

**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*



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Overview

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

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Background and Implementation Update on the Composite Wood Products ATCM



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BACKGROUND



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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

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Airborne Toxic Control Measure (ATCM) Overview

continued

- Enforcement program
 - 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

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Comparison of ATCM Standards*

Effective Date	HWPW-VC	HWPW-CC	PB	MDF	Thin MDF
<i>HUD Std.</i>	0.20	none	0.30	none	none
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

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IMPLEMENTATION STATUS



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Implementation Status

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

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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>



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Implementation Status

continued

- 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

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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

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Implementation Status

continued

- 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

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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

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Implementation Status

continued

- 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

continued

- 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



Composite Wood Products ATCM Advisory: 08-01 Certification of "Non-complying Lots" Produced by CARB Certified Manufacturers

This regulatory advisory is primarily directed to manufacturers of composite wood products and is intended to provide information regarding the handling of "non-complying lots." This advisory will explain provisions that can be applied by a manufacturer for reworking product batches being reworked as a producer of CARB compliant composite wood products by an approved third party vendor.

Background
In 2007, the California Air Resources Board (CARB) approved an airborne toxic control measure (ATCM) to reduce formaldehyde emissions from composite wood products. On January 1, 2009, the ATCM Phase 1 emission standards will take effect for bonded plywood with several core, particleboard, medium density fiberboard (MDF), and the MFC (includes 8 millimeters or less). The Phase 1 emission standard for bonded plywood composite core will take effect on July 1, 2009. To be in compliance with the ATCM, domestic and foreign manufacturers are required to make the approval of CARB approved independent third party verifier (ITPV) to verify all new manufacturing processes in compliance with the applicable emission standards. Numerous manufacturing mills have received their ITPV approval as a producer of CARB certified composite wood products. Some of these certified mills have accumulated inventories of composite wood products that were produced before they received their final CARB certification approval by the ITPV. CARB recognizes that some of these composite wood products emit formaldehyde at levels above the Phase 1 emission standards. These products that were produced before the mill was CARB certified may be reworkable using the "non-complying lot" provision in the ATCM.

"Non-complying Lot"
The ATCM provision for "non-complying lot" may be utilized by manufacturers to permit that are still in their possession or under their control. Manufacturers that produce non-complying composite wood products, such as products produced before obtaining CARB certification, may reworkable these non-complying lots as CARB compliant if they follow the provisions for "non-complying lot" specified in California Code of Regulations, Title 17, section 93202.12, Appendix 2, sub-sections (g)(5)-(g)(8).

Below is a brief summary of the steps that must be followed, although manufacturers should read the full regulatory language to understand all of the requirements that must be met:

- 1) Manufacturers must have valid third party certification, per section 91202.03(b).
- 2) The manufacturer's ITPV must be notified.
- 3) If necessary, the "non-complying lot" may be treated to reduce formaldehyde emissions by using a rework or treated by other means, such as spray.

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Implementation Status

continued



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

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Possible Amendments to the Composite Wood ATCM



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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

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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

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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

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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

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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 certified 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

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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

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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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<http://www.arb.ca.gov/toxics/compwood/compwood.htm>

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