**California Air Resources Board Public Workshop to Discuss Possible Amendments to the Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products**

*CalEPA Headquarters*
*Byron Sher Auditorium, Sacramento*
*August 23, 2011*



## Overview

- Background and Implementation Status Update
- Possible Amendments to the Composite Wood Products ATCM
- Stakeholder Presentations

Open Discussion

# Background and Implementation Update on the Composite Wood Products ATCM



# BACKGROUND

## Airborne Toxic Control Measure (ATCM) Overview

- Establishes formaldehyde emission limits for composite wood products: particleboard (PB), medium density fiberboard (MDF), and hardwood plywood (HWPW) panels
- Applies to products sold, supplied, used, or manufactured for sale in California
- Requires finished goods to be made from compliant PB, MDF, and HWPW panels
- Includes sell-through provisions

## Airborne Toxic Control Measure (ATCM) Overview
***continued***

- Enforcement
  - Chain of custody
  - Emissions testing
- Requires panel manufacturers to be third party certified by CARB-approved certifiers
- NAF/ULEF Program
  - Exemption from third party certification, or reduced testing frequency

## Comparison of ATCM Standards*

| Effective Date | HWPW-VC | HWPW-CC | PB | MDF | Thin MDF |
|---|---|---|---|---|---|
| 1-1-2009 | P1: 0.08 | | P1: 0.18 | P1: 0.21 | P1: 0.21 |
| 7-1-2009 | | P1: 0.08 | | | |
| 1-1-2010 | P2: 0.05 | | | | |
| 1-1-2011 | | | P2: 0.09 | P2: 0.11 | |
| 1-1-2012 | | | | | P2: 0.13 |
| 7-1-2012 | | P2: 0.05 | | | |

* Based on ASTM E1333-96 (2002) in parts per million; P1=Phase 1 and P2=Phase 2
HWPW-VC=hardwood plywood veneer core; HWPW-CC= hardwood plywood composite core;
MDF=medium density fiberboard; PB=particleboard

## IMPLEMENTATION STATUS

# Implementation Status

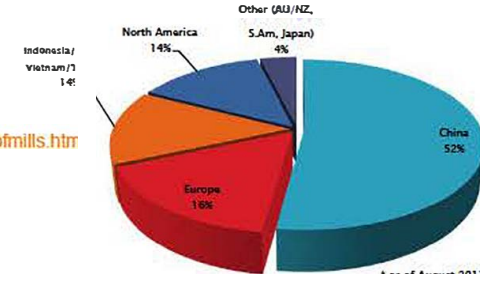
- Third Party Certification (TPC) Program
  - TPCs provide two main services:
    - Formaldehyde emission testing certification
    - Product certification
  - ATCM resulted in worldwide infrastructure for independent certification of composite wood products
  - TPCs are required to participate in interlaboratory comparison study every 2 years

# Implementation Status
***Continued***

- Third Party Certification Program
  - 36 CARB-approved TPCs world-wide* (North America, Europe, Asia)
  - Over 900 certified mills
  - CARB website featuring certified mills:

http://www.arb.ca.gov/toxics/compwood/tpc/listofmills.htm

Certified Mills World wide-



# Implementation Status

- NAF/ULEF Program
  - ATCM allows TPC exemption for manufacturers using no-added formaldehyde (NAF) or ultra-low-emitting formaldehyde (ULEF) resin systems
  - Requires application with emissions data
  - Approvals, renewals and amendments case by case
  - CARB Executive Order; 2-year approval
  - 102 CARB approved (49 NAF; 53 ULEF) manufacturers



# Implementation Status
***continued***

- Sell-through Provisions
  - Many sectors had backed up inventories due to slow economy
  - Regulatory advisories provided additional time for transition to Phase 1 and Phase 2 standards
  - CARB staff will continue monitoring sell-through periods

# Implementation Status

- Enforcement Update
  - Inspections conducted at panel retailers and distributors, and retailers of finished goods
  - Initial focus on increasing awareness of regulatory requirements for labeling and evidence of taking reasonable prudent precautions (chain of custody records)
  - Samples collected for analysis
  - Sample preparation procedures for finished goods being finalized



# Implementation Status
***continued***

- Sample Preparation Procedures for Enforcement Testing
  - Panels
    - Cut samples to appropriate size for ARB's secondary test method
  - Finished goods
    - Compared sander and planer to remove laminate; achieved similar results
    - Samples are tested similar to samples cut from raw panels
    - Tested variety of laminated products vs. raw panels
    - Emissions from deconstructed panels compare reasonably well with raw panels
  - Additional types of laminated products to be tested in late 2011

# Implementation Status

- ARB secondary test method
  - 20 L small chamber operated in manner consistent with ASTM D 6007-02 and with ATCM
  - Small chamber deemed equivalent to ASTM E 1333
  - Achieves good sensitivity (3 ppb) for measuring formaldehyde using DNPH cartridge to trap formaldehyde, followed by HPLC-UV analysis
  - ARB's enforcement testing results will include the uncertainty associated with sample preparation and emission testing

Environmental Chamber with Small Chambers

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# Implementation Status

- Domestic and Foreign Outreach
  - Public assistance (e-mails, calls)
  - Factsheets, pamphlets, frequently asked questions (FAQs), articles
  - Translated regulatory materials to assist off-shore stakeholders

  Regulatory advisories and guidance documents

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# Implementation Status

- Coordination with U.S. EPA
  - CARB staff is working with U.S. EPA to align federal and State programs



# Possible Amendments to the Composite Wood ATCM

## Objectives

- Share ideas with stakeholders and solicit information/thoughts on possible amendments to:
  - Expand/clarify applicability
  - Provide additional specificity
  - Streamline requirements
  - Clarify regulatory language
  - Optimize program



## Overview of Possible Amendments

- Applicability/Requirements
- Clarifications/Corrections
- NAF/ULEF Requirements
- Updates to Referenced Materials and Sell-Through Dates
- Quality Control Requirements for Manufacturers
- Third Party Certification Requirements

## Scope of Applicability/Requirements Amendments

- Reduce formaldehyde emissions from products used in similar applications to products currently addressed by ATCM
- Address international/national product specification issues
- Address new/different products gaining popularity in the market
- Improve enforceability



## Possible Amendments for Hardwood Plywood (HWPW)

- **Consider requiring HWPW panels made with lumber core or special core materials to be subject to the HWPW-CC requirements**
  - Currently ATCM limits composite core platform to particleboard, medium density fiberboard, and combination core
  - Expanding to include lumber core/special core materials would ensure standards are consistent with ANSI/HPVA HP-1
- **Consider including bamboo & cork as types of hardwood plywood subject to ATCM**
  - Bamboo and corkboard increasingly used in interior applications
  - "Woody grass" specified in ANSI/HPVA HP-1
- **Consider requiring certified core in HWPW-CC panels**
  - Core must be certified in laminated products, but not in HWPW-CC panels

## Possible Amendments for Hardboard, Medium Density Fiberboard (MDF) Products and Oriented Strand Board (OSB)

- **Consider requiring hardboard products made with resins to be subject to the MDF standard**
  - Could no longer claim exempt status
- **Consider MDF made by wet-forming to meet the MDF emission standards**
  - Some mfr. continue to use wet-forming process
- **Clarify that MDF includes low, medium and high density fiberboard**
- **Consider requiring OSB products not certified to PS-2 to be subject to HWPW requirements**
  - Addresses emissions from OSB used in interior applications

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## Possible Amendments for Curved Plywood Products

- **At time of original ATCM development, emissions data not available for curved plywood products**
- **Staff committed to evaluate emissions**
  - ARB staff testing products
  - Request data/products from manufacturers/fabricators
- **Consider establishing emission standards for curved plywood products if emissions data warrants inclusion**

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## Possible Amendments for Laminated Products

- **Laminated products consisting of wood veneer affixed to a certified platform are similar to HWPW-CC products**
- **Regulatory requirements for "laminated products" and HWPW-CC are different and a source of confusion**
  - Laminated products must have cer ified core
  - HWPW-CC core does not have to be certified but entire product must be certified
- **ARB staff are testing emissions of various laminated products**
  - Cooperative test study being developed in conjunction with AHFA
  - Completion expected in early 2012
- **Based on results, re-evaluate requirements and identify if amendments necessary**

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## Possible Clarifications/Corrections

- **Clarify that packaging materials (e.g., pallets, crates, spools, dunnage, etc.) are not subject to the ATCM**
  - Consistent with FAQ
- **Labeling requirements for finished goods**
  - Clarify use of bar codes- cannot be sole form of label
  - Provide more specificity on labeling requirements
    - *i.e.* CARB Phase 1 Compliant, CARB Phase 2 Compliant; CARB NAF Approved; CARB ULEF Approved

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## Possible Amendments to NAF/ULEF Requirements

- **Consider allowing for longer renewal times for NAF and ULEF applications**
- **Identify additional data and information necessary for ARB evaluation of NAF/ULEF applications and renewals**
  - "Attachment C" of NAF/ULEF application



## Updates to Referenced Materials and Sell-Through Dates

- **Sell-through provisions**
  - Update sell-through periods (i.e., passed dates, extensions) to reflect regulatory advisories
- **Incorporate updated ANSI and ASTM documents**
- **Include approved alternative quality control methods in the list of approved small scale test methods/alternate secondary test methods**
  - EN 120, EN 717-2, JIS A 1460, Dynamic Microchamber

## Possible Amendments to Quality Control Requirements for Manufacturers

- **To improve reliability at the mills, consider:**
  - Background formaldehyde concentration to be measured and data recorded and reported
  - Require sample selection for QC test done as specified in the QC manual
    - *i.e.* if products should be tested immediately out of the press hot or cold
  - Obtain QC results before shipment of products
  - New correlation and linear regression established if data indicate variation from previously used correlation

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## Possible Amendments to Quality Control Requirements for Manufacturers (cont.)

- **To ensure timely application and implementation of the Quality Control Limit (QCL) consider:**
  - Require the QCL to be based on testing data collected no longer than 30 days after production
  - In the event of exceedence of QCL, consider requiring manufacturers to examine possible causes and increase the frequency of QC tests for a given amount of time

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## Possible Amendments to the Third Party Certification (TPC) Program

- **Extensive experience gained with overseeing TPC program**
- **Numerous discussions with TPCs**
- **Staff reviewed TPCs annual reports**
- **Identified areas for improvement :**
  - Program management
  - Reporting and recordkeeping
  - Proficiency requirements
  - TPC procedures
  - Test methods

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## Possible Amendments to the TPC Program

*Program Management*

- **Adjustments to improve and streamline program management:**
  - Consider requiring TPCs "evidence" of product certification agency accreditation to be based on ISO Guide 65 or international equivalent
  - Consider conflict of interest criteria to preclude manufacturer/fabricator from being a TPC
  - Consider extending duration of TPC approval to 3 years if acceptable performance maintained
  - Consider including reciprocity for certifiers approved under the U.S. EPA program

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## Possible Amendments to the TPC Program

*Reporting and Recordkeeping*

- **To improve strength of TPC program and ARB's ability to evaluate TPC performance consider requiring:**
  - TPCs to report what steps are taken in event test exceedance occurs
  - Keep records including:
    - Background concentrations of formaldehyde in the conditioning area and the primary and/or secondary method test chamber
    - Linear regression equation used to calculate the mill's QCL
  - Annual report include:
    - Evidence of current product certification agency, inspection body, and testing laboratory accreditations
    - Secondary test method equivalence data (as applicable)
    - Quarterly primary or secondary test results and dates of mill audits
  - TPCs to notify CARB of changes to certified mills (i.e., monthly)

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## Possible Amendments to the TPC Program

*Proficiency Requirements*

- **Consider increasing frequency of participation in inter-laboratory comparison study from every two years to annual**
- **Consider establishing proficiency criteria for performance in the interlaboratory study**
  - TPCs and their subcontract laboratories deemed proficient when their primary and/or secondary method test results are within a specified range, *i.e.*, 1 SD, of the comparison study mean
  - TPCs and/or subcontract laboratories that are not deemed proficient are required to participate in a follow-up study
    - Failure to achieve proficiency in the follow-up study will result in further investigation (i.e, program audit by CARB)

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## Possible Amendments to the TPC Program

*TPC Procedures*

- **Equivalence**
  - Consider decreased frequency from once a year to every two years
    - Evaluate possible need to tighten equivalence criteria
    - Separate demonstrations of equivalence are not required for identical size secondary method test systems
  - Eliminate testing products in the "upper-range"
- **Secondary Test Method**
  - Nine specimens representing a panel may be tested individually or in groups of 3
  - Include alternative secondary test methods in the list of test methods (if approved)

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## Possible Amendments to the TPC Requirements

*Test Methods*

- To improve accuracy and reproducibility at lower HCHO levels consider requiring:
  - Leak check chambers with inlet and outlet flow meters
  - Flow through testing chambers, temperature and relative humidity all must be constant and accurately measured
  - Require lower background formaldehyde (e.g., 0.01 - 0.02 ppm) in conditioning area and testing chambers than currently allowed under ASTM methods, due to measurement of much lower concentrations
  - Specify frequency of duplicate analyses and level of variation between duplicates that triggers prompt corrective action
  - Identify additional procedures for using desiccator and chromotropic acid for low emitting products
  - Other suggestions?

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## Next Steps

- Collect information on identified products for possible inclusion in ATCM
- Meet with stakeholders upon request
- Coordinate with U.S. EPA to avoid conflicts between federal and State programs
- Finalize testing SOPs – fall 2011
- Interlaboratory TPC study – fall 2011
- Laminated products emissions testing – fall 2011
- Curved plywood emission testing – fall/winter 2011/12
- Tentative schedule for possible amendments
  - Additional public workshop(s) - Jan-Sept 2012
  - ARB public hearing to consider possible amendments - late 2012

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- Composite Wood Products ATCM Website:
  http://www.arb.ca.gov/toxics/compwood/compwood.htm

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