Bioformix, Inc.

High Performance, Energy Efficient, Sustainable Polymer Platforms

December 2013

Bio Pac Rim Summit

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Outline

• Bioformix Overview
• Nexabond Development
• Broader Millworking Opportunities
Bioformix Overview
Building a Disruptive Value Proposition in Multiple Markets

Company Description
- Eliminates energy and solvents - vastly cuts customer costs
- Significantly increases production speeds with high speed curing
- Benign by design – plastics can be metabolically benign
- Transforms adhesives, coatings and composites manufacturing
- Developed broad classes of monomers and polymers from one chemistry
- Commercial and NRE revenue today

Investment Thesis
- Platform technology with numerous applications across $150B+ markets
- Enables disruptive reduction of energy consumption in manufacturing
- Capital light model – leveraged partnerships via strong IP

Commercialization Strategy
- Scaling up production capacity with partners for speed to market
- Initially pursuing high margin reactive products platform
- Near-term: adhesives, coatings, composites & inks - $30B+ market
- Longer-term: work with partners to pursue $120B+ commodity markets
Unique Approach to Green Chemistry
Value is delivered in performance & operational costs

- Dramatically reducing energy consumption
- Significantly improving product performance
- Radically increasing production speeds
- Greatly broadening material options

Green is nice, but value is in performance!
Unique Approach to Green Chemistry
Bioformix provides low-capex solutions that solve customer problems

Bioformix offers a low capital approach to high margin product that drives key financial value for customers

**Exact Replacement Technologies**

- High Investment
- High Volume to Profit
- No New Features except being green
- Long Time to Profit

**Bioformix**

- Low Investment
- Low Volume to Profit
- New Features More Sales
- Short Time to Profit

Bioformix’s high-speed, no-energy polymer platform addresses key customer problems in critical applications – driving high margins and low volume to profit
Tech Platform: Methylene Malonates
A core platform monomer 130 years in the making...

- Polymer platform out performs most others
  - Discovery of methylene malonates dates back to 1877, but no one was ever able to make stable
  - Bioformix developed a proprietary production process to produce stable methylene malonates
  - Benign by design – can be metabolically and bio compatible

- Sponsoring Applications: Adhesives & Coatings
  - Combines super glue’s ambient, fast cure with epoxy performance

- Target commercial capacity in 2014
  - Continuous process pilot scale-up completed except distillation

- Many monomers = Infinite array of polymers

- Filed broad patent protection – 12+ applications
  - Critical monomer & resin process breakthroughs accomplished
  - Major key applications and modes of use protected
  - Not just the products, but the devices to produce and/or use them

Key Product Advantages
- Super glue cure speeds
- Epoxy performance
- Survives high temperatures
- Solvent resistant, including water
- One part, no mixing
- No heat for curing
- No odor
- Non flammable
- Biologically benign & biodegradable
- Can replace BPA, other dangers
Methylene Malonates Production Process

Simple, Low-Cost Production

- Malonate Esters
  - Initially existing petrochemical supply chain
  - Long-term biological pathways

- Intermediate Synthesis
  - Key technology breakthrough
  - Producing today at pilot scale
  - Target commercial sales volumes in 2014

- Monomer Synthesis
  - Standard distillation
  - In house and external capabilities

- Distillation to 95% to 99%

- Methylene Malonates
  - Host of applications & markets
  - Initially $25-$100/lb adhesives
Value Proposition: Millwork (Cyanoacrylates)

Incumbent

Selected Uses
Wood frames
Panels
Doors

Selected Technologies
PVA

2012 NA Market Size:
$9.5 million
9.5 million dry pounds

Challenges with Current Technology

Labor-intensive
Bottleneck
Storage of work in process
Rework

Bioformix Opportunities:

Why Bioformix
Automation
Increase speed
Reduce storage
Reduce rework

Time to Market
In Market

Estimated Market Opportunity
25%-50%

Source: Bioformix Research
Go To Market Strategy

Step 1  Identify Market Need

Step 2  Develop Product

Step 3  Develop Marketing Strategy

Step 4  Translate Brand Equity
The Market Need

- Current Consumer Wood CA’s – many issues
  - Long Cure Time
  - High Rework Rates
  - Water based
- Existing products not geared toward woodworking
Product Development with Thought Leaders

- Cabinet makers helped guide development
  - Various handling times
  - Similar cure performance in different humidity's
  - Viscosity

- Commercially launched in early 2013
  - Fine woodworking retail
  - Internet channel established
  - Steady sales growth followed
Initial Marketing Efforts

- Bioformix sought market opinion
  - Presented product concept at IWF
  - IWF Response gave validation of market need
- Official commercial launch at AWFS in Las Vegas
  - Launched different handling time products
  - Won Visionary New Product Award at AWFS
- Developed key tagline:
  - “Water free means trouble free”
Translating to a Consumer Brand

- Work with Woodworking Experts to develop “soft messaging”
  - Nexabond will change the way woodworking can be done
  - Reduce time for turning projects from 2 weeks to 2 hours
  - Accelerates jig making and project completion
  - Using it in decorative applications
Shift to B2B: Broad Millwork Industry

Applying trim – Cyanoacrylate and Malonate

Bonding center panels – Cyanoacrylate and Malonate

Assembling drawer boxes – Cyanoacrylate and Malonate

Assembling door frames – Cyanoacrylate and Malonate

Manufacturing plywood for cabinet boxes – Malonate
Cure Performance of Nexabond

- Nexabond builds strength more quickly than water based adhesives
- Nexabond builds strength as quickly as cyanoacrylates used with accelerator
- Nexabond performance does not diminish with time like accelerated CA
Comparison to Other Products

- Nexabond outperforms leading water-based wood adhesive
- Nexabond requires no accelerator to deliver superior performance
Nexabond Adhesive Water Resistance

- Nexabond outperforms leading water based wood adhesive
## Case Study: Large Millwork Customer

### Large Advantage for Bioformix Solution

<table>
<thead>
<tr>
<th>Problem</th>
<th>Bioformix Solution</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long cycle time: current adhesive has slow dry time</td>
<td>Fast cure time: cycle time reduction</td>
<td>Up to 50% decrease in cycle time</td>
</tr>
<tr>
<td>Large rework quantity: throughput is processed before reaching full strength</td>
<td>Fast cure time: rework lowered by full strength bond</td>
<td>At least 75% decrease in rework</td>
</tr>
<tr>
<td>Labor intensive process: workers gluing, clamping, loading, etc.</td>
<td>Automation: system for Bioformix adhesive</td>
<td>Reduce 7 workers to 1 in production process</td>
</tr>
</tbody>
</table>

Source: Bioformix Research
Case Study: Large Millwork Customer (cont’d)
Bioformix's Higher Cost Adhesive is Less Expensive

Current Adhesive Solution:
Throughput: 225 units/lb

Bioformix Adhesive Solution:
Throughput: 450 units/lb

Total Applied Cost Per Lb Adhesive

When operational savings are considered, Bioformix costs 50% less per pound than current adhesive solution.

Source: Bioformix Research
Fiber, Particle or Sheet Coating with Binders

Forming the Parts

Automated Cure in a Press or Fixture

• High speed
• No heat
• Water free
• Solvent free
• Formaldehyde free

Panels cost 20% less

Bioformix’s monomer drops into existing composite processes
Simply add the monomer into existing applicator and turn off drying ovens
Eliminate production pauses for cure time & eliminate stresses
# Sales Plan Roll Out

<table>
<thead>
<tr>
<th>Current Sales</th>
<th>Sales Targets</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology</strong></td>
<td>Cyanoacrylates</td>
<td>Malonate Adhesives</td>
</tr>
<tr>
<td>Three speed formulas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variants created as needed</td>
<td>Cyanoacrylates</td>
<td></td>
</tr>
<tr>
<td><strong>Customers</strong></td>
<td>Large Cabinet Suppliers</td>
<td></td>
</tr>
<tr>
<td>Woodworking Enthusiasts</td>
<td>Component Suppliers</td>
<td>Major Window and Door Manufacturers Exterior</td>
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<tr>
<td><strong>Applications</strong></td>
<td>Center panels</td>
<td></td>
</tr>
<tr>
<td>Fine Woodworking and Cabinetry</td>
<td>Cabinet Door Assembly</td>
<td></td>
</tr>
<tr>
<td>Interior Door</td>
<td>Stair Treads</td>
<td>Windows Exterior Doors</td>
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