Performing At A New Level

Mark Robertshaw
<table>
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<th>Agenda</th>
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<tr>
<td>• Introduction and Group financial goals to 2013</td>
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<td>• Ceramics: major profit drivers</td>
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<td>• Engineered Materials: major profit drivers</td>
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<td>• ROCE and linkage to long-term incentive plans</td>
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<td>• Wrap up and Q&amp;A</td>
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Morgan Crucible is a world leader in advanced materials ...

- Differentiated and innovative products sold into technically demanding applications

- A high proportion of the business designed in specifically for the individual customer

- Leading global market positions in the majority of our businesses

- Premium pricing with positive price pass through relative to input costs
Morgan has the number one market position in the majority of our business.

**Morgan Ceramics c£600m revenue:**
- Main products:
  - Fibre: £200m
  - Engineered Ceramics: £120m
  - IFB / Castables: £100m
  - Braze Alloys: £40m
  - Ceramic Cores: £40m
  - Assemblies: £40m

**Morgan Engineered Materials c£400m revenue:**
- Main products:
  - Electrical Carbon: £130m
  - Soldier Survivability: £130m
  - Seals & Bearings: £60m
  - MMS: £40m
  - High Temperature: £12m
  - Lithium Ion: £5m

Approximate 2010 revenue
Financial ambitions by 2013

• Double Group underlying PBT* from £75.7 million to c.£150 million
• Mid-teen underlying operating profit margins
• Improve Operating ROCE from c.25% in 2010 to c.35% by 2013

*Underlying PBT is defined as operating profit before amortisation, less net financing costs
Our ambition is to double underlying PBT

2010 Underlying PBT: £75.7 million

- Recovery and organic growth in traditional businesses
- Growth in new markets/products eg. clean energy, HDD
- Rapid growth potential in Emerging Markets
- Selective use of value accretive M&A
- Cost benefits of low cost manufacturing and divisional streamlining

2013 Underlying PBT: c.£150 million
Recovery and organic growth potential in traditional businesses

- Western world revenue picked up somewhat in 2010 but with further recovery potential still to go

- Strong growth in Emerging Markets with constant currency revenue up over 33% in 2010 vs 2009

Group Sales by Destination (excl NPA)

Emerging Markets includes: China, India, Latin America, Russia, Turkey and Middle East
Rest of World includes: Japan, Korea, Australia, South Africa

All at 2010 actual rates
Further later cycle recovery to come through in Europe and North America

- US and European demand continuing to recover with the US coming through slightly earlier; European pick-up led by Germany
- Body Armour revenues in the US in 2010 c.£25m lower than in 2008 reflecting lower market demand levels
- Example areas of later cycle recovery potential
  - Thermal Ceramics project and large capex related business
  - Electrical and Seal & Bearing products in AM&T
  - Industrial Gas Turbine business

Group Sales by Destination to Western World (excl NPA)

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<tr>
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<th>North America</th>
<th>Europe</th>
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<tr>
<td>2008</td>
<td>321.1</td>
<td>367.4</td>
</tr>
<tr>
<td>2010</td>
<td>268.4</td>
<td>589.2</td>
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All at 2010 actual rates
Significant opportunities for further rapid growth in dynamic economies

Sales by Destination - £ million
Our Emerging Markets business is very well aligned to the key areas of economic growth

- >90% of Group revenues to Emerging Markets are to the Industrial, Petrochemical, Transportation and Energy sectors
- Strong underlying growth trends in these markets driven by ongoing rapid industrialisation and development of Emerging Market economies
- Potential opportunities in more sophisticated end-markets going forward e.g. Healthcare, Aerospace
Looking to the future, the latest China 5 year plan plays well to our advanced materials capabilities

<table>
<thead>
<tr>
<th>Seven key areas</th>
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<tbody>
<tr>
<td><strong>1</strong> New energy</td>
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<tr>
<td>Nuclear, wind and solar</td>
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<tr>
<td><strong>2</strong> Energy conservation and environmental protection</td>
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<tr>
<td>Energy reduction targets</td>
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<td><strong>3</strong> Clean energy vehicles</td>
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<tr>
<td><strong>4</strong> High-end equipment manufacturing</td>
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<tr>
<td>Aerospace and telecom equipment</td>
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<tr>
<td><strong>5</strong> Biotechnology</td>
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<tr>
<td>Drugs and medical devices</td>
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<tr>
<td><strong>6</strong> New materials</td>
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<tr>
<td>Rare earths, high-end semiconductors</td>
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<tr>
<td><strong>7</strong> New IT</td>
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<tr>
<td>Networking infrastructure</td>
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</table>
Exciting domestic growth potential in emerging markets but also more opportunities for low cost

- Total employment costs in low cost countries (LCCs) are up to 7 to 9 times lower per head than in the Western world

- More opportunities to use LCCs to serve Western world demand e.g.
  - Mexico for the US
  - Hungary for Western Europe
As our business grows, we are disproportionately adding headcount into lower cost countries.

- Group revenues grew over 7% in 2010 with headcount increasing only 4.7%
  - Headcount increase of 10.7% in Emerging Markets....
  - ...and only 2.1% in the Developed World through continued migration of our labour towards LCCs

- Still further scope through our operational excellence programmes to improve LCC productivity levels up to Western world standards
Margin improvement potential across all our regions – Europe in particular

2010 Site Underlying Operating Profit Margin*

- Technical resource is predominantly in the developed world along with many of the major materials plants
- There is scope to improve margins worldwide, particularly in Europe for Thermal and AM&T

* Excludes Head Office & GBU overheads and NP Aerospace
Even with higher inflation; absolute labour cost differential of LCCs growing not shrinking

- If total employment costs grow at 3% in the Western world and 10% in China, the relative differential cost per head actually increases rather than narrows.

- Still attractive to migrate labour from Western Europe and the US to LCCs.
Continued focus on positive price pass through

- Differentiated advanced materials solutions sold into technically demanding applications
- Global #1 and #2 market positions in the vast majority of our businesses
- Positive price pass through achieved year-in year-out over the last several years even through the worst industrial downturn in decades
- We expect to continue to deliver this positive price pass through going forward
Our ambition is to double underlying PBT

![Graph showing the increase from £75.7 million in 2010 to c.£150 million in 2013. The key drivers include:

- Recovery and organic growth in traditional businesses
- Growth in new markets/products, e.g., clean energy, HDD
- Rapid growth potential in Emerging Markets
- Selective use of value accretive M&A
- Cost benefits of low cost manufacturing and divisional streamlining]
CAPITAL MARKETS PRESENTATION
31 MARCH 2011, LONDON

Morgan Ceramics

Andrew Hosty
Agenda

- Overview of Morgan Ceramics
- 2010 results
- Project Concord – Mark Moore
- Superwool Strategy – Mark Moore
- Growth plans – Jim McRickard & Ian Robb
- Summary & closing remarks
Morgan Ceramics brings together the best of the Technical & Thermal Ceramics businesses

- Morgan Ceramics uses competences in material science and applications engineering to manufacture custom products for demanding environments
- We supply customer-specific, applications-engineered industrial products manufactured from advanced materials including structural ceramic, electro-ceramic and precious metals
- We provide thermal management solutions for high-temperature applications which benefit technically, financially and environmentally from optimised energy and emissions control
Unparalleled global reach with significant operational presence in the major markets of the world
Why Ceramics…?

The material of choice in demanding applications, that clearly outperforms alternatives, offering (for example):

- Resistance to extremes of temperature
- Stability in harsh environments
- High stiffness to weight ratio
- High voltage insulation
- Chemical resistance
- Vacuum integrity
- Biocompatibility
- Wear resistance
A broad product portfolio with the majority made to customer specific requirements
Supplying growth markets where we differentiate our product offering

- Electronics
- Energy
- Healthcare
- Industrial
- Petrochemical
- Security & Defence
- Transportation
Involved in everyday technology

Did you know?
Our ceramic / metal assemblies are used in aircraft fire suppression systems!

Did you know?
GBC Materials produces over 1 billion alumina components per year for the micro-electronics industry?

Did you know?
AlberoX feed through assemblies are used in jet engine sensor devices?

Did you know?
Diamonex coatings help keep IR optics from scratching in desert sand conditions?

Did you know?
We made a key component in the world's fastest colour inkjet printer using ceramic injection moulding?

Did you know?
Morgan's piezo ceramic is the key to many parents first view of unborn babies using ultrasound?

Did you know?
The TV images of the 2008 Olympic games were broadcast with the aid of our ceramics?

Did you know?
Our piezoelectric blood pressure sensors provide fast, accurate ultrasensitive readings!
Involved in everyday technology

Did you know?
Our ceramic hip joints give people their mobility back and with it, their quality of life?

Did you know?
Every Boeing 777 is fitted with 52 of Morgan’s ultrasonic fuel level sensors?

Did you know?
Our injection moulded Zirconia components are used in dental implants?

Did you know?
Wesco’s metal brazing alloys set the standard for use in many of the world’s jet engines.

Did you know?
Our precision rod assemblies help with drug testing and development?

Did you know?
Our lightweight body armour is so tough that it stops up to three direct hits?

Did you know?
Alberox assemblies are used in undersea repeaters for Fiber Optic Cable Communication?

Did you know?
GBC Materials’ components are key to reducing unwanted noise in electronic devices?
Working closely with our customers in order to provide optimised solutions

- Extensive range of materials
- Applications Engineers work with customers to establish operating conditions and design constraints
- Materials knowledge and extensive understanding of our manufacturing capabilities combined to create an optimal design for prototypes
- Prototypes are manufactured, trialled and tested
- Depending on the results, design iterations may then take place until the customer’s expectations are fully met
The Division is managed by a global Executive Team:

- **Andrew Hosty**
  - Chief Executive

- **Simon Halliday**
  - Finance Director

- **Jim McRickard**
  - President
  - North America

- **Arnaldo Camargo**
  - President
  - South America

- **Charlie Cobb**
  - President
  - Europe

- **Ian Robb**
  - President
  - Asia

- **Keith Parker**
  - Marketing Director

- **Mike Thomas**
  - Technical Director
  - (Technical)

- **Ron Wainwright**
  - Technical Director
  - (Thermal)

- **Peter Morten**
  - Business Development Director

- **Mark Moore**
  - Director of Strategy Implementation
Market dynamics vary by geography

The West:
• We are focused on advanced technologies in higher margin markets where we are differentiated and see better than GDP growth

Emerging Markets:
• High-tech opportunities exist for our leading technologies
• Our growing business provides the foundation for developing the world’s leading advanced materials company
• Industrialisation leads to opportunities for our mature technologies, extending their lives in high growth economies
We estimate our global addressed market to be circa £3.9bn

- **RoW**
- **Asia**
- **Europe**
- **North America**

Morgan Ceramics is a circa £600m business operating within an addressed market which is growing faster than GDP.

With a 16% overall market share there is significant room for growth.

Our market based focus drives good underlying earnings growth.

Sources: Global Industry Analysts; Advanced Ceramics Report May 2009 / Marketsandmarkets; Global High Temperature Insulation market report / Internal estimates
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### Strong progress in revenue, profit and margins

<table>
<thead>
<tr>
<th>£M</th>
<th>Revenue FY10</th>
<th>Revenue FY09</th>
<th>EBITA pre-restructuring &amp; one-off items FY10</th>
<th>EBITA pre-restructuring &amp; one-off items FY09</th>
<th>Profit margins % FY10</th>
<th>Profit margins % FY09</th>
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</thead>
<tbody>
<tr>
<td>Technical Ceramics</td>
<td>250.1</td>
<td>206.0</td>
<td>34.0</td>
<td>25.1</td>
<td>13.6%</td>
<td>12.2%</td>
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<tr>
<td>Thermal Ceramics</td>
<td>359.0</td>
<td>315.1</td>
<td>34.8</td>
<td>26.7</td>
<td>9.7%</td>
<td>8.5%</td>
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<tr>
<td>Ceramics</td>
<td>609.1</td>
<td>521.1</td>
<td>68.8</td>
<td>51.8</td>
<td>11.3%</td>
<td>9.9%</td>
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- Ceramics Division revenue increased c.17% with strong year-on-year growth from both Technical and Thermal Ceramics
- EBITA increased c.33% driving operating margin to 11.3%

All at reported rates
Ceramics: key value drivers in 2011 & beyond

- **Organic growth from targeting markets with > GDP growth drivers**
  - 2010 Position: Successful market positioning in Technical allowed strong growth
  - Future prospects: + +

- **Emerging markets growth strategy**
  - 2010 Position: Strong Thermal base in Asia, and LatAm offers leverage for Technical
  - Future prospects: + + +

- **Roll out of extended Superwool range**
  - 2010 Position: Superwool product range now without equal in the market
  - Future prospects: + +

- **Read-write head positioning technology for high capacity hard disc drives (HDD)**
  - 2010 Position: Project progressing well; excellent growth prospects
  - Future prospects: + + +

- **Full recovery of IGT and medical markets**
  - 2010 Position: Remained slow in 2010 but signs of improvement for 2011
  - Future prospects: + +

- **Divisional integration benefits and operational improvements**
  - 2010 Position: Integration proceeding to plan – “best of both” approach
  - Future prospects: + +
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Morgan Ceramics

Project Concord

Mark Moore
Director of Strategy Implementation
Integration of the Technical and Thermal businesses is delivering real benefits

Overhead reduction
A programme of work is underway to rationalise and simplify the organisation

MTC Growth
Opportunities for Technical products in Asia and Latin America are benefitting from the resources of the combined division

Benefits
On track to deliver £5m of cost benefits in 2011 with further upside to come

Margins
The re-focused Operational Excellence programme will enhance gross margins and efficiency, particularly in Europe

Product Strategy
A full review of fibre strategy has increased our focus on differentiation and on leading the market towards new formulations
Concord structure is based on best-practice model

The Carpenter acquisition gave us a good model and toolset

Regular disciplines drive progress:
- Steering Group reviews
- Workstream reviews
- Tracking process
- Specific planning events
  - Edinburgh
  - Augusta
- Benefit quantification
17 workstreams and 72 projects

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<tr>
<th>Workstream</th>
<th>Projects</th>
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<tr>
<td>Marketing</td>
<td>MKT1</td>
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<tr>
<td>Thermal Product Strategy</td>
<td>TPS1a</td>
</tr>
<tr>
<td>Thermal Product Strategy Asia</td>
<td>TPS1c</td>
</tr>
<tr>
<td>Thermal Product Strategy S America</td>
<td>TPS1d_i</td>
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<tr>
<td>Regional Sales Growth</td>
<td>RSG1</td>
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<td>M&amp;A</td>
<td>AND1</td>
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<tr>
<td>Continuity</td>
<td>CON1</td>
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<td>Operational Excellence</td>
<td>OXE1</td>
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<tr>
<td>Overhead</td>
<td>OVIH1</td>
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<td>Working Capital</td>
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<td>Procurement</td>
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<td>Organisational Development</td>
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<td>Business &amp; Reporting Structure</td>
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<td>Distinctive Competencies</td>
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<td>Operational EHS</td>
<td>EHS1</td>
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<tr>
<td>Communications</td>
<td>COM1</td>
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<tr>
<td>Controls</td>
<td>CTR1</td>
</tr>
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<td>CTR2</td>
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This workstream approach is delivering results

Concord achieves two principal outcomes:
• Better results and clearer divisional strategy

• Key workstream topics include:
  • Organisational design - Structure, people, values
  • Growth – use of best practice business development tools
  • Strategy development - Superwool, IFB, MTC growth in Asia
  • Operational excellence – Process benchmarking & Max Matrix
  • Overhead reduction
  • Marketing & communications

• Delivering £5m of cost benefits in 2011, rising to between £6m & £8m in 2012
Morgan Ceramics

Superwool Strategy
Using material science to develop Superwool® fibre and satisfy demanding market requirements

Our latest generation of fibre products meet both performance and environmental requirements

Function: Diesel particulate filter cleaning exhaust gases at high temperatures

Environment: Our bio-soluble fibres lead the market in environmental performance
Using the Superwool® strategy to drive value

- Completing the range of Superwool® fibre products will enable Morgan Ceramics to convert Refractory Ceramic Fibre (RCF) products into a higher margin business
- Third party fibre product sales in 2010 were circa £200m with one third from Superwool® fibre products
- Forecast growth is strong, with applications driven by megatrends
- Superwool® fibre products have protected IP
A growing market: maintain control in the event of a fire

Firemaster:
Encapsulated Superwool blanket
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Growth plans

Jim McRickard
President – North America
Projecting significant growth from Aerospace

- ~ 26,000 new aircraft will be needed globally between 2011 and 2029
- Our products are used in instrumentation, control systems, engine monitoring, guidance systems and satellite positioning
- Significant growth forecast from a range of products, including:
  - Investment casting cores, Braze Alloy Products & Thermal management and fire protection
Projecting significant growth from Medical

- Healthy pipeline of new products into Western markets
- World leader in the design and manufacture of ceramic implants and assemblies
- Significant growth forecast driven by:
  - $30bn global market for cardiovascular, neuromodulation & surgical devices
  - Innovation in the development and advocacy of less invasive devices
Innovation example:
Collaboration with MIT and BMES

High density feedthroughs for Ocular implants
- Next generation device
- Improved telemetry coils and hermetic case
- BMES Development
  - Argus I - 16 electrodes in 25mm took 15 years
  - Argus II 60 electrodes in 5mm took 5 years
Projecting significant growth from Semiconductor Processing & Electronic Data Processing

• Creativity in the application of technologies will drive growth by improving efficiency and reducing the cost of information

• Significant growth forecast supported by:
  • Strong new product offerings – CMP Phoenix® Edge and Sharkskin™
  • Major growth program for HDD application utilising manufacturing in Malaysia
• Reaction Bonded Silicon Carbide (RB-SiC) disc produced by Morgan AM&T
• Chemical Vapour Deposition (CVD) Diamond coated for high performance
• Significantly outperforms conventional conditioners in demanding CMP applications
Patented Sharkskin™ Surface Texturing for semiconductor PVD & CVD processes

- A well-controlled, high-roughness surface texturing integral to the alumina base material
- Improves process residue adhesion and reduces overall particulate defects
- Greater holding power to residue build-up, extends time between PM cycles
- Enhances or replaces aluminum twin-arc spraying (TWAS)
- Replaces damaging bead blasting process
- Texture identical composition to substrate
- High roughness without sub-surface damage
- Acid and plasma resistant 99.8% alumina
Ceramics is working with computer disk drive manufacturers to incorporate piezoelectric components on the next generation of drives. These components allow for improved control of the read-write head, which enables data density to increase allowing more data per disc and drive to increase total storage.

We are partnered with the market leader.
Morgan Ceramics

Growth Plans

Ian W Robb
President Asia
Strategic intent: To capitalize on positive market dynamics

- Main investments in China, India & Middle East
- Focus on selected markets with megatrend drivers
- Drive operational excellence for cost efficiency and quality
- Localise manufacturing content in Asia
- Drive Superwool® Fibre strategy for Asia
- Increase Technical Ceramics sales
- Continually drive EHS and business controls standards
- Further strengthen regional team by end 2011, to lead rapid growth of our business
We are well placed with sales in rapidly growing and demanding applications

Morgan Ceramics sales by market into Asia region 2010
Asian market dynamics and megatrend drivers create differentiated product opportunities

- Asia has >60% of world population (6.9bn est. 2010) China and India together hold 40%
- People need power, fertilizers (chemicals), infrastructure (steel, glass, aluminium, ceramics) and general manufacturing equipment
- Growing affluence (middle class) in India and China and ageing populations of Japan and Korea
- Growing alignment and opportunities with medical, water purification and EHS
- Firmly focusing on the technologies with the greatest commercial opportunity given these dynamics
China energy demand to increase by 75% over 25 years

• China overtook America to become the world’s largest energy user
• Global demand for energy will increase by 36% to 2035
• Emerging economies will account for 93% increase
• Fossil fuels remains the dominant source of energy in 2035
• Renewable energy sources rise
• Demand for coal and oil in OECD countries will fall 44% to 33%

Source: The Economist 13th November 2010
Asia leads global steel production and demand

- World steel production 1,414 million metric tons (mmt)
- Asia’s Annual production share 63.5%
- China 44.3% of world production
- India’s potential for steel is huge; their per capita steel consumption is only 35 kg compared to 150 kg in the world and 250 kg in China
- Estimated that by 2015-16, India would become the second largest steel producer

Source: www.worldsteel.org
India, China and SE Asia showing robust growth and attracting strong investment in petrochemicals

- Asia’s petrochemical opportunity estimated to be 50% of the global chemical volume growth
- Ethylene growth led by China the world’s biggest producer (25%) and consumer (30%)
- China’s Sinopec expanding from 9.5m tonnes per annum (tpa) to 13.5mn tpa by 2015
- In India 43m tpa additional refining capacity next 5-6 years
- Singapore is positioning to become an advanced oil, chemicals and lubricants hub

Source: KPMG Report
Bringing proven technology and processes to the growing Aerospace industry in Asia

- Singapore developing major engineering and repair facility
- Completed by 2018, creating 10,000 jobs, doubling sector output from S$6.3bn
- Key players include Rolls-Royce and Eurocopter SEA
- By 2015 Chinese and Indian markets high growth
  - India: CAGR 13.1% with investment of $36.2bn
  - China: CAGR 15.6% with investment of $185.7bn
- 500m air passengers in China
- Commercial aircraft growth from 2600 to 4500
- Helicopter purchases in China will reach 3300
- China aircraft production increases dramatically

Source: KPMG Report
Population growth and increased life expectancy creating exciting new opportunities in medical

- Life expectancy increasing through medical advancement and public health measures
- China’s five year plan stimulates foreign investment in the medical device sector
- Medical Implant assemblies, Hermetic Seals in X-Ray market segments
- China production versus importing; significant tax advantages and government funding
- Healthcare and medical devices planned expenditure CNY850bn 2009-11 plus
- Medical Equipment CNY1.7bn in rural China
- China Improves re-imbursement schemes
- Singapore Government. invests S$3.7bn in Biomedical research through 2015

Source: KPMG Report
In this exciting, diverse market we are experiencing real megatrend growth

• Optimise our Superwool® Fibre growth plan and increasing output of converted products are driving our margins higher, by adding valued solutions

• Technically differentiated engineering solutions, driving opportunities in Asia for both Technical and Thermal solutions

• Western based customers of aerospace, medical and high tech components are re-locating or investing in Asia

• Specific opportunities already identified for growth from domestic manufacturing in Asia

• Strengthening alliances with existing partners in India and China to utilise our international expertise with their local competences
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Summary & closing remarks

Andrew Hosty
CEO
The Division’s plans fully support Morgan’s aim of doubling PBT

- Full recovery of IGT and medical markets
- Growth in new markets and products
- Organic growth from targeting markets with > GDP growth
- Selective use of value accretive M&A
- Read-write head positioning technology for high capacity hard disk drives (HDD)
- Divisional integration benefits and operational improvements
- Emerging markets growth strategy
- Recovery and organic growth in current businesses
- Roll out of extended Superwool range
- Full recovery of IGT and medical markets

2010 2011 2012 2013
Any questions?
CAPITAL MARKETS PRESENTATION
31 MARCH 2011, LONDON

Engineered Materials Division

Don Klas
Agenda

• Reflect on our journey
• 2010 review
• Overview of our businesses
• 2011 and beyond
Looking back

- Success in US ceramic body armour led to our acquisition of NP Aerospace
- We demonstrated resilience through the worst economic downturn of our lifetime
- Established globally aligned teams that leverage our global reach
Our commitment to investing in technology

... is yielding breakout technically differentiated solutions for solar and LED

...has led to our entry into the lithium ion space

...and to a burgeoning pipeline of new materials technologies and engineered solutions
Today we have 3 strong brands serving our markets
...delivered through locations in 25 countries providing global scale and reach

c.4,000 employees  35% in low cost countries
...and through the economic crisis we have reshaped our cost base

- Significantly trimmed AM&T overheads in the West with more opportunities looking forward

- Moved direct labour to low cost countries while building capability and scope to continue

- More than doubled our resources in China and we are continuing to add talent and bandwidth

- Increased our investment and capability in technology development with intentions to continue
Engineered Materials: profits up year-on-year with non-NP Aerospace revenue increasing c.22%  

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<th></th>
<th>£m</th>
<th>Revenue FY10</th>
<th>Revenue FY09</th>
<th>EBITA pre-restructuring and one-off items FY10</th>
<th>EBITA pre-restructuring and one-off items FY09</th>
<th>Profit Margins % FY10</th>
<th>Profit Margins % FY09</th>
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<tr>
<td>AM&amp;T (formerly Carbon)</td>
<td></td>
<td>246.8</td>
<td>205.2</td>
<td>22.1</td>
<td>11.6</td>
<td>8.9%</td>
<td>5.7%</td>
</tr>
<tr>
<td>NP Aerospace</td>
<td></td>
<td>120.9</td>
<td>186.2</td>
<td>17.1</td>
<td>28.9</td>
<td>14.2%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Molten Metal Systems</td>
<td></td>
<td>40.3</td>
<td>30.1</td>
<td>6.3</td>
<td>0.9</td>
<td>15.6%</td>
<td>3.0%</td>
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<tr>
<td>Engineered Materials</td>
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<td>408.0</td>
<td>421.5</td>
<td>45.5</td>
<td>41.4</td>
<td>11.2%</td>
<td>9.8%</td>
</tr>
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- Profits up £4.1 million on lower revenue following the exceptional level of sales by NP Aerospace in 2009
- 22% increase in non-NP Aerospace revenue driving significant improvement in AM&T and MMS margins
• 80% of the Division’s turnover is in Europe and America, however, China grew more than 40% in 2010 with prospects for continued strong growth in 2011

• 60% of turnover is in our traditional businesses where aggressive growth strategies are targeting GDP growth or better over the next few years

• The remaining 40% of turnover provides significant scope for growth
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CAPITAL MARKETS PRESENTATION
31 MARCH 2011, LONDON

Engineered Materials Division

Businesses Overview
6 Key Businesses

- Electrical
- Soldier Survivability
- MMS - Crucibles
- Seal & Bearing
- Hi Temp
- Lithium Ion
- Other
Electrical Business

Applications

Products

[Images of various electrical business applications and products]
Electrical Business

• Built upon Morgan’s long standing global industrial & traction carbon brush business

• Continues to deliver healthy gross margins
  - materials technology
  - application engineering
  - service

• Together with our Seal & Bearing business delivers the global platform that provides us the reach and scale to penetrate new markets
Electrical Business

Industry Drivers
Operating efficiency and uptime for critical applications in industry, mining, power gen, and rail transport

Growth Trends
< GDP due to conversion to brushless offsetting growing demand from rail traction and wind

Megatrends that impact
Rail transport growth in Emerging Markets. Wind energy growth in China and the US

Target Market
£350m

Current Market Position
Consumable

Strategic Focus:
Rail, wind, winning in Emerging Markets
Seal & Bearing Business

Applications

Products
Seal & Bearing Business

• Delivering solid and improving gross margins
  - highly engineered products
  - materials technology
  - global network of application engineers

• Positive growth prospects

• Recognized as the only true “Global Supplier”

• In early 2000’s the technologies and capabilities of this business; namely our expertise in sintered silicon carbide, spawned our successful entry into the US body armour market
Seal & Bearing Business

Industry Drivers
- Operating efficiency, uptime and performance in critical applications for chemical processing, oil & gas, aerospace and water

Growth Trends
- GDP + with high growth in China and in oil & gas
- Increased investment when oil price is high

Megatrends that impact
- Industrialisation and urbanisation in Emerging Markets

Target Market
- £250m

Current Market Position
- #1

Strategic Focus:
- Grow market share with focus on China and Emerging Markets - capitalise on status of being only true global supplier
Molten Metal Systems

Applications

Products

Morgan Crucible
The Advanced Materials Group
Molten Metal Systems

- Morgan’s original business - founded in 1856
- Continues to deliver healthy gross margins due to exceptional
  - materials technology
  - application engineering
  - extensive global distribution network
- 2010 first full year of operation for new India and China plants
Molten Metal Systems

Industry Drivers
Demand for high quality metal castings used across a broad range of end user markets and increasing demands for higher purity metals

Growth Trends
Growth at GDP+ in Emerging Markets

Megatrends that impact
Rapid industrialisation and population growth drive usage

Target Market
£100m

Current Market Position
Consumable

Strategic Focus:
Grow market share in Asia and other Emerging Markets
Soldier Survivability Business

Applications

Products
Weight has become the pervasive issue

Military Vehicles are significantly overweight. The tension between survivability and mobility is driving the need for new, advanced lightweight solutions.

Soldiers today are over burdened with armour, batteries, communications, etc. causing severe strain. Their current load is > 50 Kg – new lightweight solutions needed.
So weight is the opportunity that our investment in technology targets...
Soldier Survivability Business

Industry Drivers
- Weight reduction & increased payload, escalating threats, increasing mobility requirements

Growth Trends
- Shrinking budgets but emphasis on soldier survivability and mobility increasing worldwide

Megatrends that impact
- Escalating global conflicts and tensions mean that countries are re-evaluating their survivability capabilities

Target Market
- £1,000m

Current Market Position
- OEM

Strategic Focus:
Leverage Division’s global reach and NPA / AM&T technology portfolio to penetrate US and other major militaries – continue to invest in R&D
The solar market’s rapid growth is driving demand for high temperature insulation solutions.

- **Bloomberg Conservative (Nov. '10)**
- **Bloomberg Optimistic (Nov. '10)**
- **Morgan Outlook Mar. '11**

Installed GigaWatts / year

- 2009: 7.3
- 2010: 16.6
- 2011: 22.2
- 2012: 24
- 2013: 26
- 2014: 30
- 2015: 38

...yields, cell efficiency, energy consumption and life cycle cost are rising in importance for solar cell production

Morgan’s enabling technologies.....

- up to 48% energy savings
- up to 15% higher yields
- up to 50% extended life
- Improved cycle times

- 1-2% higher yields
- Improved cell efficiency
- 1% cell efficiency = $100k
- now data sharing with high-end players

- 20% avg energy savings
- 2X demonstrated thru put
- Engaged with end-users and OEM’s
Demand for sapphire based High Brightness LED’s has grown exponentially / driving demand for Morgan’s high quality felt

HB LED Market Forecast
2009-2014

CAGR = 30.6%
Sapphire crystal production is in early stages, but investment is exploding.

- Typical customer qualification takes 9 months
- Morgan is providing the highest purity LED furnace consumables in the world
In solar and LED picking the right customers to partner with is crucial

- Morgan is selling to more than 40 customers (from a market of over 500)
  - Including major end-users in:
    » China
    » Taiwan
    » Korea
    » Europe
    » USA
    » Japan
  - And …10 OEMs in the US, Europe and China

- Developing more than 140 customers

- We are well positioned to capitalise on market growth
Hi-Temp Business

Industry Drivers
Exploding demand for high efficiency silicon solar cells and white LED’s demanding higher performance solutions

Growth Trends
> 20% CAGR from silicon solar sector and >31% from LED sector

Megatrends that impact
Renewable energy and energy efficiency

Target Market
£400m

Current Market Position
Consumable

Strategic Focus:
Leverage Division’s global reach and leading edge technology portfolio to capture share and capitalise on market growth – continue to invest in R&D
Lithium Ion Anode Business

Applications

Products
The Lithium Ion Battery is the ‘new engine’

Anode Active Material
It plays a major role in energy generation and is dominated by carbon based technology
Frost & Sullivan 2010

The performance of the electrodes will govern the performance of the car
Electric vehicle availability is beginning to grow

**Available today**
- G-WIZ – range 70 miles
- Tesla – range 211 miles
- Mitsubishi i-MiEV – range 90 miles
- Peugeot iON - range 80 miles
- Citroen C-Zero – range 70 miles
- Nissan Leaf – range 100 miles

**Available late 2011-2012**
- Tata EV – range 110 miles
- Renault Kangoo – range 105 miles
- Smart ForTwo ED – range 85 miles
- Vauxhall Ampera – range 50 miles
- Renault Twizy – range 60 miles
- Renault Fluence – range 100 miles
Lithium Ion Anode Business

Lithium Ion battery anodes are made from highly engineered graphite powders…

…advanced materials and technology will be enablers for these new applications
Lithium Ion Anode Business

Industry Drivers
Drive for higher and longer power output for portable power, higher charge storage and cyclability for EV and ES

Growth Trends
Portable power growing at >15% per annum. EV predicted to grow 126% CAGR 2009-2016.

Megatrends that impact
Declining fossil fuel resource, need to meet International CO2 reduction targets coupled with ‘political will’ to be leader in EV technology

Target Market
£375m

Current Market Position

Consumable

Strategic Focus:
Link Hairong with Division’s infrastructure in China, global reach, and technology centres – continue to invest in R&D and seek alliances/partners
Clean energy business targeted to treble from c.£20 – 60 million of revenue from 2010 to 2013

- solar power generation
- wind power generation
- electric vehicles
- energy storage
- future development

graphene and other advanced materials
A technology pipeline filling with exciting prospects for the future in renewable energy
The Division is well placed to contribute to Morgan’s ambition of doubling PBT

- Recovery & organic growth in traditional businesses – high drop through
- Growth in the clean energy sector
- Selective use of value accretive M&A
- Driving cost-efficiencies throughout the business
- Capitalising on Chinese growth

2010 Underlying PBT

2013 Underlying PBT
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CAPITAL MARKETS PRESENTATION
31 MARCH 2011, LONDON

Engineered Materials Division

Don Klas
CAPITAL MARKETS PRESENTATION
31 MARCH 2011, LONDON

Return On Capital Employed (ROCE)
&
2011 Long Term Incentive Plan (LTIP)

Kevin Dangerfield
OPERATING RETURN ON CAPITAL EMPLOYED

(OROCE)
Financial ambitions by 2013

- Double Group underlying PBT* from £75.7 million to c.£150 million
- Mid-teen underlying operating profit margins
- Improve Operating ROCE from c.25% in 2010 to c.35% by 2013

*Underlying PBT is defined as operating profit before amortisation, less net financing costs
Improving Operating Return on Capital (Operating ROCE%)* in 2010

- Pre tax Operating ROCE % in 2010 at 25.4%
- Strong improvement in Operating ROCE% in recent years
- Focus on continued improvement going forward – key element of LTIP plans

*Return on Operating Capital Employed is defined as Underlying Operating Profit divided by the sum of Working Capital (which excludes pension liability and provisions) and the net book value of tangible assets. Goodwill and other intangible assets are excluded.
Operating ROCE – managing both working capital and tangible fixed assets

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<th>2010 £m</th>
<th></th>
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<tbody>
<tr>
<td>Underlying OP</td>
<td>101.6</td>
<td></td>
</tr>
<tr>
<td>Operating capital employed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBV Land &amp; Buildings</td>
<td>108.8</td>
<td>27%</td>
</tr>
<tr>
<td>NBV Plant &amp; Equipment</td>
<td>160.4</td>
<td>40%</td>
</tr>
<tr>
<td>Total Working Capital</td>
<td>130.8</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>400.0</td>
<td>100%</td>
</tr>
<tr>
<td>Operating ROCE</td>
<td>25.4%</td>
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Managing low return/low value creation businesses and assets ("Pruning the tail")

• We want to free up capital and resources tied up in low return businesses and assets to redeploy into much higher return opportunities. Recent examples are:

• Sale of small, non-core Metal Injection Moulding (MIM) business from New Bedford MTC business to free up capacity for higher return medical ceramics business
• Sale of MMS French sales and distribution business to a 3rd party exclusive distributor
• Disposal of surplus land (e.g. in the UK, USA and Australia)

• There will be further opportunities to improve asset efficiency – focus at our recent ‘Global Strategy’ conference
Value accretive M&A – what we are looking for

• Value accretive within the first 12 months
• Complementary and additive technologies with unique points of differentiation
• Access to high growth end-markets and/or high growth end geographies
• Opportunity to leverage Morgan’s global reach
• Operating cost synergies
• “Asset light and knowledge/know how heavy” beats “asset intensive”
• High quality personnel that will have a strong cultural fit with Morgan
Strong cash generation – ability to invest in bolt-on acquisitions

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<th>FY10 £m</th>
<th>FY09 £m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash from trading *</td>
<td>141.9</td>
<td>120.5</td>
</tr>
<tr>
<td>Change in working capital</td>
<td>10.5</td>
<td>25.8</td>
</tr>
<tr>
<td>Change in provisions</td>
<td>(4.3)</td>
<td>(11.8)</td>
</tr>
<tr>
<td><strong>CASH FLOW FROM OPERATIONS</strong></td>
<td>148.1</td>
<td>134.5</td>
</tr>
<tr>
<td>Net capital expenditure</td>
<td>(17.0)</td>
<td>(13.7)</td>
</tr>
<tr>
<td>Restructuring costs and other one-off items</td>
<td>(7.8)</td>
<td>(12.1)</td>
</tr>
<tr>
<td>Net interest paid</td>
<td>(22.7)</td>
<td>(23.2)</td>
</tr>
<tr>
<td>Tax paid</td>
<td>(24.1)</td>
<td>(32.0)</td>
</tr>
<tr>
<td><strong>FREE CASH FLOW BEFORE ACQUISITIONS AND DIVIDENDS</strong></td>
<td>76.5</td>
<td>53.5</td>
</tr>
<tr>
<td>Cash flows in respect of acquisitions</td>
<td>(32.9)</td>
<td>(31.9)</td>
</tr>
<tr>
<td>Dividends paid</td>
<td>(15.4)</td>
<td>(12.1)</td>
</tr>
<tr>
<td>Exchange movement and other items</td>
<td>(11.7)</td>
<td>28.2</td>
</tr>
<tr>
<td><strong>Movement in net debt in period</strong></td>
<td>16.5</td>
<td>37.7</td>
</tr>
<tr>
<td>Opening net debt</td>
<td>(252.7)</td>
<td>(290.4)</td>
</tr>
<tr>
<td>Closing net debt</td>
<td>(236.2)</td>
<td>(252.7)</td>
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- Morgan is a +£50 million free cash flow business
- Third party working capital to sales ratio below 20%
- Significant acquisition payments
- ...but net debt still reduced £16.5 million year-on-year

* Cash from trading is EBITA adjusted for depreciation and loss/patent on sale of plant and machinery
2011 LONG TERM INCENTIVE PLAN
(3 YEAR PLAN)
(LTIP)
2011 Divisional LTIP’s – major improvement from previous metrics to CAGR of OP & ROCE

- c100 senior executives below Board level
- Each division has tailored CAGR OP & ROCE targets that underpin Group goals
- CAGR OP/ROCE metrics - equal weighting to both
- Better line of sight for management
- Both metrics within Divisional control - a better incentive scheme than TSR/EPS
Our ambition is to double underlying PBT

- Recovery and organic growth in traditional businesses
- Growth in new markets/products eg. clean energy, HDD
- Rapid growth potential in Emerging Markets
- Selective use of value accretive M&A
- Cost benefits of low cost manufacturing and divisional streamlining

2010 Underlying PBT: £75.7 million
2013 Underlying PBT: c.£150 million