opto-Electronic Markets

- **Resistor material for hybrid circuits**
 - Cr-Si, W-Ti
- **Projection Display Products**
 - HfO_2 , Cr, SiO_2 , MgF_2
- **Clear conductive coatings**
 - ZnO
- **Data Storage**
- **Photovoltaics (Solar)**
 - CdS, CdTe, Cu-In-Ga-Se



 **Williams**
ADVANCED MATERIALS

Specialty Inorganic Markets

- **Protective coatings for aerospace applications**
 - TiB_2 , B_4Si
- **Defense Applications**
- **Semiconductor gas precursors**
 - Zn_3As_2
- **Data Storage**
- **Medical devices**
 - V_2O_5
- **Specialty Batteries**
 - Li_2O , CoS_2



Global Chamber Services Value Package

- **Shield Cleaning Services Improve raw material utilization, precious metal recovery and equipment uptime improvements**
- **Mechanical and chemical recovery techniques**
- **Shield Surface treatment capabilities**
- **Clean Room environment and packaging**
 - Ultrasonic cleaning with particle count monitoring
 - Drying a.k.a. baking a.k.a. out gassing
 - Clean room packaging
 - SPC Data collection
- **Custom final packaging**
- **Precious Metal Management**
- **Logistics support**



Chamber Services/Refine



Distinctive Competencies



New Horizons

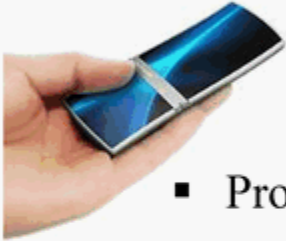
- Rotatable/Planar Large Area Targets
- Medical Sensors
- Structural Medical Components
- Optical Sensors Fabrication
- Flexible Solar Solutions
- IR Coatings and Packages
- Refining and Recycling- New Materials



Brush Engineered Materials Inc.
Organized into Four Separate Reportable Segments

- Advanced Material Technologies and Services
 - ***Specialty Engineered Alloys***
 - Beryllium and Beryllium Composites
 - Engineered Material Systems
-

Brush Specialty Engineered Alloys & Brush Resources Vision



- Provide *technical expertise* and *flexible services* to deliver value through *innovative, practical engineered material solutions*.
- Our *products and services* coupled with our *global distribution and logistics network* are relied upon by our customers making us their *trusted growth partner*.



Brush Specialty Engineered Alloys & Brush Resources Mission

Safely and *reliably* provide the *highest quality*, *innovative* products and services, *fast* and *on-time* to all customers, when they want them at the *lowest possible cost*.

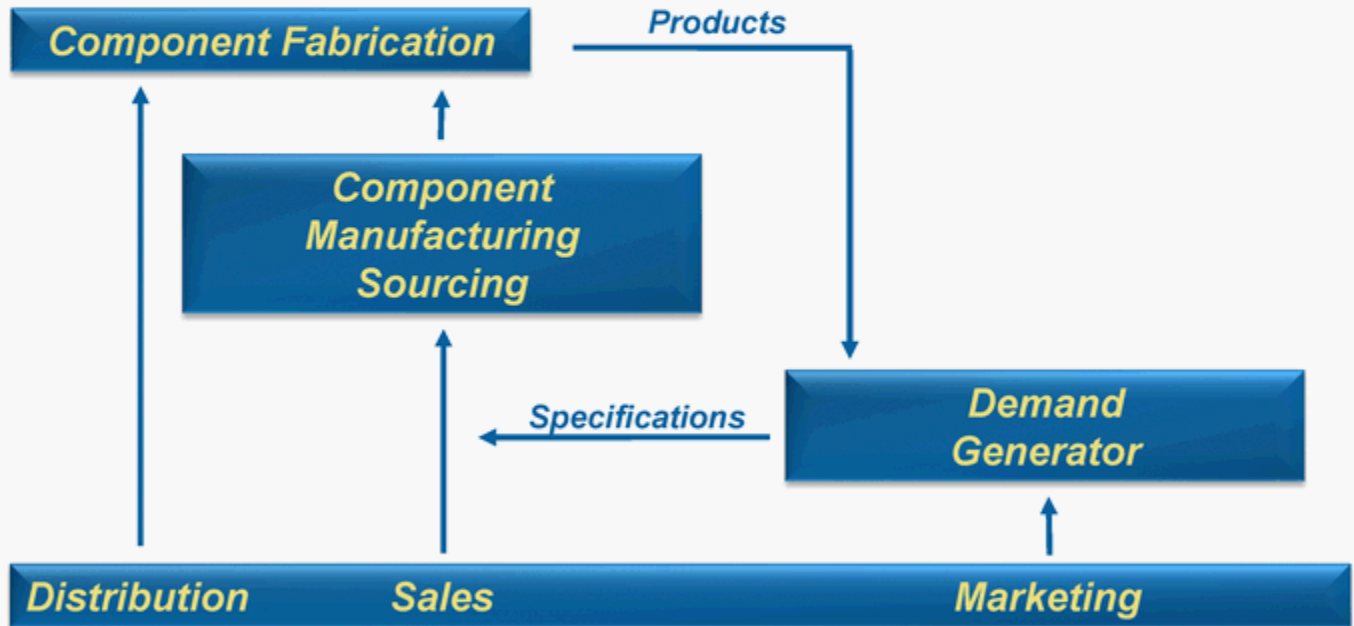


Specialty Engineered Alloys (Alloy Products) Operations Strategy—Lean Sigma

- ***Safety*** practices to provide an injury and illness free workplace
- ***Lean Manufacturing*** to reduce cycle times, further increase capacity, and provide industry leading service to our customers
- ***Six Sigma*** to provide industry leading product quality and to reduce costs
- ***Supply Chain Management*** to provide exactly what is needed, when it's needed, to where it's needed in exactly the right quantity
- ***Total Productive Maintenance*** to provide industry leading equipment reliability

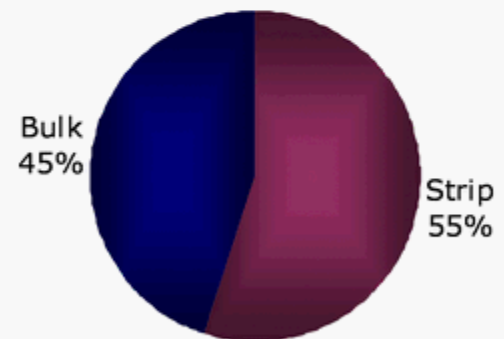


Sales Based on End User Specifications



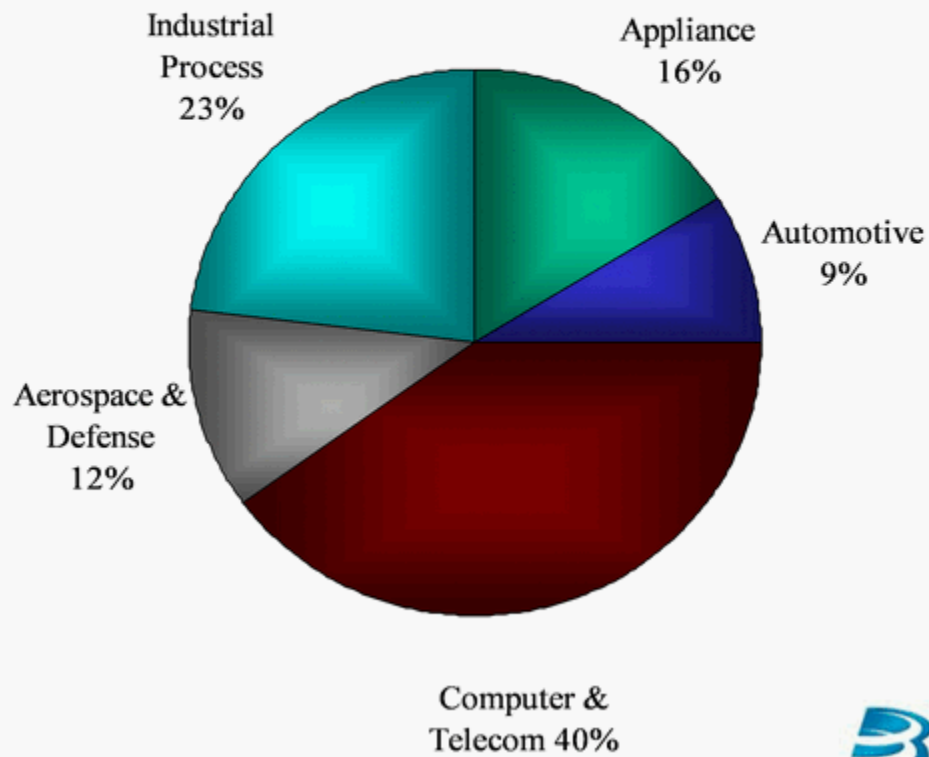
Brush Specialty Engineered Alloys

- The primary business within the Specialty Engineered Alloys Segment, Alloy Products sales for the first quarter 2009 were \$37 million.
- Manufactures and sells copper and nickel based alloy systems and components metallurgically tailored to meet customers' specific performance requirements
- Product families:
 - Strip products include thin gauge precision strip and thin diameter rod and wire. These products provide a combination of high strength, formability and electrical conductivity for connectors, contacts, switches, relays and shielding used in mobile communications devices, wireless communications equipment, storage area network systems, data networking equipment, servers, notebooks, netbooks, plasma & LCD HD televisions, medical electronics, appliances, and automotive electronics.
 - Bulk products include rod, bar, tube and plate. These products are known for superior strength, corrosion and wear resistance, thermal conductivity and lubricity. Applications include bearings and bushings for aerospace and heavy equipment, resistance welding components, oil & gas drilling components, plastic mold tooling and telecommunications housing equipment.



Alloy Products Revenue by Market

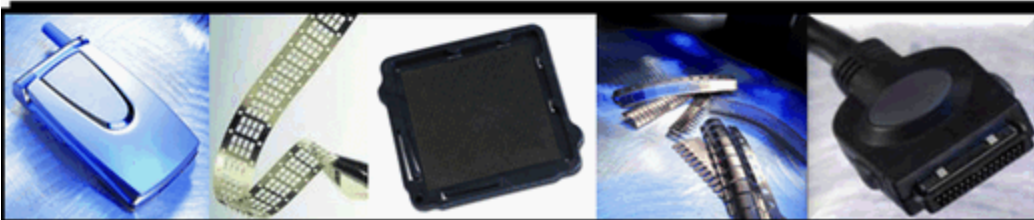
1st Quarter 2009



Strip Alloy Applications

(strength, conductivity, spring characteristics)

- Automotive electronics
- Appliance switches
- Pressure Responsive Devices
- Fire Extinguisher Sprinkler Heads
- EMI Shielding
- Current Carrying Springs and Relays
- Integrated Circuit Sockets
- Electrical and Electronic Connectors in Mobile Handsets, PDAs, Base Stations, Storage Area Networks, Servers, Notebooks, Netbooks, Plasma & LCD HD Televisions and Medical Electronics



BRUSH
WELLMAN
ALLOY PRODUCTS

Strip Products - Strategy

- **Maintain focus on major end-use markets**

- Computer
- Telecommunications (mobile & Infrastructure)
- Automotive
- Appliance
- Military
- Medical
- Consumer electronics



- **Defend leadership in traditional alloy strip, rod & wire**

- Reduce total cost of manufacture to allow penetration of mid-range alloy applications
- Enhance product properties to provide additional value to customers

- **Introduce new alloys to meet needs of targeted market opportunities**

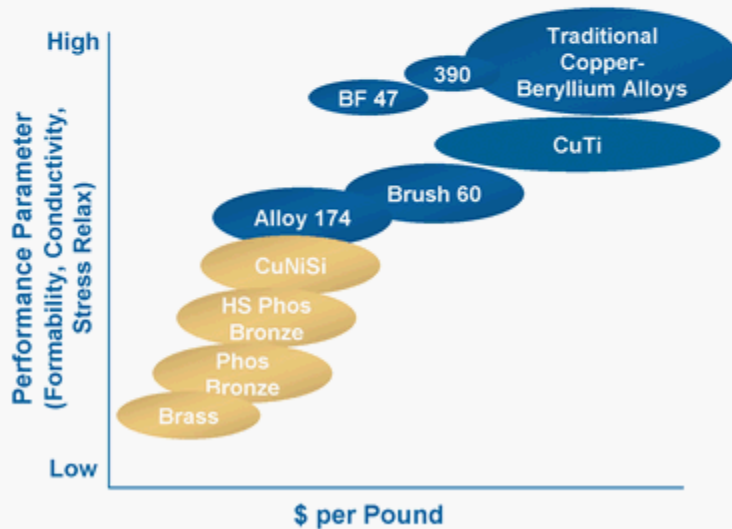
- **Geographic Growth**



Strip Products Strong Value Proposition

Copper-beryllium alloys, while premium priced, provide best-in-class performance

Competitive Alloy Comparison



Note: Blue denotes Brush Engineered Materials' alloys; beige represents competitive materials.

Brush Value Proposition

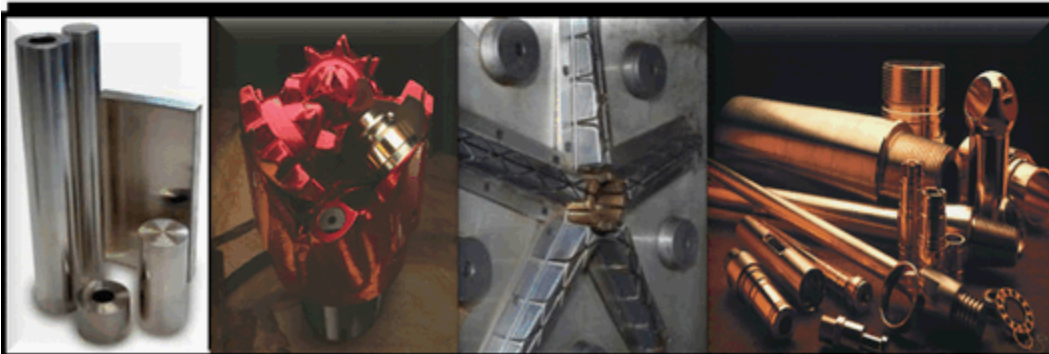
- Unique, high-performance materials
- Technical design capabilities
- Outstanding service center network
- Global marketing, sales and distribution



Bulk Alloy Applications

(strength, corrosion resistance, non-galling, conductivity)

- Aircraft Bushings
- Heavy Equipment Bearing and Wear Applications
- Oilfield well drilling, completion and production equipment
- Plastic Injection & Blow Molds
- Power Generation
- Tooling for Metalworking
- Undersea/Marine Hardware for Telecom & Instrumentation
- Welding Electrodes & Dies



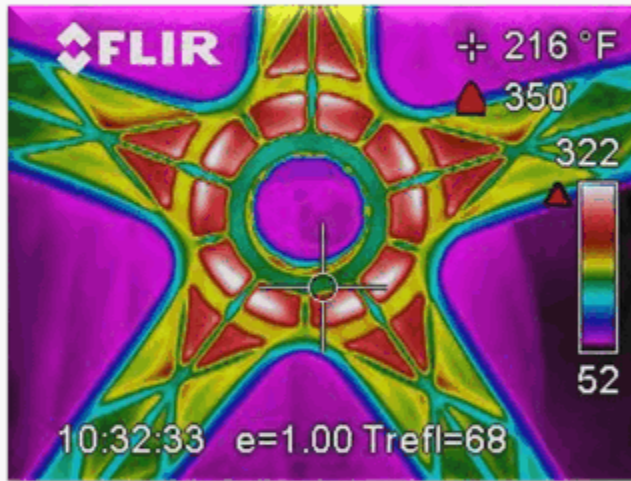
BRUSH
WELLMAN
ALLOY PRODUCTS

Bulk Products - Strategy

- **Maintain focus on traditional end-use markets**
 - Aerospace
 - Oil & Gas
 - Plastics
 - Power Generation
 - Resistance Welding
 - Undersea
- **Introduce new alloys or product forms to meet needs of targeted market opportunities**
- **Focus on new non-traditional growth markets**
 - Bearings, Heavy Equipment & Mining, Marine, advanced Oil & Gas well components, Offshore & Downhole technology, and Pumps
- **Grow Existing business in finished and semi-finished components**
 - Offer design assistance and one-stop shopping to end users
- **Geographic Growth**
 - Expand commercial operations in Asia Pacific (including India) and Eastern European markets, improve customer awareness and distribution



MoldMAX[®] Alloys for the Plastics Industry



Our engineers use infrared imaging at the customers' facility to pinpoint where MoldMAX[®] will provide the maximum benefit.

*FLIR is a registered trademark of FLIR Systems.

Value Proposition

- Provides molders with 20-40% increase in productivity
- Capital avoidance due to increased productivity
- Enables improved quality of molded parts
- ROI < 3 months

Technical advantages

- Hardness of steel with the thermal conductivity of copper
- Fast machining rates
- High polishability



Lorain Casting Facility

Spinodal and EquaCast® Technology-Winning!

High performance copper based engineered materials:

- Strength and hardness is comparable to copper beryllium products
- Thermal conductivity

The value proposition differentiates:

- Corrosion resistance
- Superb tribological properties (low friction, excellent wear resistance) adding value in reliability, uptime, and maintenance savings
- Machinability and design simplicity adding cost benefits to offset increased material costs
- Casting capability including size, shapes, tubes and quality
- No EH&S issues

Developing applications in markets where we are strong:

- Drilling Equipment, Aircraft Parts, Mold Tooling

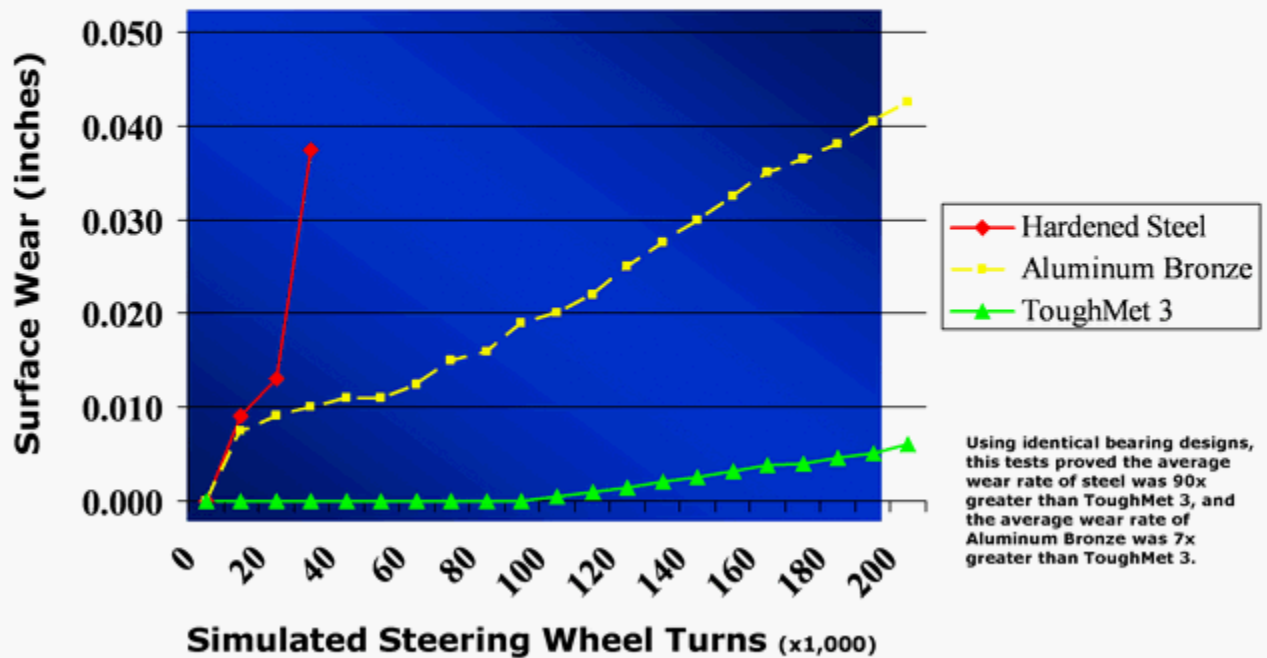
Developing markets/applications where technology is strong:

- Oil Well Completion Equipment, Mining, Heavy Equipment, Drivetrain Components, Hydraulic Systems, Engine Bearings, Semiconductor Fabrication

Lorain Technology: Expanding market and application reach



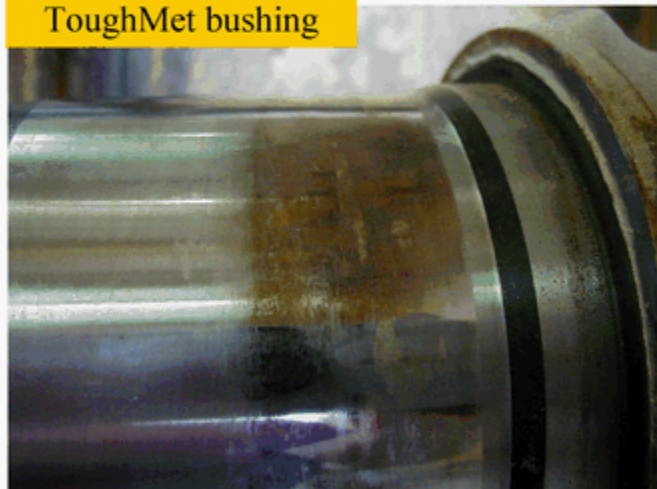
ToughMet® Outlasts Conventional Bearing Materials in 300-ton Mining Truck Steering Test



ToughMet® Bushings Protect Steel Mating Parts.

Example: Lubrication failure on bulldozer undercarriage

Steel pin protected by
ToughMet bushing



Left side pin after 500 running hours
against ToughMet 3 CX105 bushing.

Steel pin damaged
by steel bushing



Right side pin after 500 running hours
against hardened steel (HRC 50)
bushing.

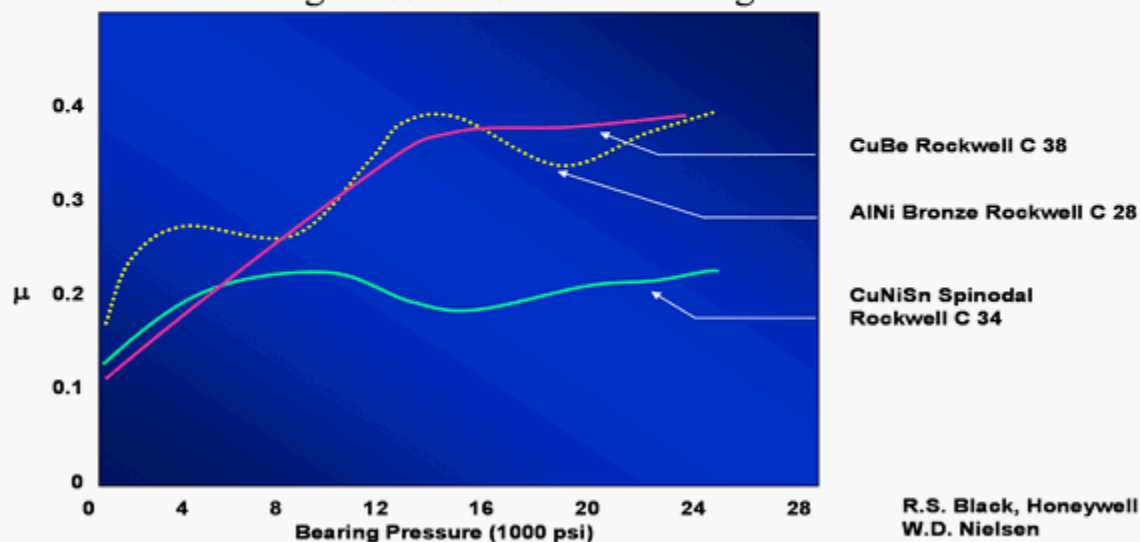
Pin hardness = HRC60.



ToughMet® Industrial Components Results:

ToughMet® Alloy Bushings Provide Superior Power Efficiency Performance

in a Comparison of Dynamic Coefficient of Friction μ vs
Bearing Pressure for Three Bearing Materials

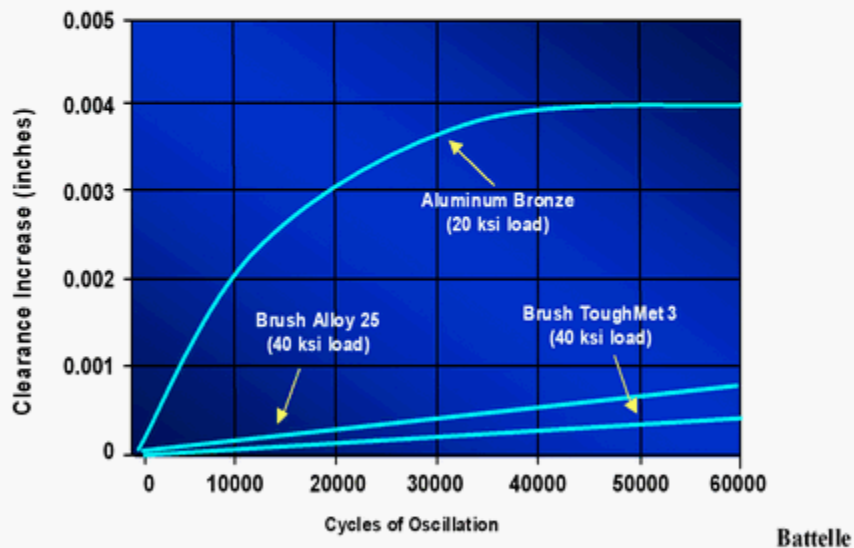


R.S. Black, Honeywell
W.D. Nielsen
1996



Significantly Higher Durability has been Confirmed for ToughMet®

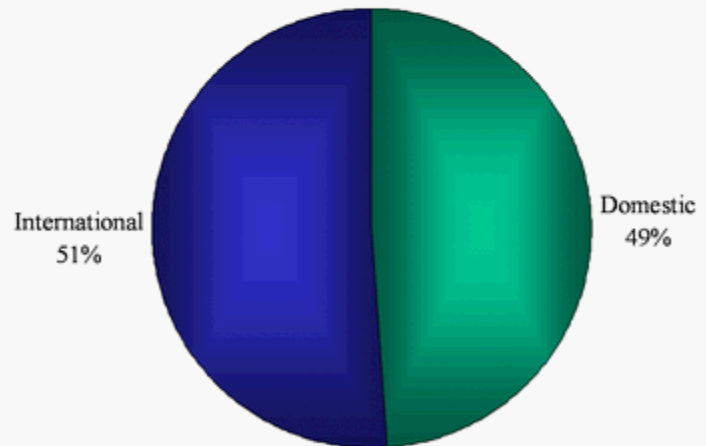
Comparative Sleeve Bearing Wear Tests.



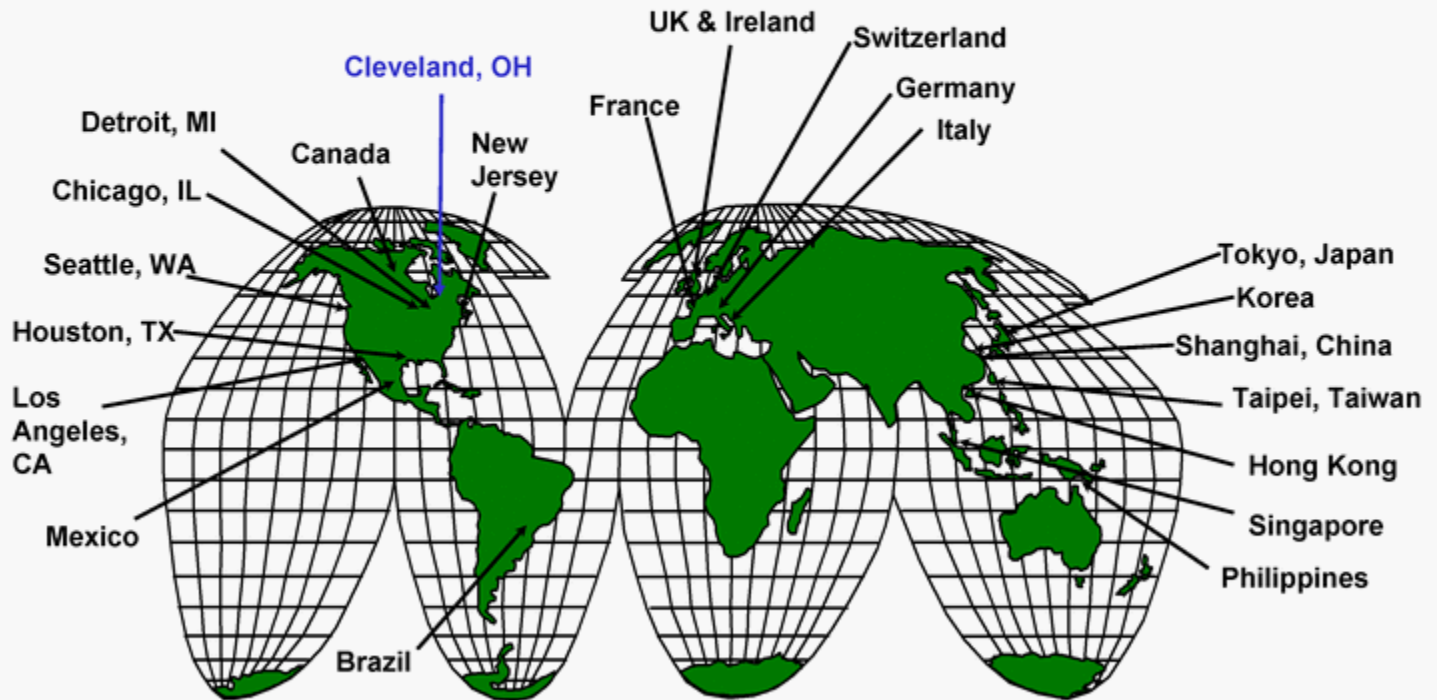
Brush International, Inc.

- Brush International Inc. is a wholly owned subsidiary of Brush Engineered Materials
- Service centers in Germany, England, Japan and Singapore
- Representative offices in Korea, China, Taiwan, and India
- Primary focus on the distribution of alloy products while providing local support to other Brush Engineered Materials' subsidiaries operating internationally

*Alloy International/Domestic Revenue
1st Quarter 2009*



Global Sales and Distribution Network



Global Reach..... Local Service

Brush Engineered Materials Inc.
Organized into Four Separate Reportable Segments

- Advanced Material Technologies and Services
 - Specialty Engineered Alloys
 - ***Beryllium and Beryllium Composites***
 - Engineered Material Systems
-

Beryllium and Beryllium Composites Comprises two business units

- Brush Beryllium Products
- Brush Ceramic Products

Brush Beryllium Products

Products

Beryllium Metal - One of the lightest metals known

- Family of vacuum hot and hot/cold isostatically pressed powder-derived metals

AlBeMet™

- Family of lightweight alloy composites
- Extruded, rolled sheet and hot isostatically pressed powder-derived metals

BRUSHWELLMAN
ENGINEERED MATERIALS

Brush Beryllium Products

Products - Cont.

- E-Materials
- Family of low expansion, lightweight electronic packaging materials
 - Composites of beryllium metal and beryllium oxide

Beryllium Oxide/
Chemicals

- Ceramic-grade beryllium oxide powder
- Specialty beryllium-containing chemicals

BRUSHWELLMAN
ENGINEERED MATERIALS

Brush Beryllium Products

Facilities

Elmore, Ohio

Fremont, California

BRUSHWELLMAN
ENGINEERED MATERIALS

Brush Beryllium Products

Key Product Attributes

- Be/AlBeMet™
 - Light Weight (Density)
 - High Stiffness (Elastic Modulus)
 - High Thermal Conductance/Capacity
 - Low Thermal Expansion
- Be
 - Transparent to X-Rays
 - Neutron Reflector

Brush Beryllium Products

Primary Competition...Alternative Materials

Organic Composites (e.g. Carbon epoxy)

Silicon carbide

Metal Matrix Composites (e.g. Al - silicon carbide)

Pyrolytic graphite

Aluminum (high strength grades)

Major Defense/Aerospace Applications for Brush Beryllium Products

Optics

Optical substrate and support structure for visual and infrared target acquisition systems (fighter aircraft, helicopters, unmanned aerial vehicles, tanks), surveillance systems and astronomical telescopes.

Satellites

Structures and sensors for defense and commercial telecommunications satellites.

Electronics

Electronic packaging for defense avionics, radar and electronic countermeasures systems for helicopters and fighter aircraft. Applications include circuit boards, covers and packages.

BRUSHWELLMAN
ENGINEERED MATERIALS

Major Commercial Applications for Brush Beryllium Products

X-ray Windows

Radiographic tube components for medical diagnostic (x-ray, mammography, CAT-scan), industrial and scientific equipment.

Optical Scanners

Mirrors for laser scanners used in reprographic and other high-performance laser applications.

Motion control

Structural components for high-precision semiconductor processing and industrial robotic equipment

Acoustics

High performance speaker components

Major Applications, New Products and Platforms

Brush Beryllium Products

<u>Product</u>	<u>Market</u>
New AlBeMet Products	Defense
Fabricated Products	Defense
Acoustic	Speakers
High grade Be foil	Medical x-ray

BRUSHWELLMAN
ENGINEERED MATERIALS

Beryllium Products

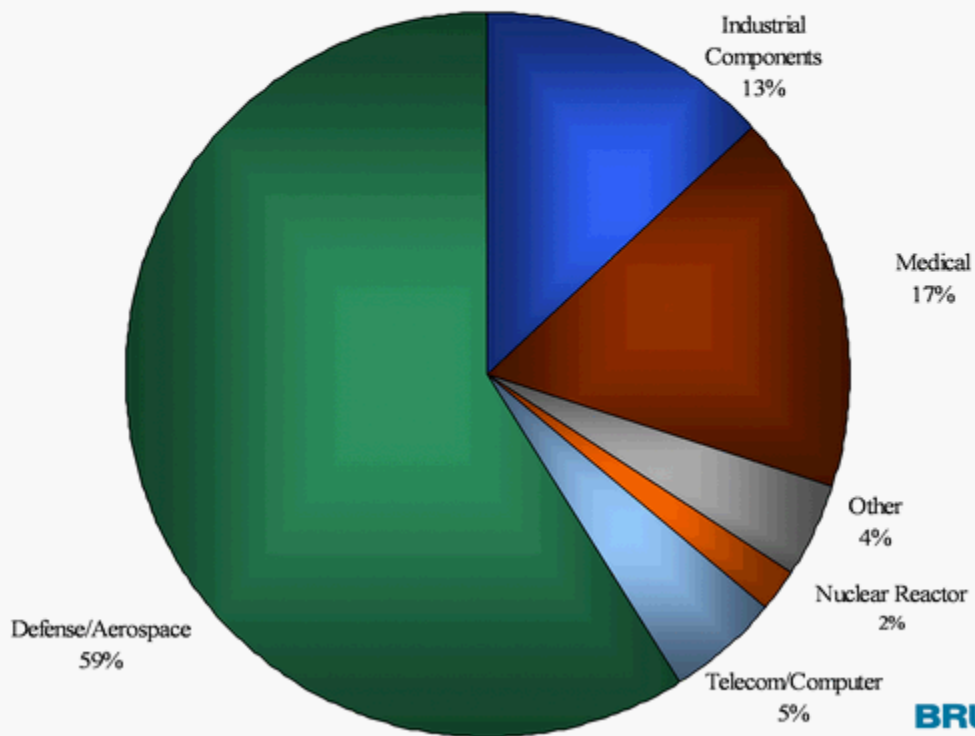
Brush Ceramic Products

- Located in Tucson, Arizona
- Products
 - Ceramic substrates used in commercial and military packaging applications
 - Ceramic laser bores for gas lasers used in medical and industrial applications
 - Machined ceramic components used in military, oil and gas, semiconductor and microwave applications

BRUSHWELLMAN
ENGINEERED MATERIALS

Beryllium and Beryllium Composites

2009 Revenue by Market

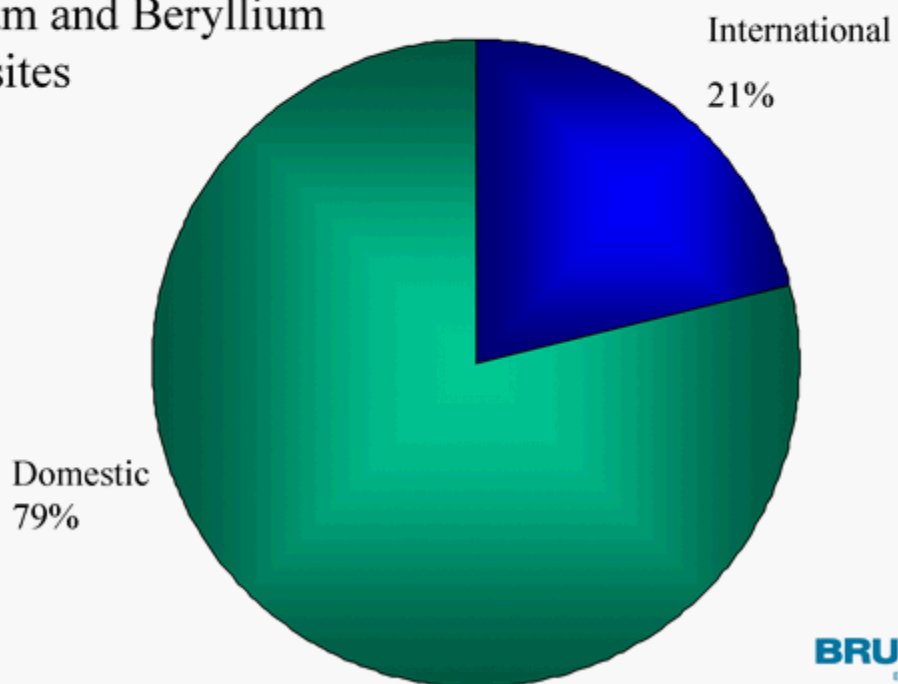


BRUSHWELLMAN
ENGINEERED MATERIALS

International/Domestic Revenue

2009

Beryllium and Beryllium
Composites



BRUSHWELLMAN
ENGINEERED MATERIALS

Brush Engineered Materials Inc.
Organized into Four Separate Reportable Segments

- Advanced Material Technologies and Services
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 - Beryllium and Beryllium Composites
 - ***Engineered Material Systems***
-

Engineered Material Systems (Technical Materials Inc.) - 2009



“Providing engineered metal strip products to leading technology manufacturers around the world.”





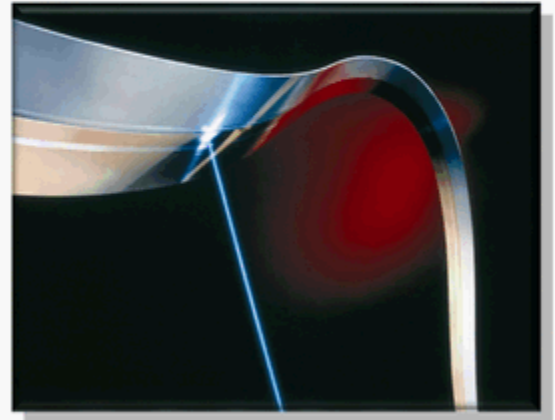
Market History

- Founded in 1968, TMI's continuous clad and inlay technology produced high-reliability connector and switch materials for the telecom industry.
 - Today TMI's products are used throughout the world by virtually all major technology markets. As a leader in reel-to-reel composite metals engineering, TMI differentiates itself through proprietary process technologies.
 - TMI worldwide sales continue to increase and in 2008 additional inroads were made in Europe and Asia.
 - In 2008, New Product Sales accounted for approximately 37% of TMI's sales volume.
-

TMI Process Technologies



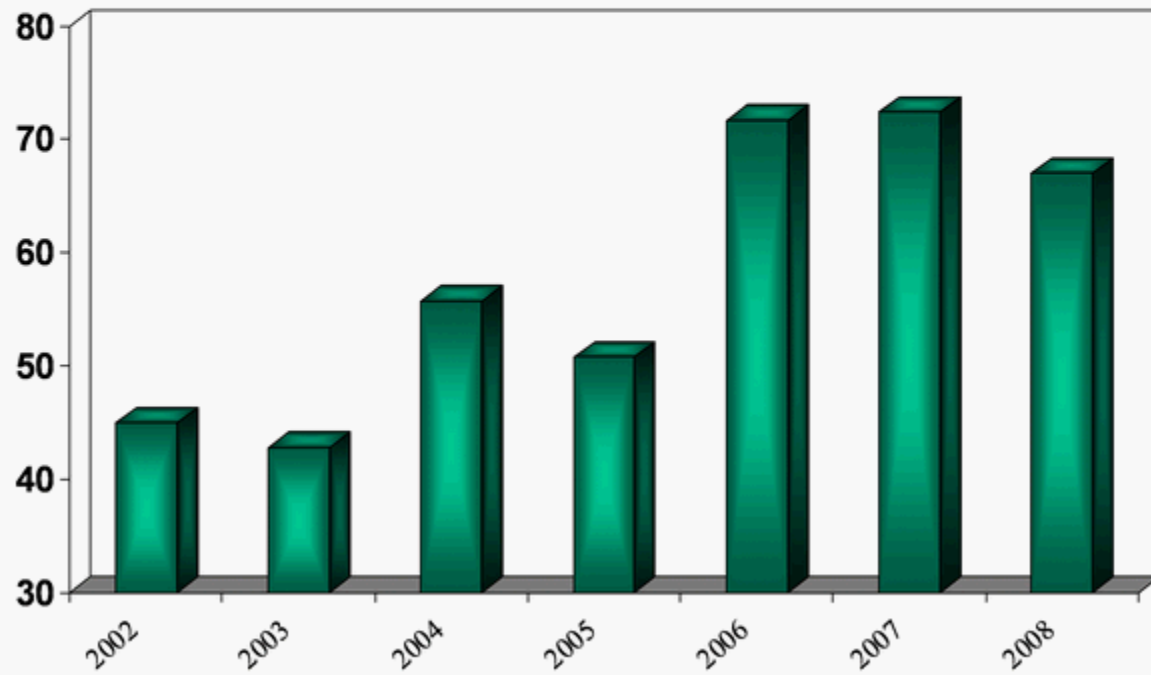
- Cladding
 - Inlay
 - Micro Laminates
- Electroplating
 - Gold, Silver, Base Metals
 - Selective and Overall Coatings
- Fabricated Components
- Profiling
 - Milling
 - Skiving
- Continuous Electron Beam Welding
- Lead-Free Solder Coatings



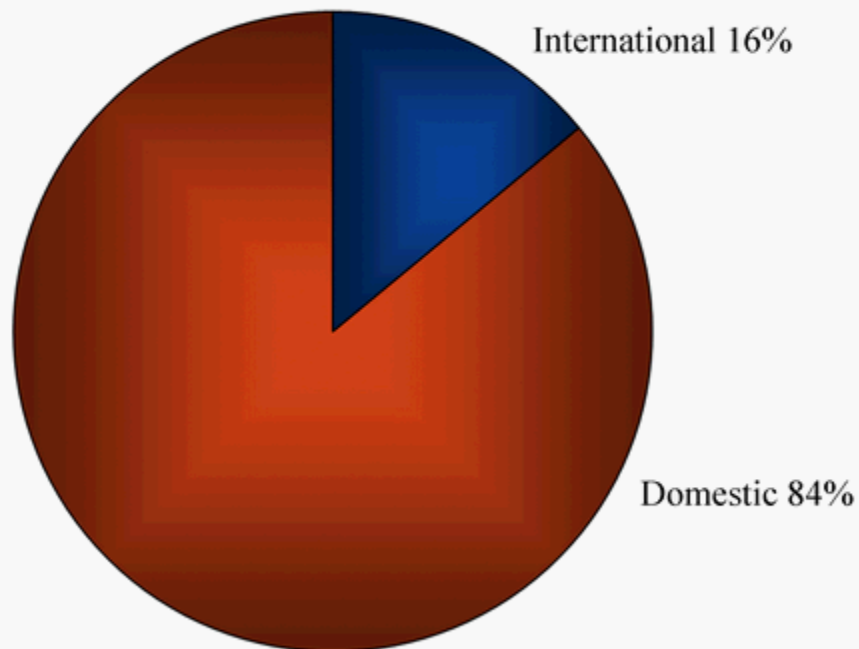
TMI Historical Sales



\$ in millions

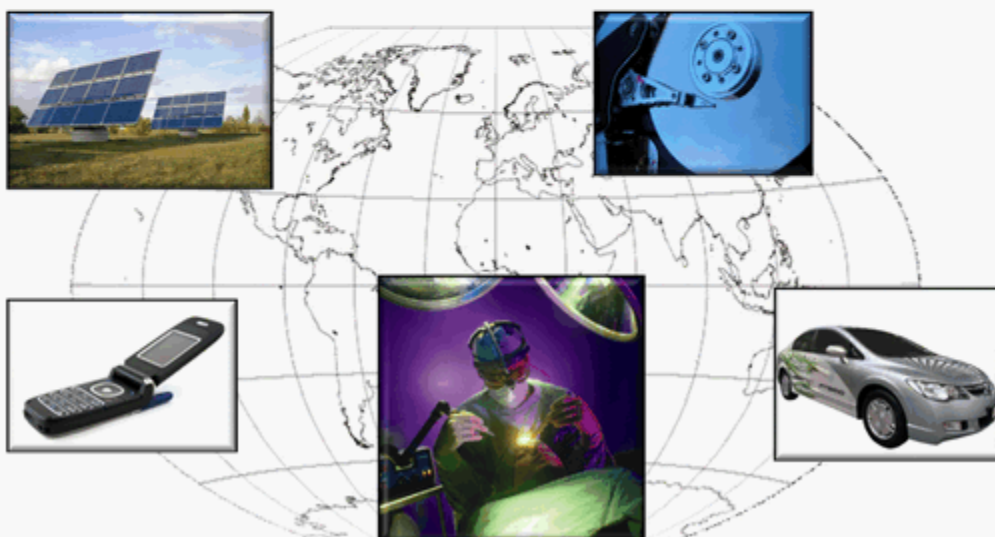


International/Domestic Revenue *2008*



Our Vision

- To be a leader in creating innovative engineered material solutions and services that make our customers competitive in global markets.



Technology Leader



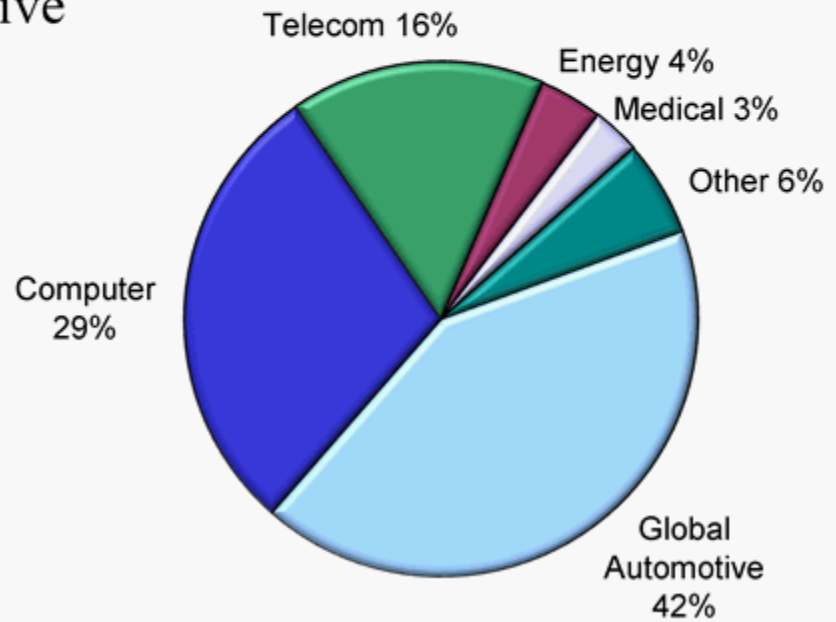
- **Quality**
 - ISO 9001-2000, Certified by Bureau Veritas
 - ISO 14001, Certified by TÜV
 - Unique Tolerance Capabilities
 - Extensive Digital and Vision-Controlled Processing
 - **Engineering**
 - Metallurgical Design
 - Technical Customer Support
-

Our Major Markets



2008

- Global Automotive
- Telecom
- Computer
- Energy
- Medical
- Other

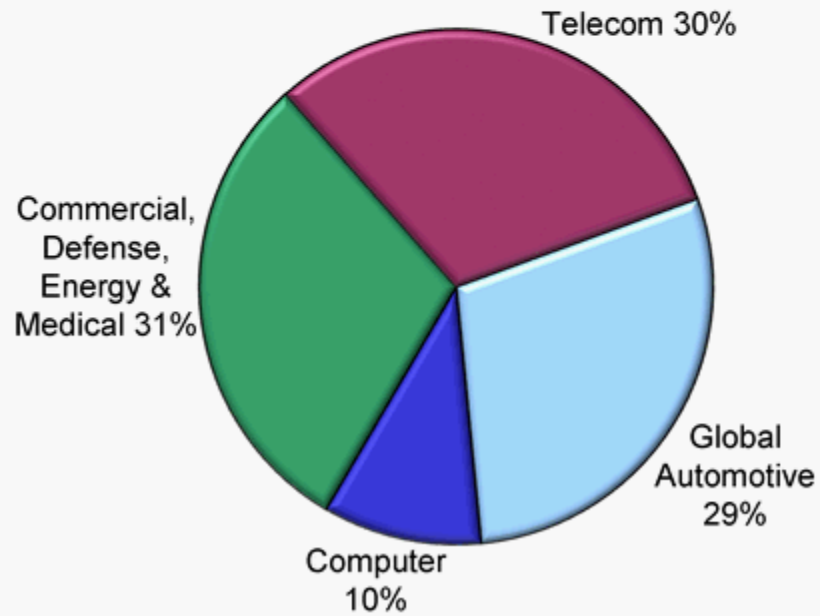


Our Major Markets



Q1 2009

- Global Automotive
- Telecom
- Computer
- Energy
- Medical
- Other



Strategic Growth Markets



- Alternative Energy Systems
 - Power Electronics
 - Hybrid & Electric Vehicle Materials
 - Hard Drives
 - Medical Devices
 - Decorative Metals
 - Defense
-

Market: Energy



■ Solar

- Cell Interconnects
- Concentrator Components

■ Fuel Cells

- Stationary High-Temperature Components
 - Portable PEM Components
-

Market: High Performance Batteries

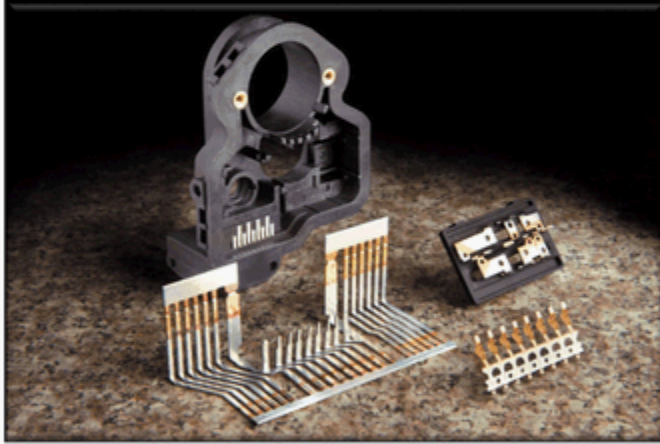


■ Lithium Ion Battery Components

- Pack Interconnects
- Tab Materials



Market: Power Electronics



- *High-Reliability Connector and Leadframe Materials*
 - Safety Devices
 - Engine Performance Sensors
 - High Temperature Systems
-

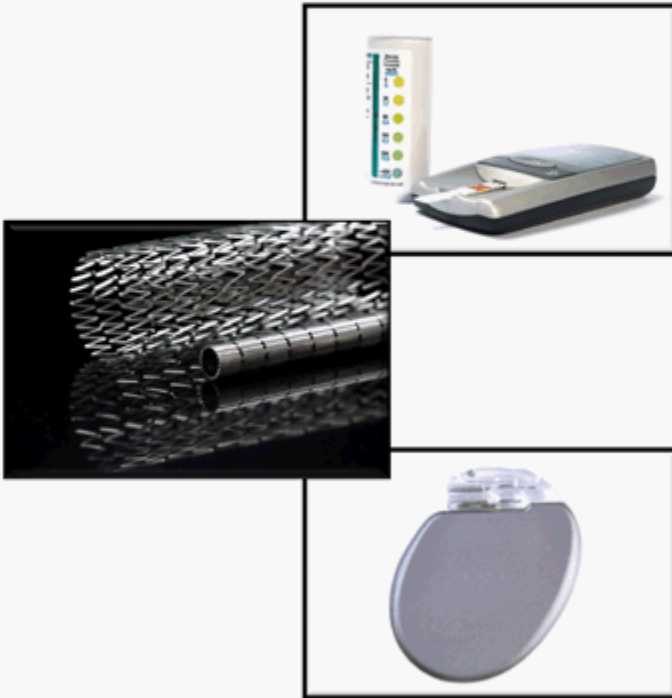
Market: Computer



■ *Hard Drive Suspension Materials*

- Stainless and Aluminum Composites
- Precision Surface and Thickness Controls

Market: Medical



- Cardiac Nitinol Strip
- Electroplated Drug Delivery Electronics
- Ultra-Precision Cutting Materials
- Niobium, Tantalum, and Titanium Specialty Materials

Market: Consumer Electronics



- Leadframes for Digital Camera Sensors
 - Cell Phone Passive Components
 - Specialty Clad Materials
-

2009 Growth Strategy

- Focus on High-Growth Niche Markets for Clad, Electroplate and Electron Beam Weld Product Development
 - Expand Unique Process Capabilities for Value Add Growth
 - Continue TMI's Growth in the Far East and Europe
 - Drive Strategic Growth in Energy, Medical, and Defense Markets
-

Beryllium Health and Safety

Brush has continued to make progress on issues related to beryllium health and safety

- Improved worker protection programs in place
- Rates of sensitization down among new workers
- Strong focus on regulations related to beryllium exposure



Litigation

	<u>Total Cases Pending</u>	<u>Total Plaintiffs (including spouses)</u>
3/28/08	8	30
6/27/08	8	30
9/26/08	9	36
12/31/08	9	36
4/03/09	9	37