

# **“Why the Magnetics Industry is So Attractive”**

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*by*

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# Outline

- **Magnetics industry is a growth industry**
- **The industry thrives on innovation and change**
- **Magnetics provides consumers with unique and advanced technology products**
- **The worldwide industry will continue to flourish**
- **Recent competitive issues will result in a stronger and more vibrant industry**

# Magnetics is a Niche Industry

\$ Billion

**Total worldwide market: \$7.0 - 9.0**

• **Soft materials: \$2.0 - 2.5**

• **Permanent materials: \$5.0 - 6.5**

**Note: 2003 U.S. “Halloween Spending” was \$6 Billion !**

# The Magnetics Industry is a Niche Industry Serving Growth Markets

- **A broad range of market drivers:**
  - **Consumer electronics**
  - **Medical technology**
  - **Micro turbines**
  - **Magnetic levitation**
  - **Automotive systems**
  - **Telecommunications**
  - **Security devices**
  - **Wind turbines**
  - **Energy storage systems**
  - **Medical navigation**
- **Historical and future growth: 5-10%**

# The Magnetics Industry is International in Scope

- **Europe**
- **North America**
- **Japan**
- **India**
- **China**

The “action” in the magnetics industry first transitioned from Europe and North America to Japan and India...and now the “star” is **CHINA**

# The Magnetics Industry Thrives on Innovation and Change

- **Customer demand is insatiable:**
  - **Higher energy products (hard)**
  - **Higher frequencies (soft)**
  - **Higher temperature capability**
  - **Smaller and lighter components**
  - **Faster response time**
  - **Improved corrosion resistance**

# Advanced Permanent Magnet Products

- **Multi-component injection molded magnets**
- **High temperature NdFeB magnets**
- **Exchange-spring magnets**
- **Machineable NdFeB magnets**
- **Superconducting magnets & sensors**
- **High energy imbedding powders**
- **Magnetic paper**
- **Nanocrystalline materials**
- **Hybrid magnets**
- **Anisotropic NdFeB**
- **Magnetic recording devices**

# Advanced Soft Magnetic Products

- **Thin film magnetics**
- **High permeability soft ferrites**
- **Bonded soft ferrites**
- **Amorphous materials**
- **Soft magnetic composites**
- **High frequency ferrites**
- **Higher performance powder cores**
- **Low core loss ferrites**
- **EMI shielding**
- **Integrated packaging**
- **Planar power magnetics**
- **Surface mount components**



# **The Magnetics Industry Provides Unique Service to Mankind**

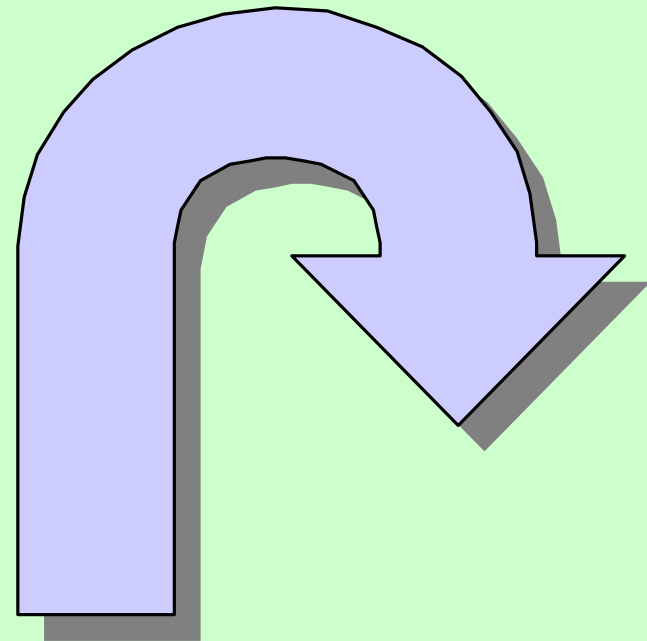
- **Automotive motors & sensors**
- **Smaller and lighter consumer electronics**
- **Advanced security products & systems**
- **Unique MRI systems**

# The Industry Has Something for Everyone

- **Technical development**
- **High volume market segments**
- **Low volume niche segments**
- **International in scope**
- **Both mature and new products**
- **Plenty of competition!**

# Western Production of Permanent Magnets is in Decline

- It is likely that in 2004, U.S. and Western European production of magnetic materials may represent **less than 25%** of total world production!



# “The Action” is in China and India

	<u>Recent GDP (\$T)</u>	<u>Recent GDP Growth</u>
<b>United States</b>	<b>\$10.7</b>	<b>3.5 %</b>
<b>China</b>	<b>\$ 1.3</b>	<b>9.0 %</b>
<b>India</b>	<b>\$ 0.6</b>	<b>6.0 %</b>

# Anticipated Trends in China

- **Continued growth of export production**
- **Expanding technology advancement**
- **Sustained world-wide market penetration**
- **Competitive pricing pressures will continue**
- **Domestic market growth will continue**
- **Industry consolidation will begin**

# Anticipated Trends in China

- **China will be a major consumer:**
  - Iron & steel
  - Synthetic resins & plastics
  - Oil & gas
- **China will be a major producer of:**
  - Bicycles & motorcycles
  - Automobiles
  - Office equipment
  - Consumer electronics
- These products utilize magnetic materials!

# **Business Strategy Must Address Customer Requirements !**

- **Distinguished Domestic Capability**
  - Outstanding customer service
  - Design & development support
  - Prototype and small/rush order capability
  - Value-added capability
- **Outstanding China Capability**
  - Low cost high-volume manufacturing
  - Consistent and high product quality
  - Reliable delivery performance

# Many Western Companies are Reacting in a Decisive Manner

- **Examples of U.S. magnetic materials companies establishing manufacturing capability “on the ground” in China:**
  - **Magnequench International**
  - **Arnold**
  - **Fair-Rite Incorporated**
  - **Steward, Inc.**
  - **Kane Magnetics**



# Some Have Been Reluctant to Relocate Manufacturing to China

- **A lingering perception that it is a daunting task: BUT,**
  - **Language barriers are no longer an issue**
  - **Establishing a WOFE is now relatively easy**
  - **Entry costs are lower than one might expect**
  - **Risks and time cycle are being reduced**
  - **Payback can be EXTREMELY attractive**

# China is the Low-Cost Leader

- **The migration of both permanent and soft magnetic materials production to China will continue**
- **Risks of conducting business in China are being reduced & payback can be very attractive**
- **Today, most companies can easily establish operations in China to compliment a sound overall business strategy**

# **No China Venture is Risk-Free**

- **Moving to China is not a cure for poor management or a faulty business strategy**
- **Expatriate assignments can sometime be difficult to fill**
- **Chinese laws and regulations may change**
- **Exchange rates may shift**
- **Financial and political stability issues remain**

# **A Good China Reference:**

**“China as a global manufacturing base for multinational companies – Asian, European and American – is unavoidable”**

**“The China Dream”**

*by*

*Joe Studwell*

*Grove Press (2003)*

# **The Worldwide Magnetics Industry Will Continue to Flourish**

- New Technologies and New Applications Will Continue to Generate Demand:**

**Magnetic levitation**

**Electronic refrigeration**

**Fuel cell vehicles**

**Hydrogen-powered cars**

**Power management**

**0.85” hard disk drives**

**Wireless electronics**

**Camera phones**

**Advanced MRI systems**

**Space exploration**

# **So Why All the Gloom & Doom? (2001-2003)**

- **Telecom/terrorism recession**
- **Customer/market migration to Asia**
- **Customer demands for lower prices**
- **Emergence of the Chinese magnetics industry**

# Why The Past Few Years Represent Good News

- **The weak are being flushed out**
- **Producers are being forced to be more cost-efficient**
- **Technology advancement is being rewarded**
- **Opportunities abound for the bold and innovative**

# The Future is Bright...If:

- **You maintain focus on your customers**
- **You do what's necessary to remain cost-competitive**
- **You invest in new products and advanced materials**



# Summary

- **The marketplace for magnetic materials is now truly global...and growing!**
- **Customers will continue to demand new technologies and materials development**
- **Larger customers will continue to demand Chinese sourcing at lower prices (along with excellent service & quality)**

# Summary (Continued)

- **Most well-managed companies will establish a China capability**
- **China will successfully deal with issues such as inadequate power capacity, steel shortages, non-performing loans and exchange rates**
- **The 2008 Olympics will provide a significant economic and political boost for China**

# Summary (Continued)

- **Japan and the U.S. will become increasingly dependent on China**
- **There will be continued worldwide industry consolidation...including China**
- **The world market for magnetic materials and components is a growth market – *those who adapt to change will be rewarded!***

*Thank You!*

***Walter T. Benecki***

***Serving the Worldwide Magnetics Industry***

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