Challenges & Opportunities in the Post CCA North American Market

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• CCA status
• Opportunities in a changing market
• Challenges ahead
• Emerging technologies
• Arch Chemical’s response to challenges in North America
Causes for Changing Markets

- European countries shifted away from arsenic and chromium (20 years)
- Florida
  - High arsenic levels found in field treated with ashes from electric power generators
  - U. of Florida/Miami programs investigate
  - Traced to CCA wood wastes
  - Results of studies raise public concern
- US CCA suppliers attempted to raise public awareness on arsenic issues
- EPA review of CCA

Media Sensationalism

"County votes to tear down playgrounds"
- The Gainesville Sun

"First class-action suit filed over 'unsafe' treated wood"
- The Gainesville Sun

"Defendants: Home Depot, Lowes, Osmose, Arch Chemicals"
Causes for Changing Markets

• Feb 12, 2002 EPA announced “a voluntary decision by industry to move consumer use of treated lumber products away from a variety of pressure treated wood that contains arsenic by Dec. 31, 2003 in favor of new alternative wood preservatives.”

• On April 9, 2003 the final preservative label language was published in the Federal Register.
Causes for Changing Markets

- Feb 12, 2002 EPA announced “a voluntary decision by industry to move consumer use of treated lumber products away from a variety of pressure treated wood that contains arsenic by Dec. 31, 2003 in favor of new alternative wood preservatives.”
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Approximate North American Market Size

- CCA usage is about 24 million kg/yr (53 million lbs/yr) down from 68 million kg/yr 3 years ago
- The North American alternative preservative market is currently about $475 million
Industrial Uses of CCA

- Highway
- Pilings
- Salt water structures
- Plywood
- Round fence posts
- Utility poles
- Permanent Wood Foundations

Opportunities

- Chance to increase our vision and horizons
- Increased “fit for purpose” products can create new markets
- Chance to develop niche markets
Opportunities

• Higher cost of substitutes allows wider range in product development
• Chance to introduce new products
• Chance to differentiate companies

Challenges

• Shifting to higher cost products
  – Increase in cost of components
  – Increase in copper component
  – Increase in cost of copper
  – Increase in opportunities for substitutes
    • Wood/plastic composites
    • Non-wood based materials
Challenges

• Shift from single choice to multitude of choices in market
  – Increase in number of products entering market
  – Greater competition
  – Increase in number of suppliers from few larger companies to mixture of large and small companies

• Shift from well known and regulated product
• Greater variability in products
  – Potential of corrosion
  – Potential of greater leaching
  – Potential of greater development of mold
Challenges

- Entry of new suppliers
  - Lack of knowledge of wood protection markets
  - Lack of long term data
  - Greater potential for product failures
  - Can open door wider for substitutes

Challenges

- Education of industry and public on new products
  - Increased concerns for mold
  - Proper fastener protection
  - Proper use of newer treatments
### Challenges

- **Timing for market entry**
  - New product development a long term effort
  - Reduction of time frame for product introduction also requires long term effort
  - Maintaining product and industry integrity is paramount

- **Treating Plant Conversions**
  - Water Quality influences
  - Past cylinder use with other chemicals
  - Quality Control techniques and methodology
Challenges

- Acceptance by code officials
  - Government regulators, EPA
  - Industry Standards Organizations – AWPA Standards
  - Building Code Officials – International Code Council (ICC)

Market Issues Facing Wood Preservatives

- Special Interest groups
- Government regulation
- Composites and other manufactured wood/plastic systems
- Competitive edge
- Fit-for-purpose preservatives vs. utility preservatives such as CCA
Market Resistance

- Box stores/retailers
  - Increased treated lumber costs
  - Duel inventories (above and below ground)
- Treating industry
  - Profits primarily derived from “white wood” (untreated)
  - Increased preservative costs
  - Increased resources required (different solutions, concentrations, etc.)
  - Unknown preservative(s)
    - Problems: preservative penetration, mold, fixation, corrosion
    - Technical requirements: equipment, manpower
- Consumer concern
  - Little concern in the US until about 2000

Market Issues Facing Wood Preservatives

- Decking HC 3
- Landscaping HC 3&4
- Fencing HC 3&4
- Other HC 1&2

~7 Billion board feet
North America Market
Issues

- Treated Wood: 72%
- Premium Woods: 12%
- Composites: 16%

North American Market
Information 2006

Copper Based Preservatives

- Osmose: 38%
- Arch: 35%
- CSI: 25%
- Other: 12%
Emerging Technologies

• New copper complexes
• Nanotechnology/Micronization
• Multitude of new organic and inorganic “actives”
• New products that are protected against decay, insects/termites, and mold plus being more dimensionally stable through moisture resistance
• Products safe to handle and environmentally friendly

New Copper Complexes

• Copper Azole and ACQ
• Development of new copper systems
• Development of lower copper systems
Micronization

• Micronization vs. Nanotechnology
• Reduction of copper metal and/or other actives to micronized particles <300 nm
• Particles carried by dispersants not solvents

Micronization

• Micronization been around for a number of years
• Agricultural sprays incorporate micronized copper
• A number of organizations have patents or patents pending with respect to micronized products and wood protection technologies.
Micronization

• Arch is analyzing this technology
  – Patent from our Industrial Biocides on micronized Zinc and Cu pyrithione
  – Research is currently being carried out in our Conley, GA Technical Center
  – We feel there are potential advantages and some unknowns that still need to be resolved

Micronization

• Some reported advantages
  – Higher concentrations for shipping
  – Lower leaching
  – No MEA hence lower cost for chemicals and less propensity for mold
  – Less corrosion
Micronization

- Issues still to be resolved
  - Location of copper within treated wood
    - Above ground vs. below ground
    - Long term efficacy data
  - Higher manufacturing costs with grinding
  - Refractory species a problem
  - Environmental, health, and safety risks

Emerging Technologies

- All organic preservatives comprising fungicides, insecticides, and moldicides
  - First commercial product Wolman® AG
  - FrameGuard® total wood component protection residential and commercial structures
  - All organic biocide vendors are working with the preservative vendors
  - 5 years for approvals/costing up to million+ dollars
**Technology at Plants**

- Automated treating plants offered by preservative vendors
- Computer controls/automation: all
  - Arch Wood Protection
  - Treat Right™ system
- Solution and wood analyses (QC)
  - X-ray fluorescence (low cost)
  - Titration – quat: non-specific for quat
  - Liquid chromatograph (low cost) – azole
  - Repeatability can be an issue
  - Working on new technologies

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**Arch Chemicals, Inc. Response**

Arch Treatment Technologies, Inc.
Arch Wood Protection, Inc.
Arch Timber Protection, Inc.
Koppers Arch
Arch Quimetal
Primary Facilities

- Rochester, NY
- Arian, MI
- Charleston, TN
- Brandenburg, KY
- Lake Charles, LA
- McIntosh, AL
- East Providence, RI
- North Kingstown, RI
- Cheshire, CT
- Norwalk, CT
- Smyrna, GA
- Conley, GA
- Salto, Brazil
- Igarassu, Brazil
- Maracaibo, Venezuela
- Mcintosh, AL
- Zuidland, Belgium
- Blackley, UK
- Castleford, UK
- Grangemouth, UK
- Huddersfield, UK
- Seal Sands, UK
- Shizouka, Japan
- Trindham, Australia
- Auckland, New Zealand
- Suzhou, China
- Kempton Park, South Africa
- Kempton Park, South Africa

Manufacturing
Joint Venture
Global Headquarters

Leading Brands

- Versatile AntiBlu
- VERSIFY
- FRX
- WRX
- DRYCON
- WOLMAIZED
- Wood Treated Right
- Good Housekeeping

Forest Industry Engineering Association

Timber Preservation 2006
CCA for industrial uses

Wolman® AG

Wolman® AG

Wood Treated Right™

Wood Treated Right™
• Total organic chemistry
• Approved for exterior above ground use
• Reduces concentrate freight costs
• Eliminates concerns of metal leaching
• Satisfies pending regulatory pressures
• Satisfies special interest groups
• Another chemistry to offer the treated wood market

• More difficult Q.C.
• Clear treatment
  – Penetration indicators needed
  – Managing inventory issues
  – Point-of-sale differentiation vs. untreated
• Color opportunities
FrameGuard® Wood

Plan to Stop Mold Before It Starts.

FrameGuard® Whole House Protection System
FrameGuard®

- Factory spray application
  - Control usage and application
  - Reduce exposure
  - Promote product stewardship
- Four disclosed EPA Registered active ingredients penetrate and provide broad spectrum protection from
  - Weathering – Insects
  - Mold – Decay
  - Staining

FrameGuard®

- Short Term
  - Improved yardability
  - Mold, decay, insect resistance during storage and construction
- Long term
  - Termite and decay resistance
  - Mold resistance
  - Pest resistance
- Low odor, safe, easy to handle
- Penetrating capability in dry wood
Performance: No FrameGuard® Protection
Performance:
FrameGuard® Protection

Performance:
FrameGuard® Protection
Widely respected symbol

“If a product bearing the Seal proves to be defective within two years of purchase, Good Housekeeping will replace the product or refund the purchase price.”
Arch Wood Protection
Product Support That Sets Us Apart

Arch Treatment Technologies
Arch Wood Protection

• Global market presence
• Most complete product portfolio
• Customer and market focused growth
• Strong world-wide technical support of products
• Highly skilled/experienced sales organization
• Manufacturing excellence
Conclusions

- Wood preservation changing rapidly
- Many new products/processes anticipated
- Requiring
  - R & D
  - Technical services
  - Engineering
  - Sales/marketing
  - Environmental services

Conclusions

- Opening residential markets has created numerous opportunities and challenges
- Opportunities include strengthening and diversifying the treating industry
- Challenges include developing and maintaining new environmentally sensitive and proven products
- Arch intends to maintain position as leading wood preservative supplier in the world!
Questions