California’s New Composite Wood Products Formaldehyde Regulation

2007 China Int’l Wood Summit
Qingdao, China
September 22-24, 2007

Jim Aguila, Manager
Substance Evaluation Section

California Environmental Protection Agency
Air Resources Board
Overview

- Background
  - Air Pollution in California – Role of CARB
  - U.S Imports

- Control of Toxic Air Contaminants

- Composite Wood Products ATCM

- Additional ATCM Modifications Approved by the Board

- Composite Wood Products ATCM Implementation
Background
Role of the California Air Resources Board (CARB)

• Established in 1967

• California State law requires CARB to attain ambient air quality standards (AAQS) for criteria pollutants
  - PM10, PM2.5, visible particulate, NO2, sulfates, O3, CO, SO2, lead, H2S, vinyl chloride

• Oversees progress of 34 California Air Pollution Control Districts in meeting the AAQS

• 1983 legislation (AB1807) also requires CARB to identify and control Toxic Air Contaminants
2006 Top U.S. Imports of Hardwood Plywood

$ Million

China

Brazil

Russian Federation

Malaysia

Indonesia

Canada

Source: USDA Foreign Ag Service
Imported Products – steady increase in the past 5 years in the U.S.

U.S. Imports of Hardwood Plywood

($ Million)

PB Imports from China: 2002-2006

U.S. Imports of Particleboard
(Values in Millions)

2006 Top U.S. Imports of MDF

$ Million

- Canada
- Chile
- New Zealand
- Brazil
- Argentina
- Switzerland
- China

Source: USDA Foreign Ag Service
MDF Imports from China: 2002-2006

U.S. Imports of Medium Density Fiberboard
(Values in Millions)

Control of Toxic Air Contaminants
• § 39657 - Requires ARB to identify toxic air contaminants; identify minimum threshold level if any

• § 39658 - Requires ARB to develop Air Toxic Control Measures (ATCMs)

• § 39666 - For compounds with no safe threshold level, the HSC requires the development of control measures based on **best available control technology**, or more effective controls in consideration of costs and risk
California’s Air Toxic Program

Identification

- Potential Toxic Substance
- ARB/OEHHA Publishes Draft Report
  - Public Workshops
  - Comment Periods
- SRP Reviews Report
- Public Hearing

Risk Management

- Evaluates Source Categories
- Investigate Risk Reduction Options
  - Public Workshops
- Publish Staff Report/Proposal
  - Public Workshops
  - Comment Period
- Public Hearing

California’s Air Toxic Program

- Risk Management
- Identification

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Formaldehyde as a Toxic Air Contaminant

- Identified as a Toxic Air Contaminant in 1992
- No level of exposure considered “safe”
- Inhalation causes cancer in the region of the throat behind the nose
- Non-cancer effects
Why Regulate Formaldehyde from Composite Wood Products?

- CARB research indicated unhealthy public exposures
  - Battelle (1996) research emission study
  - 2003 portable classroom study
  - 2005 Indoor Air Quality Report to legislature

- Childhood risk (9 years)*: 23-63 cancer cases per million
- Lifetime risk (70 years)*: 86-231 cancer cases per million
- California composite wood emissions ~ 900 tons per year
- U.S. emission standards lag behind those in Europe and Japan

* Based on total daily average formaldehyde exposure
Composite Wood Products
Airborne Toxics Control Measure
Airborne Toxic Control Measure (ATCM): Overview

• Approved by CARB on 26 April 2007
• Establishes new formaldehyde emission limits for composite wood products
• Also requires finished goods to be made with compliant composite wood products
Composite Wood Products
Covered Under ATCM

- **Hardwood Plywood (HWPW)**
  - Veneer core
  - Composite core

- **Particleboard (PB)**

- **Medium Density Fiberboard (MDF)**
  - Thickness > 8mm
  - Thickness ≤ 8mm (Thin MDF)
ATCM Applicability

- Panel Manufacturers
  - HWPW, PB, MDF
- Distributors
- Importers
- Fabricators
- Retailers
ATCM Provisions

• Applies to products sold, supplied, used, or manufactured for sale in California
• Emission standards for raw boards
• Sell-through
• Exemptions
• Enforcement
Manufacturer Requirements

- Must meet HCHO emission standards
- Must use CARB-approved Third Party Certifier
  - TPC exemption for manufacturers using no-added formaldehyde resins
- Mfg. quality assurance
- Label all products
- Statement of compliance
- Two-year record retention
- Sell Through
<table>
<thead>
<tr>
<th>Product</th>
<th>Jan 1, 2009</th>
<th>Jul 1, 2009</th>
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<tbody>
<tr>
<td>HWPW-VC</td>
<td>0.08 ppm</td>
<td>-----</td>
</tr>
<tr>
<td>HWPW-CC</td>
<td>-----</td>
<td>0.08 ppm</td>
</tr>
<tr>
<td>PB</td>
<td>0.18 ppm</td>
<td>-----</td>
</tr>
<tr>
<td>MDF</td>
<td>0.21 ppm</td>
<td>-----</td>
</tr>
<tr>
<td>Thin MDF</td>
<td>0.21 ppm</td>
<td>-----</td>
</tr>
</tbody>
</table>

* Based on ASTM E-1333-96
## Approved Phase 2 Standards*

<table>
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<tbody>
<tr>
<td>HWPW-VC</td>
<td>0.05 ppm</td>
<td>-----</td>
<td>-----</td>
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</tr>
<tr>
<td>HWPW-CC</td>
<td>-----</td>
<td>-----</td>
<td>0.05 ppm</td>
<td></td>
</tr>
<tr>
<td>PB</td>
<td>0.09 ppm</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>MDF</td>
<td>0.11 ppm</td>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>Thin MDF</td>
<td>-----</td>
<td>0.13 ppm</td>
<td>-----</td>
<td></td>
</tr>
</tbody>
</table>

* Based on ASTM E-1333-96
## CARB vs. International Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Product(s)</th>
<th>Test Method</th>
<th>Numerical Value</th>
<th>~E1333 (ppm)</th>
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<tbody>
<tr>
<td>CARB-P1</td>
<td>HWPW</td>
<td>E1333</td>
<td>0.08 ppm</td>
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<tr>
<td></td>
<td>PB</td>
<td>&quot;</td>
<td>0.18 ppm</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>MDF</td>
<td>&quot;</td>
<td>0.21 ppm</td>
<td>0.21</td>
</tr>
<tr>
<td>CARB-P2</td>
<td>HWPW</td>
<td>E1333</td>
<td>0.05 ppm</td>
<td>0.05</td>
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<tr>
<td></td>
<td>PB</td>
<td>&quot;</td>
<td>0.09 ppm</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>MDF</td>
<td>&quot;</td>
<td>0.11 ppm</td>
<td>0.11</td>
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<tr>
<td>E1</td>
<td>HWPW</td>
<td>EN 717-1</td>
<td>0.12 mg m⁻³</td>
<td>0.14</td>
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<tr>
<td></td>
<td>PB</td>
<td>&quot;</td>
<td>0.12 mg m⁻³</td>
<td>0.14</td>
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<tr>
<td></td>
<td>MDF</td>
<td>EN 120</td>
<td>8 mg 100 g⁻¹</td>
<td>0.10</td>
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<tr>
<td>F***</td>
<td>All</td>
<td>JIS A1460</td>
<td>0.5 mg L⁻¹</td>
<td>0.07</td>
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<tr>
<td>F****</td>
<td>All</td>
<td>&quot;</td>
<td>0.3 mg L⁻¹</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Manufacturer Requirements:

Emission Limit Compliance

- Must be determined using ASTM E 1333-96 emission test performed by approved TPC for formaldehyde containing resins
- Equivalency with other test methods (e.g., EN 120) has not been established
- In-plant quality assurance requires small-scale in-plant testing
Manufacturers Requirements: *No Added Formaldehyde (NAF) Resins*

- Approvals case by case
- Exempts manufacturers from TPC
- Requires application
  - Statement of exclusive NAF resin use
  - Chemical formulation
  - Demonstration of the emissions performance
- Must notify ARB of discontinued use
- Recordkeeping requirements
Manufacturer Requirements: NAF Emissions Demonstration

- Review criteria currently under development
- Data quality criterion
- Data must demonstrate reliably consistent performance below Phase 2 levels
Manufacturer Requirements: Labeling, Recordkeeping, and Inspections

• Labeling
  ➢ Include batch number, third party certifier, applicable emission standard, etc.

• Recordkeeping
  ➢ To document resin purchases, quality assurance data, customer sales, etc.

• Inspections
  ➢ Verify manufacturing records, secure samples for compliance testing by CARB
Third Party Certification (TPC)

- All TPCs must have ARB approval
- ARB approval requires application submittal
- Application must include:
  - Evidence of certification experience for laboratories and wood products
  - Evidence of ability to train/supervise inspectors
  - Product certification agency accreditation (ILAC, 2000)
TPC Responsibilities

- Manufacturer quality assurance verification
- Help develop target operating limits
- Independent inspections and audits
- Must use certified large chambers for ASTM-E-1333-96
- Maintain records
  - Manufacturers they represent
  - Results of inspections and audits
  - List of certified laboratories and large chambers used
  - Correlations between small and large chamber tests
  - ARB executive order
- Annual report to ARB
Importer and Distributor Requirements

• Must take “reasonable prudent precautions” to purchase products that comply with applicable CARB standards

• Must supply a statement of compliance on bills of lading or invoices that products comply with applicable CARB standards

• Provide access for facility inspections
Fabricator Requirements

- Must take “reasonable prudent precautions” to purchase CARB compliant HWPW, PB & MDF
- Must label finished goods as CARB compliant
- Must supply a statement of compliance on bills of lading or invoices that products comply with applicable CARB standards
- Provide access for facility inspections
Retailer Requirements

• Must take reasonable prudent precautions to purchase products that comply with applicable CARB standards

• Provide access for facility inspections
Sell-through

- Allows sale of non-compliant products manufactured before standard effective date
- Time period limited
- Differing sell-through periods for manufacturers, distributors, importers, fabricators, and retailers
Exemptions

- Products subject to HUD standards
- Windows with <5 vol% composite wood
- Garage and exterior doors; doors with <3 vol% composite wood or made with waterproof resin
- Military specification plywood
- Vehicles
Importance of Enforcement

- Strong enforcement infrastructure plan
- Necessary to achieve ATCM benefits
- Fair competition between imports and domestic products
- Essential to viability of industry
CWP ATCM Enforcement Program

• Third Party Certification
• Statements of Compliance
• Record Keeping
• Product Labeling
• Facility Inspections
• Compliance Testing
ATCM Rulemaking Process

• Initial Statement of Reasons (Staff Report) released to public on March 9, 2007
• ARB approved ATCM on April 26th, 2007
• ATCM modifications for 15-day public comment period
• Complete Final Statement of Reasons
• Submit rulemaking file to OAL
• OAL approval and codification into California Code of Regulations (Jan. 2008?)
Additional ATCM Modifications
Approved by the Board
Additional Modifications to the Original Proposal

Under Consideration:

- Performance-based compliance option for ultra low-emitting resin systems
- Sell-through provision dates
- Definition of “architectural plywood”
- Other clarifications
Composite Wood Products
ATCM Implementation
Third Party Certification is Key

• Regulation will have a global impact on CWP commodity trading  
  - international TPCs are essential
• TPC review criteria under development
• CARB web-based registry of approved TPCs
• Outreach
  - Contact with potential TPCs including: PSI, TECO, WKI, HPVA, CPA, Forentek
  - Individual meetings
  - TPC webinar
CARB Enforcement Program Update

• Approach similar to consumer products regulation
• Will ensure that finished goods are fabricated with lower emitting boards
• ARB small chamber testing capabilities
  ➢ ASTM 6007-02
• Procurement of FLEC Chamber & Interscan HCHO detector
  ➢ Field screening device
CWP ATCM Website Update

- Emphasize implementation
- Provide transparency
- Add FAQ Webpage
- List TPCs
- On-line TPC application
- Information on NAF products
- Webinars
CWP ATCM Schedule

2007

3rd Qtr.  - Release modified regulation to public
          - Dept. of Public Health chamber studies
          - Prepare small chambers

4th Qtr.  - Submit ATCM rulemaking file to OAL
          - ARB small to large chamber correlation
          - Develop review criteria for TPC’s and NAF’s
          - Eval field screening device
          - Draft CARB lab analytical method
CWP ATCM Schedule

2008
1st Qtr. - Review first TPC and NAF applications
- Small chamber round robin testing
- ATCM codified into California state law

2nd/3rd Qtr. - ARB Status Report
- Complete CARB lab procedures

2009
January 1 - ATCM Implementation
For More Information

Visit our website:
http://www.arb.ca.gov/toxics/compwood/compwood.htm

Or, contact us:
Jim Aguila, Manager
Substance Evaluation Section
(916) 322-8283
jaguila@arb.ca.gov