Specialty Materials

Andreas Kramvis
President and CEO

Honeywell
Forward Looking Statements

This report contains “forward-looking statements” within the meaning of Section 21E of the Securities Exchange Act of 1934. All statements, other than statements of fact, that address activities, events or developments that we or our management intend, expect, project, believe or anticipate will or may occur in the future are forward-looking statements. Forward-looking statements are based on management’s assumptions and assessments in light of past experience and trends, current economic and industry conditions, expected future developments and other relevant factors. They are not guarantees of future performance, and actual results, developments and business decisions may differ from those envisaged by our forward-looking statements. Our forward-looking statements are also subject to risks and uncertainties, which can affect our performance in both the near- and long-term. We identify the principal risks and uncertainties that affect our performance in our Form 10-K and other filings with the Securities and Exchange Commission.
Agenda

• Introductions
  Elena Doom

• SM Overview
  Andreas Kramvis

• Specialty Products
  Jack Boss
  - Performance Materials
  Rebecca Liebert
  - Electronic Materials

• UOP
  Rajeev Gautam

• Q&A
  All

• Lunch with SM Leadership Team
Specialty Materials Overview

**Financials**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales ($B)</th>
<th>Segment Margin %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>$4.1</td>
<td>14.6%</td>
</tr>
<tr>
<td>2010</td>
<td>$4.7</td>
<td>15.8%</td>
</tr>
<tr>
<td>2011E</td>
<td>$5.6-$5.8</td>
<td>17.5-18.0%</td>
</tr>
</tbody>
</table>

- **~17% CAGR**

**Recent Highlights**

- **Record 1H 2011 Performance**
  - Sales up 15%, Op.Margins @ 20%

- **Securing Major Wins Across Portfolio**
  - Rich backlog of long-term contracts

- **Sunoco Phenol Acquisition Closed**
  - Secured critical raw material input

**Business Units**

- **UOP**
- **Advanced Materials**

**Geographic Mix**

- **North America**
- **Latin America**
- **EMEA**
- **Asia Pacific**

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**Strong Performance Through Cycle**
End Market Update

• What we are seeing
  + High UOP win rates – new product and EM penetration
    – Project financing challenges – some delays
  + Good traction on new product introductions – strong commercial pull
    – Some sequential moderation in select markets, but growth YOY

• What we are expecting
  + Successful new product launches driving continued market penetration
  + Increased investment to fund breakthrough technology commercialization
    – Moderated growth vs. first half – continued market uncertainty
    – Narrowing of Advanced Materials price-to-raws spreads
    – Sunoco phenol acquisition integration – dilutive to margin rate

On-Track To Deliver Another Record Year
Market Assumptions And Outlook

Energy & Power Demand
- Emerging region growth
- OECD capacity upgrading / rationalization
- Natural gas growth, increasing demand for acid removal
- Renewables – Increased legislative clarity / Gov’t funding

Refining & Petrochemicals
- Industry shift to cleaner fuels / diesel creating opportunities
- Petrochemical growth in key emerging markets
- Investment constraints due to capital market tightness, low margins, regulation

Housing & Construction
- Sluggish recovery in residential construction
- Nonresidential markets expected to decline through 2011

Industrial Applications
- Increasing demand for higher performing products
- Favorable regulatory environment supports new LGWP offering
- Tight global caprolactam supply
- Demand for energy efficiency, performance creating opportunities
- Fertilizer demand steady

Semiconductor & Electronics
- Semiconductor demand growth, reaching cycle peak in 2013
- Increasing electronics demand for new products & applications

Stable Outlook, Monitoring Trends Closely
### Key Products And End Markets

#### UOP
- Process Technology
- Catalysts and Adsorbents
- Engineering/Equipment
- Services
- Biofuels Technology

<table>
<thead>
<tr>
<th>Products</th>
<th>End Markets</th>
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<tbody>
<tr>
<td>UOP Fluorine</td>
<td>Process Technology</td>
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<td>Biofuels Technology</td>
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<tr>
<td>UOP Fluorine</td>
<td>Refining</td>
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<td>Petrochemicals</td>
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<tr>
<td>UOP Fluorine</td>
<td>Natural Gas</td>
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<td>UOP Fluorine</td>
<td>Renewable Energy</td>
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<td>Heat Transfer / Refrigerants</td>
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<td>Structural Enclosures</td>
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<td>Industrial Products</td>
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<td>UOP Fluorine</td>
<td>Nuclear Services</td>
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<td>Air Conditioning</td>
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<td>UOP Fluorine</td>
<td>Foam Insulation</td>
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<td>UOP Fluorine</td>
<td>Gasoline Refining</td>
</tr>
<tr>
<td>UOP Fluorine</td>
<td>Nuclear Power</td>
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<tr>
<td>UOP Resins &amp; Chemicals</td>
<td>Caprolactam (Key Nylon Ingredient)</td>
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<tr>
<td>UOP Resins &amp; Chemicals</td>
<td>Nylon Resin</td>
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<tr>
<td>UOP Resins &amp; Chemicals</td>
<td>Ammonium Sulfate Fertilizer</td>
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<td>UOP Resins &amp; Chemicals</td>
<td>Refining</td>
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<td>UOP Resins &amp; Chemicals</td>
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<td>UOP Specialty Products</td>
<td>Ballistic Protection</td>
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<td>UOP Specialty Products</td>
<td>Performance Additives</td>
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<td>UOP Specialty Products</td>
<td>Protective Films</td>
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<td>UOP Specialty Products</td>
<td>Advanced Semiconductor Materials</td>
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<td>Armor</td>
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<td>UOP Specialty Products</td>
<td>Additives</td>
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<td>UOP Specialty Products</td>
<td>Pharma/PV Packaging</td>
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<td>UOP Specialty Products</td>
<td>Electronics</td>
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### Key Differentiators

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<thead>
<tr>
<th>Differentiator</th>
<th>Mechanism</th>
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<tbody>
<tr>
<td>Operating Approach &amp; Leadership</td>
<td>Business Decision Week</td>
</tr>
<tr>
<td>Analytical Capabilities &amp; Innovation Engine</td>
<td>Technology Investments &amp; VPD™ Process</td>
</tr>
<tr>
<td>Plant Performance &amp; Process Technology</td>
<td>HOS &amp; Plant Strategic Plans</td>
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</tbody>
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### Annual Segment Margin, SM vs. Industry Peers

<table>
<thead>
<tr>
<th>Year</th>
<th>Specialty</th>
<th>Diversified</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>2006</td>
<td>4%</td>
<td>8%</td>
</tr>
<tr>
<td>2007</td>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td>2008</td>
<td>12%</td>
<td>16%</td>
</tr>
<tr>
<td>2009</td>
<td>16%</td>
<td>20%</td>
</tr>
<tr>
<td>2010</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td>1H 2011</td>
<td>24%</td>
<td>24%</td>
</tr>
</tbody>
</table>

“Specialty” based on 40 companies, “Diversified” based on 8 companies, reporting as of 9/8/11.
Management Multi Year Roadmap

Operational Excellence
- HOS
- Increased Attainment
- Yield Improvements
- Debottlenecking
- Plant Strategic Plans

New Product Introductions
- Molecule Scale-up
- Technology Leadership
- Application Development

Globalization & Market Creation
- Emerging Region R&D
- Global Demand Capture
- Strong Governance and Processes

Sales & Marketing Excellence
- Sales Force Deployment
- Regionalization
- Pricing Excellence

Long-Term Growth
- Investments / Partnering
- Leveraging Technology Pipeline
- Project Execution

Op Margin
- 14.6%
- 2009 Operational Excellence
- New Product Introductions
- Globalization & Market Creation
- Sales & Marketing Excellence
- 2014 Upside from LT Growth Investments

Structured Approach To Investment And Growth
## Three Business Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Business</th>
<th>Characteristics</th>
<th>Product Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Molecule &amp; Scale-Up</strong></td>
<td>Fluorine Products</td>
<td>• Molecule screening and discovery</td>
<td>Low-Global-Warming Platform</td>
</tr>
<tr>
<td></td>
<td>Resins &amp; Chemicals</td>
<td>• Process scale-up important</td>
<td>Lithium-Ion Battery Technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Major plant investments before product launch</td>
<td>New Nylon Resins</td>
</tr>
<tr>
<td><strong>Technology Leadership</strong></td>
<td>UOP</td>
<td>• Technology licensing model</td>
<td>More From a Barrel of Oil</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Invent, demonstrate and license</td>
<td>Chemicals From Natural Gas &amp; Coal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Ongoing supply of catalysts</td>
<td>Bio-Renewables</td>
</tr>
<tr>
<td><strong>Fast-Cycle App. Develop.</strong></td>
<td>Specialty Products</td>
<td>• VOC drives new product/service ideas</td>
<td>Asphalt Processing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Customizing existing technologies</td>
<td>Photovoltaic Materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fast time to market</td>
<td>Next-Generation Spectra® Fiber</td>
</tr>
</tbody>
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**Strong Technology And Business Alignment**
Technology Excellence

Technology Advantage

- Industry leading R&D investments
  - 1,000+ technologists, including 400 PhDs
  - Leading edge equipment & processes
- IP portfolio
  - 2,700 U.S. patents
  - Rich pipeline with breakthrough technologies
- Global resource base
  - ‘One Honeywell’ Centers of Excellence
  - East-to-West and East-for-East capabilities

Pipeline Focus, Health and Velocity

<table>
<thead>
<tr>
<th># Active Projects</th>
<th>Yr 5 Gross Sales Potential ($B)</th>
<th>Current Yr Launch Sales ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>324</td>
<td>2009</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>4.0</td>
</tr>
<tr>
<td>↓34%</td>
<td>2009</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>200</td>
</tr>
<tr>
<td>↑90%</td>
<td>2009</td>
<td>↑100%</td>
</tr>
</tbody>
</table>

Next-Gen Solutions

- Natural Gas Clean-Up
- Asphalt Additives
- Green Jet / Diesel
- Photovoltaic Materials
- Waste Biomass to Fuels
- High Purity LiPF6 for Vehicles
- Methanol-to-Olefins
- LGWP (4th generation replacements)

Contribution to Growth

- 2011
  - New 50%
  - Replacement 50%
- 2016
  - New 75%
  - Replacement 25%

Delivering Results Today...Rich Pipeline Fuels Growth
Technology Commercialization

• Significant Number of Breakthrough Commercial Opportunities, e.g.

  ✓ Low global warming potential refrigerants, blowing agents and aerosols

  ✓ Photovoltaic films and materials

  ✓ Asphalt additives

  ✓ Methanol-to-olefin conversion

  ✓ Bottom-of-the-barrel upgrading

• Plants Designed, Strong Commercial Pull / Contracts

  ✓ Assessing ‘Make vs. Buy’ Economics

High Return Opportunities...Will Invest Smartly
Operational Excellence

Plants Outperforming Prior Peak

Example | Volume | Conversion Cost
---|---|---
Mobile, AL | 2008 | 2011 | 2008 | 2011
Catalysts | HOS Bronze
Orange, TX | 2007 | 2011 | 2007 | 2011
Wax Additives | HOS Bronze
Pottsville, PA | 2008 | 2011 | 2008 | 2011
Aclar Film | HOS Bronze
Spokane, WA | 2008 | 2011 | 2008 | 2011
Semicon Targets | HOS Bronze

HOS Deployment Status

Disciplined Decision Making

- STRAPs across all plants
- Daily monitoring rigor
- High return investments:
  - Systematic debottlenecking of existing assets
  - Never replace in kind
  - Fund attractive growth opportunities

Maximizing Existing Manufacturing Assets
Globalization

- Expand tech support in Middle East, Russia, China, Brazil
- New India tech center for refining, other technologies
- New Malaysian engineering center and manufacturing facility for gas processing
- Shanghai application lab expansion
- New procurement resources in Brazil, China, Malaysia and India
- Expand engineering capabilities to build plants

🌟 New/expanded regional technical sales and/or support
🌟 New/expanded technology development capabilities
🌟 New/expanded procurement capabilities
🌟 New/expanded project engineering capabilities

Emerging Regions Driving ~60% Growth Through 2016
Fluorine Products

2011E Sales: ~$1.1B

Winning in the Marketplace

- Heat Transfer / Refrigerants
- Structural Enclosures
- Industrial
- Nuclear
- Industrial Products

Heat Transfer / Refrigerants
Residential / Commercial / Supermarket / Mobile Applications

Structural Enclosures
Insulation / Roofing / Weatherization Solutions for Residential / Commercial and Appliances

Nuclear Services
Conversion Capabilities and Inventory Management

Industrial Products
Differentiated Enabling Aerosol, Solvent and Catalyst Materials

Growing Faster Than End Markets
Next-Generation LGWP Solutions

**Mobile Air-Conditioning**
- **Environment:** GWP of 4 vs. 1430
- **Performance:** Meets All Requirements
- **Safety:** Non-Flammable
- **Cost-to-Serve:** Near Drop-in Replacement
- **Annual Sales Opportunity:** ~$300M

**Aerosol / Insulation Panels**
- **Environment:** GWP of 6 vs. 1430
- **Performance:** Meets All Requirements
- **Safety:** Non-Flammable
- **Cost-to-Serve:** In Use Today
- **Annual Sales Opportunity:** ~$100M

**Foam Insulation / Solvents**
- **Environment:** GWP of 7 vs. 1030
- **Performance:** Improved Energy Efficiency
- **Safety:** Non-Flammable
- **Cost-to-Serve:** Near Drop-in Replacement
- **Annual Sales Opportunity:** ~$200M

**Stationary Air Conditioning**
- **Environment:** >50% GWP Reduction
- **Performance:** Same Energy Efficiency
- **Safety:** Safer Than Hydrocarbons
- **Cost-to-Serve:** Solutions by Applications
- **Annual Sales Opportunity:** ~$300M
Resins And Chemicals

2011E Sales: ~$1.5B

Growth Drivers

- Capro Demand > Supply
  - Asia Driving 60% of Global Growth

Caprolactam
Key Ingredient in Making Nylon Resins and Fibers

Nylon 6 Resin
Used in the Manufacture of a Wide Range of Products

Ammonium Sulfate Fertilizer
Caprolactam Co-Product Used for Crops and Lawns

Phenol / Intermediates
Phenol and Co-Products From Caprolactam / Phenol Used in the Production of Various Chemicals

Increased Competitive Advantage via HOS

Expanding Global R&D Capabilities
  - Sulf-N® 26, Fishing Filament for Asia, Flexible Packaging

Strong Global Franchise
Sunoco (Phenol) Acquisition Summary

**Annual Sales:** ~$0.5B

- Phenol
- Acetone/Other
- By-Products

**Drivers and Applications**

- ~1B lb plant capacity
- Major supplier of phenol to HON plus ~25% of US merchant phenol demand
- Long-term contracts in place

**Business Overview**

- Asia driving global demand for phenol;
  China significant net importer for:
  - Auto & durable good polycarbonates
  - Phenolic resins for construction
- Tight supply/demand expected thru 2014

**Secured Key Raw Material**

- Natural Gas
- Phenol
- Sulfur
- Caprolactam
- Nylon 6

**Further Strengthens Leading Market Position**
Specialty Products Introduction

**Summary**

- Attractive businesses serving niche segments in larger markets
- Solutions represent small % of total cost, but deliver high value or critical need
- Global applications development capabilities reduce customer conversion cycle-times and drive new market creation
- Rigorous sales pipeline processes closely aligned with deployment of global sales, technology and capital Resources
- Funding high return, incremental, organic growth investments…Potential bolt-on acquisition opportunities

**Performance Films**
Healthcare, Solar and Industrial Applications

**High Strength, Light Weight Fibers**
Military and Law Enforcement Armor

**Specialty Additives**
High Performance Waxes and Lubricants

**Electronic Materials**
Semiconductor Targets, Polymers and Chemicals

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**2011E Sales: ~$1.2B**

- Performance Materials ~$0.8B
- Electronic Materials ~$0.4B

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**SM’s Fast Cycle Application Engine**

Jack Boss
Rebecca Liebert
Summary

• Business Continuing to Drive Industry Leading Returns
  - Strong performance through downturn and recovery
  - Outlook positive, outperforming targets

• Technologies Aligned With Macro Trends
  - Innovation engine feeds robust new product pipeline
  - Solutions delivering substantial HON and customer value

• Investing for Long-Term Growth
  - Funding development and scale-up of breakthrough technologies
  - Significant value creation potential
Specialty Products – Performance Materials

Jack Boss
Vice President and General Manager
Key Messages

✔ Significantly Transformed Business
  – Revitalized Portfolio
  – 600+ bps Margin Expansion Since 2007

✔ Built “Fast Cycle” Growth Engine
  – Sales & Marketing Excellence
  – Applications Focused Innovation

✔ Growth From Attractive Platforms Accelerating, e.g.

ACLAR FILMS
Pharma Packaging

PHOTOVOLTAICS
Renewable Energy

ASPHALT ADDITIVES
Global Infrastructure

✔ Seeds Planted for Further Growth & Margin Expansion

Positioned For Long-Term Growth
Performance Materials Overview

2011E Revenues: ~$0.8B

Overview

✓ Applications Focused Innovation
  – 30% Revenues from new products

✓ Diversified Markets & Technologies
  – 5,000 + Customers; 2,000 + Applications

✓ High Value Niche Applications
  – Small % of customer costs

✓ Customer Solutions Focused
  – Global platforms with local customization

✓ Nimble; Flexible Manufacturing
  – Modular designs; easily scalable

Regions

North America
Europe
Asia / Latin America

Performance Materials ~$0.8B
Electronic Materials ~$0.4B

Jack Boss
Rebecca Liebert

High Performing Fast Cycle Business
Key Products And End Markets

Performance Films
- Highest Moisture Barrier
- Best Cost / Performance
- High Growth Industries

High Strength Fibers
- Lightest Weight
- Best Ballistic Performance
- Mission Critical Applications

Specialty Additives
- Small % of Costs
- High Value Add
- Fragmented; Profitable Niches

Leverage Technology Platforms To Create New Markets
Business Transformation

Operating Margin Step Change

- Growth Acceleration
  - Operating Income $
  - OI % +400 bps

- Fix & Re-tool
  - OI % +200 bps

Key Actions

1. Portfolio Management
   - Exited >$100M underperforming businesses
   - Redeployed resources to seed planting

2. Operational Excellence
   - Improved competitiveness & flexibility
   - Leveraged HOS toolkit

3. New Market Creation
   - Revitalized innovation process
   - Invested in global applications labs
   - Re-deployed commercial resources globally

Well Positioned Portfolio . . . Large Global Potential
Fast Cycle Applications Business

**Global Sales & Marketing**

- **Investment Ahead of Sales**
  - Creating Markets and Customer Pull

- **Sales Force Design & Deployment**
  - Targeting Key Segments & Regions

- **Value Proposition Demonstration**
  - Customized Tools & Pricing Strategies

**Application Labs**

- **Rapid Sampling Capabilities**
  - Reducing Time-to-Market

- **Create Value**
  - Ability to Improve Customers Products & Demonstrate Value

- **Global Presence**
  - Global Platforms/Local Customization

**Integrated Process**

**Operational Excellence**

- **Flexible Manufacturing**
  - Nimble, Customized, Scalable

- **Incremental Investments**
  - Fund After Commercial Adoption

- **Integrated SIOP Process**
  - Maximizing Asset Profitability

**Sales Pipeline Process**

- **Global, Granular, Disciplined...**

- **500+ Unique Projects with $700M Potential**

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“Sample to Sale” (6 – 18 Months)

**Rapid Customer Conversion Integral Part Of Culture**
### Drivers

<table>
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<tr>
<th><strong>Globalization</strong></th>
<th><strong>Customer Needs</strong></th>
</tr>
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| Highest growth now in emerging regions | • High humidity regions need improved moisture barrier  
• Standard global packaging solutions required |

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<tr>
<th><strong>Generics Growth</strong></th>
<th><strong>Customer Needs</strong></th>
</tr>
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</table>
| $17B new drugs coming to market | • Lowest total cost solution  
• Path to differentiation |

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<thead>
<tr>
<th><strong>New Drug Formulations</strong></th>
<th><strong>Customer Needs</strong></th>
</tr>
</thead>
</table>
| Increasing moisture sensitivity | • Ensure drug stability under varied conditions  
• Avoid delays on new product launches |

<table>
<thead>
<tr>
<th><strong>Drug as a “Brand”</strong></th>
<th><strong>Customer Needs</strong></th>
</tr>
</thead>
</table>
| Packaging important to reinforcing brand | • Transparent packaging to showcase product  
• Maximize shelf space and product life |

### HON Solution

- Highest moisture barrier transparent film available
- Longer shelf life
- Smaller packaging footprint
- Brand enhanced by transparent packaging
- Lowest “cost in use” and investment for pharma customers
- Broad offering to cover multiple segments
## Films To Protect PV Modules

### Drivers

**Increasing Focus on Renewable Energy**
- Greenhouse gas concern drives interest

**Drive to Grid Parity**
- Reduced system cost, higher reliability key

**Globalization**
- Manufacturing shift to Asia and quality standards increasing

### Customer Needs

- Reliable supply to meet demand growth
- Responsive global supply footprint
- Continuous innovation to improve cost /performance (lower $/watt)
- Lower module warranty costs
- Supplier reputation
- Pass certifications across regional regulatory agencies

### HON Solution

- Highest moisture barrier films to protect cells
- Lower power loss over lifespan of solar unit
- Integrated supply
- Channel position provides strong customer interface
- Multi-generation technology roadmap
- HON brand provides bankable quality & supply

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**Leveraging Core Technology & Global Application Labs**
## Additives for Asphalt Paving

### Drivers
- **Expanding Global Infrastructure**
  - Rapid emerging region investment

- **Lower Asphalt Quality**
  - More oil upgraded to fuel, rather than asphalt

- **Environmental/Energy Concerns**
  - Push to reduce energy and emissions

### Customer Needs
- **Increased road performance**
- **Customized formulations to suit local conditions**
- **Equivalent or better performance from lower quality asphalt**
- **Lower energy consumption and emissions during paving process**
- **Drive paving productivity – more roads in less time and at lower cost**

### HON Solution
- **Improved performance at lower concentrations than current additive**
- **Lower mixing and paving temperatures**
- **15-20% lower energy and emissions**
- **25-30% lower total cost**
- **Applications labs deliver local formulations**
- **30% reduction in paving time per mile**

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**Entering New Markets With Core Technology**
Summary

☑ Significantly transformed business

☑ Fast cycle growth engine in place

☑ Growth from attractive platforms accelerating

☑ High return investments underway to support growth
Specialty Products – Electronic Materials

Rebecca Liebert
Vice President and General Manager

Honeywell
Key Messages

• Technology leader serving attractive niches in large Semiconductor market
  ➢ HON solutions critical to customer processes

• Close partnerships with industry growth leaders, e.g.
  ➢ Intel, Samsung, TSMC, Applied Materials

• HON capabilities aligned with critical success factors
  ➢ Enabling technology, supply chain agility and operational excellence

• Levering Semiconductor technology into attractive new markets, e.g.
  ➢ Photovoltaics, LED, Displays
Semiconductor Industry Landscape

Rapid Technology Changes

- **Transistors per Chip**
- **Node Size**

<table>
<thead>
<tr>
<th>Year</th>
<th>1965</th>
<th>1990</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>1B</td>
<td>1M</td>
<td>1K</td>
</tr>
</tbody>
</table>

Price Erosion

- **Integrated Circuit Avg. Selling Price**

<table>
<thead>
<tr>
<th>Year</th>
<th>'05</th>
<th>'06</th>
<th>'07</th>
<th>'08</th>
<th>'09</th>
<th>'10</th>
<th>'11F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>$2.00</td>
<td>$1.75</td>
<td>$1.50</td>
<td>$1.25</td>
<td>$1.00</td>
<td>$0.75</td>
<td>$0.50</td>
</tr>
</tbody>
</table>

Summary

- **Features advance at exponential rate**
  - Technology leadership wins

- **Constant pricing pressure**
  - Technology, Operational, Sales & Marketing excellence critical to success

- **Dynamic demand environment**
  - Players require fast response times

* Source IC Insights

Demand Volatility

- **% Change YoY Integrated Circuit Wafer Starts**

<table>
<thead>
<tr>
<th>Year</th>
<th>1965</th>
<th>1990</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
</tr>
</tbody>
</table>

* Source IC Insights

Tough Landscape Where Technology, Cost And Agility Are Key
Electronic Materials Overview

2011E Revenues: ~$0.4B

- Products integral to ~75% of all semiconductors produced annually
- Metal and chemical vertical integration
  - Purities to parts per trillion
  - Alloy and blending expertise
  - Supply chain and cost structure control
- Core technologies for all generation semiconductors and adjacent electronic spaces
- Dedicated global sales, marketing and technical service

Regions

- Asia
- North America
- Europe

Overview

Delivering Critical Technology To Chip Makers
Market Entry Requirements for Materials Suppliers

Chip Designer/Foundry

Key Players
$10’s B Sales

Equipment Suppliers

Key Players
$B’s Sales

Materials Suppliers

Key Players
$100’s M Sales

- Technology Enablement
- Exacting Specifications
- Reliable Sourcing

Honeywell

Niche Player In Semiconductor Industry
# Key Offerings

<table>
<thead>
<tr>
<th>Product</th>
<th>Customer Value</th>
<th>HON Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electronic Polymers</strong></td>
<td>• ↑ Transistors/chip</td>
<td>✓ Process step reduction</td>
</tr>
<tr>
<td></td>
<td>• ↓ Steps</td>
<td>✓ Proven in advanced technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Standard tool application</td>
</tr>
<tr>
<td><strong>Sputtering Targets</strong></td>
<td>• ↑ Signal speed thru wire</td>
<td>✓ Highest vertical integration</td>
</tr>
<tr>
<td></td>
<td>• ↓ Chip defects</td>
<td>✓ Equipment OEM partnerships</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Advanced metals capability</td>
</tr>
<tr>
<td><strong>Electronic Chemicals</strong></td>
<td>• ↓ Lower wafer contaminants</td>
<td>✓ Highest purity</td>
</tr>
<tr>
<td></td>
<td>• ↑ Chip yields</td>
<td>✓ Quality control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Customized packaging</td>
</tr>
<tr>
<td><strong>Chip Packaging</strong></td>
<td>• ↓ Chip errors</td>
<td>✓ Leading thermal management technology</td>
</tr>
<tr>
<td></td>
<td>• ↑ Inputs and outputs</td>
<td>✓ High purity, multi-format products</td>
</tr>
</tbody>
</table>

**Products Used Across Chip Build And Integration**

Honeywell
Operational Excellence Critical To Success

HOS
Lean

↓ Cycle Times
↓ Cost

Yield
Debottleneck

↑ Capacity
↓ Cost

SIOP
Discipline

↑ Customer Responsiveness
↓ Inventory

Quality
Excellence

↑ Customer Satisfaction
↓ Cost

Example Results

Heat Spreaders - Thailand

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory</td>
<td></td>
</tr>
<tr>
<td>Walking Distance</td>
<td></td>
</tr>
<tr>
<td>Part Traffic Distance</td>
<td></td>
</tr>
<tr>
<td>Lead Time</td>
<td></td>
</tr>
<tr>
<td>Crew Size</td>
<td></td>
</tr>
</tbody>
</table>

Targets - Spokane, WA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory</td>
<td></td>
</tr>
<tr>
<td>Walking Distance</td>
<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Lead Time</td>
<td></td>
</tr>
<tr>
<td>Crew Size</td>
<td></td>
</tr>
</tbody>
</table>
Sales & Marketing Excellence

Sales Force Deployment

✓ Increased Direct Sales force by ~20%, solidified distributor relationships
  • Added resources closer to customers
  • Opportunity pipeline > 80% growth over the last 3 years

✓ Implemented Web-based sales pipeline and management system
  • Sales conversions increased 25% year-over-year since 2009
  • Opportunity conversion cycle times reduced by >20%

Global Penetration

State-of-the-art laboratories in US and Asia
Customer facing resources in semiconductor dense areas
# Leveraging Semi Technology Into New Markets

## Transferable Technology

<table>
<thead>
<tr>
<th>HON Product</th>
<th>Semi</th>
<th>PV</th>
<th>LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Polymers</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Sputtering Targets</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Electronic Chemicals</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Packaging Materials</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

## High Growth New Markets

<table>
<thead>
<tr>
<th>Markets</th>
<th>CAGR ‘10-’15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photovoltaics</td>
<td>20%</td>
</tr>
<tr>
<td>Mobile Phones &amp; Tablets</td>
<td>18%</td>
</tr>
<tr>
<td>LED</td>
<td>11%</td>
</tr>
<tr>
<td>Digital TV</td>
<td>7%</td>
</tr>
<tr>
<td>Automotive</td>
<td>6%</td>
</tr>
<tr>
<td>PC’s/ Notebook</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Source: iSuppli, HON estimates*

## Portfolio Diversification

- **2006**
  - 100% Semi
  - 70% Semi
- **2016**
  - 100% New
  - 30% New

---

**Targeting Attractive PV And LED End Markets**
Summary

• Serving attractive niche applications with leading technology solutions

• Leveraging technology leadership into attractive Photovoltaic and LED segments

• Honeywell Operating System key enabler in driving competitive advantage
Key Messages

• Leading franchise in the sweet spot of global demand for energy and petrochemicals

• Long-cycle growth engine with robust order backlog and rich opportunity pipeline

• Delivering unique solutions that boost the supply of key refined fuels and petrochemical products, e.g.
  ➢ Increasing diesel yields while meeting stricter sulfur content regulations
  ➢ Converting heavy crude to high-value fuels
  ➢ Boosting petrochemical yields to meet global growth in plastics and fibers
  ➢ Inventing next-generation fuels from non-traditional feedstocks
## Current Landscape

<table>
<thead>
<tr>
<th>What You Are Seeing</th>
<th>What UOP Is Seeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerging Region Growth</td>
<td>• Continued capacity investment driven by energy security needs and local demand</td>
</tr>
<tr>
<td>Improved Refining Margins</td>
<td>• Refinery utilization is increasing</td>
</tr>
<tr>
<td></td>
<td>• Product prices closing gap on crude</td>
</tr>
<tr>
<td></td>
<td>• U.S. refiner upgrading investments to capitalize on U.S. West Texas Intermediate pricing advantage vs. Brent</td>
</tr>
<tr>
<td>Shale Gas Development</td>
<td>• Increased unconventional gas development creating natural gas liquids recovery/processing opportunities</td>
</tr>
<tr>
<td></td>
<td>• Stimulated U.S. petrochemical projects</td>
</tr>
<tr>
<td>Oil Price Volatility</td>
<td>• Limited impact due to short-term swings</td>
</tr>
<tr>
<td></td>
<td>• Long-term pricing drives investment economics</td>
</tr>
<tr>
<td>Financial Uncertainty</td>
<td>• Financing challenges causing some project delays</td>
</tr>
<tr>
<td></td>
<td>• Renewed focus on most economically viable projects</td>
</tr>
<tr>
<td>Mid East Unrest</td>
<td>• Upstream project delays</td>
</tr>
<tr>
<td></td>
<td>• Limited impact on downstream capacity additions</td>
</tr>
</tbody>
</table>
UOP Overview

Financials
Sales $B

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>$1.6</td>
</tr>
<tr>
<td>2011E</td>
<td>~$1.9</td>
</tr>
</tbody>
</table>

9% CAGR

Segments

- Petrochemicals
- Gas & Hydrogen
- Manufacturing Adsorbents and Aluminas
- Refining

Geographic Mix

- Latin America
- EMEA
- North America
- Asia Pacific

Products

- Process Technology and Equipment
  Licensing, Services and Equipment for Refining, Petrochemical and Gas Processing Industries
- Catalysts, Adsorbents and Specialties
  Materials for Process Technology and Manufacturing
- Renewable Energy and Chemicals
  Process Technology for Transportation Fuels and Chemicals

Industry Leading Technology And Solutions
### UOP Positioning In Energy Supply Chain

<table>
<thead>
<tr>
<th>Input</th>
<th>UOP Technologies</th>
<th>End Products</th>
</tr>
</thead>
</table>
| Crude Oil              | Process technology, catalysts, equipment and services for **fuel** and **petrochemical feedstock** production. | • Gasoline  
• Diesel  
• LPG  
• Petrochemical feedstock |
| Petrochemical Feedstocks | Process technology, catalysts, equipment and services to produce **para-xylene**, **propylene**, **phenol** and **LAB**. | Chemicals used to produce:  
• Water bottles  
• Textiles  
• Plastics  
• Detergents |
| Natural Gas            | Treating technologies, adsorbents and services to **remove contaminants** from natural gas prior to distribution. | Natural gas for residential, commercial and power |
| Renewables             | Process technology, catalysts, equipment and services to produce **real fuels** from a range of **biofeedstocks**, from forest residuals to algae. | • Honeywell Green Diesel  
• Honeywell Green Jet  
• Oil for electricity generation and transportation fuels |
Typical Refinery Process

UOP Technologies Critical To Refinery Investments

**UOP Benefits**

- Produce more high-margin petrochemical feedstock
- Produce more high-demand diesel
- Produce cleaner fuels to meet regulations
- Optimize refineries and boost margins
- Process cheaper, but more difficult-to-refine heavier crudes
- Upgrade bottom-of-the-barrel to higher quality, higher margin products

**Typical Refinery Process**

- **Bottom of the Barrel**
  - ~20%
- **Transportation Fuels**
  - ~70%
- **Petrochem Feed & Other**
  - ~10%

**$10B+ Typical Investment**

- Produce more high-margin petrochemical feedstock
- Produce more high-demand diesel
- Produce cleaner fuels to meet regulations
- Optimize refineries and boost margins
- Process cheaper, but more difficult-to-refine heavier crudes
- Upgrade bottom-of-the-barrel to higher quality, higher margin products
UOP Industry Landscape - Refining

Global Energy Demand Tracks GDP

- Oil
- Natural Gas

Source: US Energy Information Administration

Refining Capacity Additions

2012-2016

- Asia
- Mid-East
- CIS/Africa
- Latin America
- North America

Equivalent to 30 new refineries

Refining Opportunity

- 5-8% Growth
- Capacity Replacement
- Regional Factors
- Environ. Reg.
- National Security
- ~1.4% Base Oil

Refining Growth

Summary

- Energy Demand Tracks GDP, However;
  - EM capacity additions ~5x of NA/EU
  - Demand mix, environmental, security, other factors drive refining growth
  - Changing crude inputs require refinery upgrades
  - Greater demand for energy efficiency and optimization

Underlying Growth Trends In UOP Sweet Spot
Boosting Diesel Yield

Diesel Demand > Other Fuels

UOP Technology Leadership

- UOP Unicracking™ is highest yield, lowest sulfur diesel technology
  - > 200 units globally
- UOP Unionfining™ improves quality to meet more stringent fuel regulations
  - > 300 units globally
- Hydrocracking and Hydrotreating Catalysts optimize yields and profitability

Actual Customer Result

- Increase in Feedstock Value ($/MT) $270
- Incremental Conversion to Higher Value Fuels 60%
- Customer Value Created $2.3B

Source: 2010 Purvin & Gertz GPMO
Source: 2008 HART World Refining Fuels Update
Upgrading Lower Quality Crude

Heavy Crude Increasing As Feedstock

Global Heavy Crude Production

KBPD

Source: Purvin & Gertz 4Q10 Price & Margin Update

Ability To Refine Provides Margin Lift

UOP Technology Leadership

✓ UOP Uniflex™ delivers industry leading conversion (90%+) to transportation fuels while minimizing residue by-products

✓ UOP Residue FCC process cost-effectively converts moderate to severely contaminated feedstocks into gasoline

Actual Customer Result

<table>
<thead>
<tr>
<th>Increase in High-Value Fuel Conversion</th>
<th>4-6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in Refiner Margins</td>
<td>50%</td>
</tr>
<tr>
<td>Customer Value Created</td>
<td>$300M</td>
</tr>
</tbody>
</table>
Integrated Solutions To Optimize Refinery Flexibility And Margins

**Complex Refinery Advantage**

- Less Complex, Small: ~$2
- More Complex, Large: ~$4
- High Demand: ~$5
- Difference: ~$15

**UOP Capabilities**

- Configuration
- Training & Start-Up
- Design Basis Optimization
- Front-End Engineering Design
- Process Design Services

**Actual Customer Result**

- Increase in Refinery Margins vs. Base Design: 20%
- Reduction in Construction Cycle Time: 1 yr
- Customer Value Created: $2B

**Optimized for Dynamic Inputs and Outputs**

- Feedstock type, quality and cost
- Output demand and price
- Regulatory changes
- Environmental footprint
- Schedule and project cost

Source: International Energy Agency
**Para-xylene Demand**

- **Sector Drivers**
  - Para-xylene used to manufacture clear plastic water bottles, polyester etc.
  - Demand driven by EM, primarily China (11% CAGR) and Mid-East (13% CAGR)
  - Additional 12 Million MT of capacity required by 2016 (~ 15 plants)

**Propylene Supply/Demand**

- **Sector Drivers**
  - Propylene (olefins) are used in the production of polymers used for plastics
  - Demand driven by EM growth in packaging and automotive
  - Traditional supply sources reducing due to use of ethane cracking (vs. naptha) in ME
  - Additional 14 Million MT of capacity required by 2016 (~ 25 plants)
Boosting Petrochemical Yield

Strong Demand for Para-xylene

Polyester Fibers
Globalization and shift to synthetics from natural fibers

P.E.T. Bottles
Globalization and penetration into existing non-plastic applications

UOP Technology Leadership

- World leader in para-xylene technology with large global installed base
- Lowest cost, most energy efficient para-xylene technology with largest single train in operation

Margin Lift for Customers

- Crude Oil: ~$600 / ton
- Transportation Fuels: ~$450 / ton
- Para-xylene (P-X): $450M

Actual Customer Result

- Increase in Feedstock Value ($/MT): $450
- Improvement in Energy Efficiency: 30%
- Customer Value Created: $450M
Boosting Propylene Supply...Today

Unique UOP Path to Propylene

Traditional Route to Propylene

Crude \(\rightarrow\) Naptha or Gas Oil \(\rightarrow\) Propylene

Unique UOP Oleflex Technology

Gas Field \(\rightarrow\) Propane \(\rightarrow\) On-purpose Propylene

Margin Lift for Customers

~$550 / ton

Increase in Feedstock Value ($/MT) $550

Improvement in Energy Efficiency 30%

Customer Value Created $200M

UOP Technology Leadership

- World leader in *on-purpose propylene* (Oleflex) technology with largest installed base

- Lowest cost, most energy efficient technology with largest single train in basic engineering design
New Routes To Propylene

Next-Gen UOP Path to Propylene

- **Traditional Route to Propylene**
  - Crude → Naptha or Gas Oil → Propylene

- **Unique UOP MTO Technology**
  - Coal → Methanol → On-purpose Propylene

**Margin Lift for Customers**

- Market Value $:
  - Coal: ~$1300 / ton
  - Methanol: ~$590 / ton
  - Propylene

**UOP Technology Leadership**

- UOP pioneering methanol-to-olefin (MTO) technology to produce olefins from feedstocks other than petroleum
- Successful demonstration plant in Belgium with partner Total Petrochemicals
- Beachhead project win in China with Wison Clean Energy Company

**Actual Customer Result**

- Increase in Feedstock Value ($/MT): $590
- Reduction in Production Costs: 40-60%
- Customer Value Created: $450M
UOP Gas Processing Technology

What We Do

• Gas membrane systems “clean” natural gas from wells by removing contaminants such as water, carbon dioxide.

• Smaller design for offshore applications, including new Floating Production, Storage and Offloading.

• Expanded engineering/manufacturing close to customers in Southeast Asia

Market Dynamics

• Natural gas fastest growing part of energy mix

• New technologies allowing for greater capture of off-shore natural gas opportunities

Growing Market, Right Technologies
UOP Industry Landscape - Gas

Robust Global Gas Demand

World energy demand by fuel type

Gas Investments by Region

Summary

- Gas share of global energy mix growing from 21% to 25% by 2035 (5.1 tcm), driven by clean power and EM growth
- Fastest growth in:
  - Offshore (12% CAGR)
  - Unconventional gas (Shale, CBM)
- $10B/yr investments in Gas Treatment
Gas Treating Opportunities

Offshore FPSO

Liquefied Natural Gas (LNG)

FPSO Sector Drivers

• Most attractive for offshore development (cost, schedule, flexibility)
• Additional 15-20 FPSOs annually
• Associated gas clean up before gas delivery to shore
• UOP Membrane Technology superior on footprint & weight vs. conventional solution

LNG Sector Drivers

• Gas resources far from demand regions
• Gas needs treating before liquefaction
• 150 bcm additions 2011-2020
• Floating LNG for stranded offshore gas fields a new growth opportunity
• UOP well positioned with large installed base in key regions

UOP Technology Well Positioned In Attractive Segments
Renewable Energy & Chemicals

- Building on UOP technology & expertise

- Produce **real** fuels (gasoline, diesel, jet) instead of fuel additives/blends (ethanol, biodiesel)

- Leverage existing refining/transportation infrastructure to lower capital costs, minimize value chain disruptions, reduce investment risk

- Focus on path toward second-generation feedstocks

- Create integrated biorefineries which utilize entire biomass: seed oil, seed cake & waste biomass/residue
Renewables Portfolio

Honeywell Green Diesel

- Superior technology produces real diesel, not an additive
- Drop-in replacement for existing automotive fleet
- Uses existing refining and pipeline infrastructure
- Excellent blending component

Honeywell Green Jet Fuel

- Meets stringent requirements for jet flight
- Successful demonstration flights with major airlines, engine makers; supply contract with U.S. Navy and Air Force
- ASTM approval granted for use in commercial flights

Fuel From Biomass

- Rapid Thermal Process (RTP) turns waste biomass to pyrolysis oil
- Immediate use for power generation and fuel oil substitution
- Working to upgrade pyrolysis oil to fuels/chemical feedstocks

UOP Leader In Next-Generation Technologies
Summary

• Continued strong demand for UOP technologies and solutions

• UOP in sweet spot of macro trends driving global refining, petrochemical and gas investments

• New technologies and global penetration extending leadership position