2018 SIPA Annual Meeting

Mark Vlaisavich
February 26, 2018
agenda

- transformation into specialty chemicals
- Ashland profile
- Ashland industrial specialties
- Isogrip™ and Isoset™
transformation from oil to specialty chemicals

- Ashland has a long history of successfully executing challenging strategic plans
- A decade ago, Management and Board set the objective to transform from an oil refiner to a premier specialty chemical company
- Completed numerous transformative transactions
- Created a highly differentiated leading specialty chemicals portfolio
Ashland profile

Ashland
Sales\(^1\) - $3.1 Billion

By Business Unit\(^{(1)}\)
- Ashland Performance Materials
- Ashland Specialty Ingredients

By Geography\(^{(1)}\)(\(^{(2)}\))
- North America
- Europe
- LATAM/Other
- Asia

Pharmachem
Sales - ~$300 Million

By End Market\(^{(3)}\)
- Custom Manufacturing
- Food, Beverage and Personal Care
- Nutrition and Health
- Fragrance and Flavors

By Geography\(^{(3)}\)
- North America
- Asia
- Europe
- Other

15+ End-Markets
Sales in 100+ Countries
~60 Production Facilities

\(^{(1)}\) For the Trailing 12 months ended March 31, 2017, excluding Valvoline
\(^{(2)}\) Ashland includes only U.S. and Canada in its North America designation
\(^{(3)}\) For the 12 months ended September 30, 2016
### Ashland company snapshot

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>NYSE ticker symbol</strong></td>
<td>ASH</td>
</tr>
<tr>
<td><strong>total employees</strong></td>
<td>~7,000</td>
</tr>
<tr>
<td><strong>outside North America</strong></td>
<td>~50%</td>
</tr>
<tr>
<td><strong>countries in which Ashland has sales</strong></td>
<td>100+</td>
</tr>
</tbody>
</table>

1. Ashland includes only US and Canada in its North America designation
## Specialty Ingredients End-Market Diversity

<table>
<thead>
<tr>
<th>Consumer Specialties</th>
<th>Industrial Specialties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharma</td>
<td>Adhesives</td>
</tr>
<tr>
<td>Personal Care</td>
<td>Construction</td>
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<tr>
<td>Nutrition</td>
<td>Energy</td>
</tr>
<tr>
<td>Coatings</td>
<td>Binders</td>
</tr>
<tr>
<td>Food</td>
<td>Packaging and Converting</td>
</tr>
<tr>
<td>Skin Care</td>
<td>Transportation</td>
</tr>
<tr>
<td>Hair Care</td>
<td>Additives</td>
</tr>
<tr>
<td>Beverage</td>
<td>Catalysts</td>
</tr>
<tr>
<td>Disintegrants/Time Release</td>
<td>Drilling</td>
</tr>
</tbody>
</table>

### Consumer Specialties
- **Pharma**
  - Tablets
  - Capsules
  - Wound Care
- **Personal Care**
  - Skin Care
- **Nutrition**
  - Food
- **Coatings**
  - Paint and Coatings
- **Energy**
  - Fluids
  - Muds

### Industrial Specialties
- **Adhesives**
  - Water Based Architectural Paints
  - Light-Weighting
  - Structural Integrity
- **Construction**
  - Dry Mortar
  - Gypsum
  - Joint Compound
- **Packaging and Converting**
  - Pressure Sensitive
  - Laminating Adhesives
  - Engineered Wood
- **Catalysts**
  - Proppants
  - Yield Enhancers
industrial specialties overview

we provide high performance products that are typically a small percentage of the total cost of the end product, but provide significant value and impact.

common business model

- focus on premium sub-segments
- close collaboration with customers utilizing our regional technical service and expertise
- disciplined price and cost management
- ensure high asset utilization for high asset intensity product lines
## Industrial Specialties Business Segments

### Adhesives
- **Our Key End Uses**
  - Packaging & Graphics
  - Transportation
  - Building & Construction

  - $332MM or ~11% of ASH FY 2016 sales
  - Niche player in the $22B specialty formulated adhesives market with a 3% CAGR
  - Our adhesives portfolio is nimble, capturing a premium in niche applications throughout the market

### Coatings
- **Our 3 Strengths**
  - Rheology
  - Surfactants
  - Foam Control

  - $321MM or ~11% of ASH FY 2016 sales
  - Market leader in $2.8B market for architectural coatings additives with a 3% CAGR
  - Our segmented strategy is driving growth in the premium segment

### Other Industries
- **3 Main Segments**
  - Performance Specialties (PS)
  - Energy (E)
  - Construction (C)

- $337MM or ~11% of ASH FY 2016 sales
- PS: focus on unique applications with complex performance needs
- E: Energy is a much smaller portion of today’s IS portfolio, with a recent uptick as oil prices have recovered
- C: Focus on premium applications and improving productivity. Significant cost restructuring and asset focus will drive success

Source: KNG, IHS, internal estimates
our adhesives business

- two business segments
  - structural assembly
    - engineered wood
    - automotive
    - heavy truck
  - packaging & converting
    - pressure sensitive
    - flexible packaging
    - narrow web label

- predominantly North American (90+%)  
  - expanding globally

- very diverse product line

- number one or two player in our market segments

2017 revenue

- packaging & converting: 57%
- structural assembly: 43%
Isogrip™ & Isoset™

structural adhesives for high performance bonding

- Isogrip™ - moisture cured urethanes
- Isoset™ - water-based emulsion systems
Isogrip™ structural adhesives overview

- single component
- 100% solids
- moisture cured urethane
- exterior, structural & load bearing performance
- excellent resistance to water, heat, chemicals and humidity
- no formaldehyde
- non-flammable

Versatile product line with robust performance on a wide variety of substrates
Isogrip™ adhesives substrate overview

- OSB (Oriented Strand Board)
- Plywood
- Particle Board
- Cement Board
- Mineral / Hard Board
- Honeycomb

- Foam
- Metal (Coated/Primed)
- FRP
- PVC
- ABS
- Polyolefin's
Isogrip™ 3000 Series

- CAT range: 30 to 35 min.
- Press time range: 1 to 2 hrs.
- Versatile bond performance on a number of substrates
- Best choice for composite materials such as ABS, HDPE, HDPP, FRP, vinyl and Kydex
- Developed for architectural panels, patio enclosures, structural insulated panels
- ICC-ES code approval
- Winter and summer versions available
Isogrip™ 5000 Series

- CAT 40 min.
- Press time range: 1hr. to 1 hr. 5 min.
- Offers the best combination of closed assembly time and press time
- One adhesive for coated metals and composite materials
- Works great with vinyl
- Developed for patio enclosures to enable production of panels with larger spans
- ICC-ES code approval
- Winter and summer versions available
Isoset™ value proposition

- Two-component urethane structural adhesives
- Higher ambient strength performance
- Environmental friendly
- Faster cure rate
- Ability to cure at a wide range of temperature & condition
- Moisture & solvent resistant
- High tolerance to the moisture content of wood
- Neutral (wood) colored bond lines
- Extensive code recognition & industry recognized technical services
- Easy clean-up & disposal
Isoset™ technology

<table>
<thead>
<tr>
<th>Emulsion Polymer Isocyanate (EPI)</th>
<th>Polyurethane Emulsion Polymer (PEP)</th>
</tr>
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<tbody>
<tr>
<td>- Water based latex resin</td>
<td>- Unique two component system</td>
</tr>
<tr>
<td>- Reacted with isocyanate crosslinker</td>
<td>- Polyurethane based chemistry</td>
</tr>
<tr>
<td>- 100 parts of resin to 15 parts of crosslinker</td>
<td>- Reacted with water based latex resin (emulsion polymer)</td>
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<tr>
<td>- Room temperature curable</td>
<td>- 4 parts polyurethane to 1 part of latex resin</td>
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<tr>
<td>- Full cure in 24 hours at room temperature</td>
<td>- Room temperature cure</td>
</tr>
<tr>
<td>- Product example - WD3-A322 / CX-47</td>
<td>- Full cure in 24 hours at room temp.</td>
</tr>
<tr>
<td></td>
<td>- Significant performance advantages</td>
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<tr>
<td></td>
<td>- Product example – ux-100 / wd3-a322</td>
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- Isoset EPI and PEP contain no phenol, resorcinol, or formaldehyde
- Neutral adhesive color to blend in with wood substrate
- Room temperature curing ability offers the potential for energy savings due to reductions in oven temperature
Thank you!