

# California's New Formaldehyde Regulations

July 10, 2007

Forest Products Society &  
Oregon Wood Innovation Center Workshop  
*Eugene, Oregon*



Jim Aguila, Manager  
Substance Evaluation Section (SSD)

Russell Grace, Manager  
Special Analysis Section (MLD)

R.C. Smith  
Strategic Environmental Investigative & Enforcement Section (ED)

**Air Resources Board**  
California Environmental Protection Agency





# Outline



- Background
- Approved Airborne Toxic Control Measure
- April ARB Hearing Summary
- Additional ATCM Modifications
- CWP ATCM Implementation



# Background





# California Health & Safety Code Requirements

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- § 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

# Formaldehyde as a Toxic Air Contaminant

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- Identified as a Toxic Air Contaminant in 1992
- No level of exposure considered “safe”
  - Damages DNA
- Inhalation causes cancer in the region of the throat behind the nose
- Non-cancer effects

# Composite Wood Products Covered Under ATCM

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- Hardwood Plywood (HWPW)
  - Veneer core
  - Composite core
- Particleboard (PB)
- Medium Density Fiberboard (MDF)
  - Thickness >8mm
  - Thickness  $\leq$  8mm

# United States Emission Standards

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- Set in 1985 by U.S. Dept. of Housing and Urban Development (HUD)
- Applies only to PB and HWPW in manufactured homes
- Limits surface emissions
- High emission rate compared to Europe, Australia, and Japan

# International Emission Standards

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- Lower than current U.S. standard
- Programs are fundamentally different; not directly comparable
- Generally not emission caps



# Airborne Toxic Control Measure

*Approved by the ARB on April 26, 2007*

# ATCM Applicability

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- Panel manufacturers
- Distributors
- Importers
- Fabricators
- Retailers
- Finished goods

# ATCM Provisions

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- Applies to products sold, supplied, used, or manufactured for sale in California
- Emission standards in two phases
- Sell-through
- Exemptions
- Enforcement

# Rationale for Phase 1 Standards

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- Sets an industry cap; over 50% of CWP manufacturers need to lower emissions
- Curtails low-cost, high-emitting imported products

# Approved Phase 1 Standards

<b>Product</b>	<b>Jan 1, 2009</b>	<b>Jul 1, 2009</b>
<b>HWPW-VC</b>	0.08 ppm	-----
<b>HWPW-CC</b>	-----	0.08 ppm
<b>PB</b>	0.18 ppm	-----
<b>MDF</b>	0.21 ppm	-----
<b>Thin MDF</b>	0.21 ppm	-----

# Rationale for Phase 2 Standards

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- Technology forcing
- Defines BACT

# Approved Phase 2 Standards

<b>Product</b>	<b>Jan 1, 2010</b>	<b>Jan 1, 2011</b>	<b>Jan 1, 2012</b>	<b>Jul 1, 2012</b>
<b>HWPW-VC</b>	0.05 ppm		-----	-----
<b>HWPW-CC</b>		-----	-----	0.05 ppm
<b>PB</b>		0.09 ppm	-----	-----
<b>MDF</b>		0.11 ppm	-----	-----
<b>Thin MDF</b>		-----	0.13 ppm	-----

# Sell-through

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- Allows sale of non-compliant products manufactured before standard effective
- Time period limited
- Differing sell-through periods

# Exemptions

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- Products not for sale in California
- Products subject to HUD standards
- Windows with <5 vol% composite wood
- Exterior doors; doors with <3 vol% composite wood
- Military specification plywood
- Vehicles

# Enforcement Provisions

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- Third Party Certification
- Statements of Compliance
- Recordkeeping
- Product Labeling
- Facility Inspections
- Compliance Testing



# April Air Resources Board Hearing Summary

# Air Resources Board Action at April 26<sup>th</sup> Hearing

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- Adopted staff's proposed modified regulation (7-0 vote)
- Delegated authority to Executive Officer to reopen the public record for subsequent 15-day public comment period
- Directed staff to provide enforcement program update for Board in 2008



Additional ATCM Modifications Approved  
by the Board at the April Hearing

# Additional Modifications to the Original Proposal

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- Performance-based compliance option for low-emitting formaldehyde based resins
- Sell-through provision dates
- Definition of “architectural plywood”
- Other clarifications

# Resolution of ATCM Modifications

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- Performance based testing flexibility
- Requirements for quality assurance in Appendix 2 and third party certifiers in Appendix 3
- Definition of architectural plywood



# Composite Wood Product ATCM Implementation



# Composite Wood Products ATCM Implementation

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- ATCM Rulemaking
- CARB Enforcement Program
- ARB Testing Capabilities
- Education and Outreach
- Third Party Certification
- NAF Resin Provisions
- CARB Website Update
- CWP ATCM Schedule

# ATCM Rulemaking

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- ARB adopted ATCM on April 26<sup>th</sup>
- ATCM modifications for public comment
- Complete FSOR
- Submit rulemaking file to OAL
- OAL approval and codification into California Code of Regulations

# CARB Enforcement Program

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- Approach similar to Consumer Products regulation
- Ensures that finished goods are fabricated with lower emitting boards
- Evaluating field screening devices

# ARB Testing Capabilities

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<u>Timeline</u>	<u>Action</u>	<u>Status</u>
Spring 2007	Purchase lab equipment	✓
Spring 2007	Small Test Chambers	In progress
Spring 2007	Evaluate Field Equipment	Ordered
Summer 2007	Draft Lab Analytical Method MLD022	
Summer 2007	Begin Small Chamber Cert.	CDPH
Summer 2007	Field Equip to Small Chamber.	To do

# ARB Testing Capabilities (cont'd)

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## Timeline

## Action

## Status

Fall 2007

Finish Product Evaluation

Looking at options

Late 2007

Complete Small Chamber Certification

Late 2007

Round Robin Testing

Looking for Participants

Spring 2008

Complete R.R. Testing & Refine Methods

Summer 2008

Complete Lab Protocols

January 2009

Implementation of ATCM

# Lab Analytical Method

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- Follow ASTM D6007 (small chamber) and ASTM D5197 (DNPH w/HPLC and UV analysis)
- SOP MLD022  
([www.arb.ca.gov/aaqm/sop/summary/summary.htm](http://www.arb.ca.gov/aaqm/sop/summary/summary.htm))
  - Determines carbonyls in Ambient Air
  - Developed from US EPA Method TO11
  - O3 Scrubber upstream from Sep-Pak DNPH silica cartridge
  - HPLC with ultraviolet absorption at 360 nm

# Lab Analytical Method

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- Modifications to MLD022
  - LC/MS
  - Flow rate for sample collection
- Finished Products
  - Evaluating proposal from stakeholders
  - Test in lab

# Education and Outreach

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- Fact sheets
- Enforcement advisories
- Conferences
- Meetings

# Third Party Certification (TPC)

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- 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

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- 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

# No-Added Formaldehyde (NAF) Resin Provisions

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- 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

# NAF Resin Emissions Performance Demonstration

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- Data quality criterion
- Data must demonstrate reliably consistent performance below Phase 2 levels

# CWP ATCM Website Update

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- Emphasize implementation
- Provide transparency
- List TPCs
- On-line TPC application
- Information on NAF products
- Webinars

# CWP ATCM Schedule

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## 2007:

3<sup>rd</sup> Qtr. - Release modified regulation to public  
- CDPH chamber studies

4<sup>th</sup> Qtr. - Develop review criteria for TPC & NAF applications  
- Complete ATCM rulemaking  
- ARB small to large chamber correlation

## 2008:

1<sup>st</sup> Qtr. - First TPC and NAF reviews

2<sup>nd</sup>/3<sup>rd</sup> Qtr. - ARB Status Hearing

# 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](mailto:jaguila@arb.ca.gov)