

Airborne Toxic Control Measure for Composite Wood Products



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Air Resources Board**

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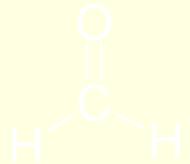




California Health & Safety Code Requirements

- **§ 39657 - Requires ARB to identify toxic air contaminants; identify minimum threshold levels**
- **§ 39658 - Requires ARB to develop Airborne Toxic Control Measures (ATCMs)**
- **§ 39666 - For compounds with no threshold level, the HSC requires control measures to be based on Best Available Control Technology, or more effective controls in consideration of costs and risk**

Why is Formaldehyde a Concern?



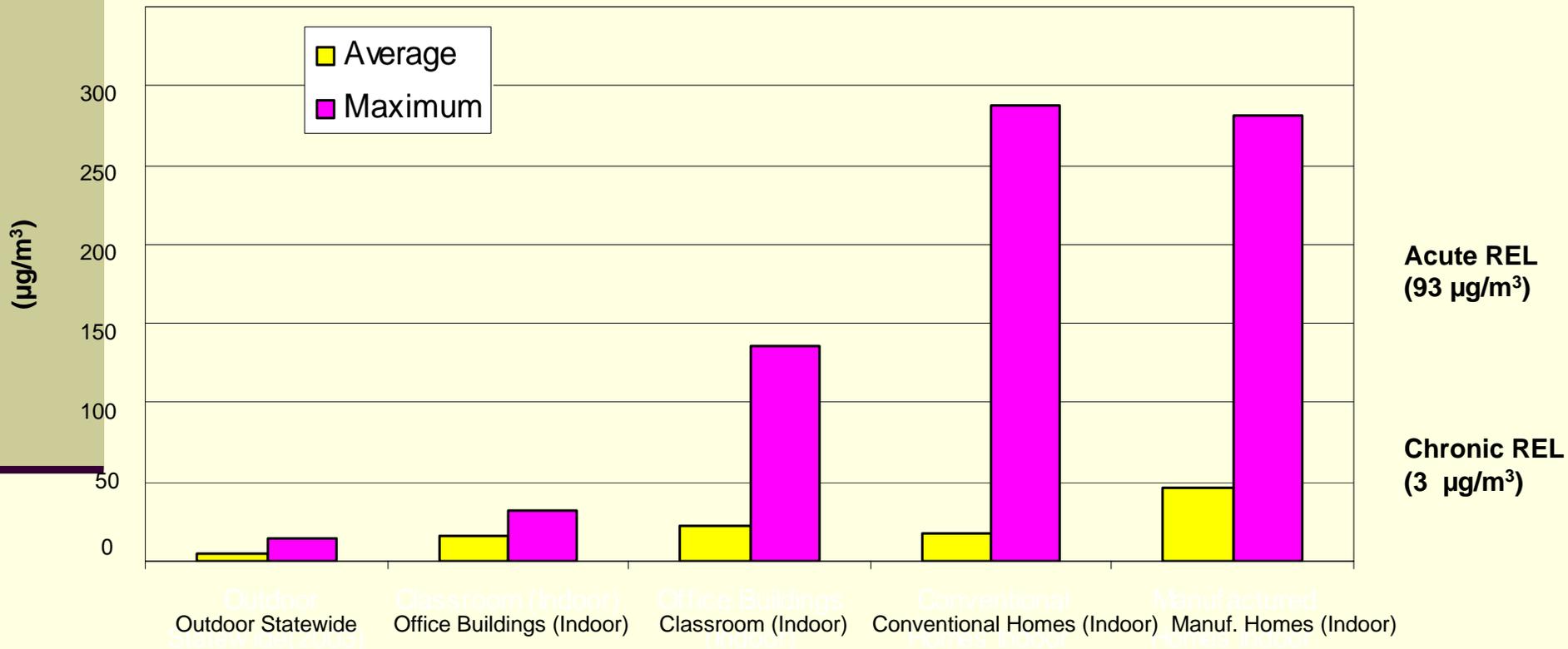
- **ARB Identified as TAC in 1992 with no safe threshold exposure level**
 - **nasopharyngeal cancer**
 - **acute and chronic effects- eye, nose, respiratory irritant**

- **SRP Identified as a Tier 2 compound under SB 25 evaluation**
 - **Children's Environmental Health Protection Act**

- **Formaldehyde is both an indoor and outdoor health risk**
 - **4% of CA classrooms above OEHHA's interim 8-hr REL (27 ppb)**
 - **80% of ambient levels are photochemically derived**
 - **CA average concentration above OEHHA chronic REL (3 $\mu\text{g}/\text{m}^3$)**
 - **Avg. ambient levels result in 18 excess cancers per million**



What are Typical Formaldehyde Levels?



70 years at 1 µg/m³ = 6 lifetime cancers per million

Why is ARB Targeting Composite Wood Products?

- **Composite wood products made from urea-formaldehyde resin systems**
- **Formaldehyde emitted outdoors**
 - **truck/rail/ship transportation, lumberyards, new home construction/remodeling, through open windows and doors, and home ventilation systems**
- **Significant source of personal formaldehyde exposure**
- **Other CA sources being addressed by volatile organic compound controls**
 - **e.g., motor vehicles & consumer products**



Worldwide Standards for Wood-Based Panels



■ United States

- 1985 HUD standards; voluntary
- New ASTM/ANSI specifications under review

■ Europe

- E1 standards for plywood and particleboard are about half of the HUD standards

■ Japan (F** - F****)

- F*** standard is stringent, technology-forcing for some products
- F**** standard represents de minimis levels

Proposed ATCM

- **Applies to particleboard, medium density fiberboard and hardwood plywood**
 - **Raw boards**
 - **Finished products**
- **Formaldehyde Performance Standards**
 - **Phase 1- Level similar to E1 std.**
 - **Phase 2- Technology forcing; similar to Japan F*** stds.**
- **Applies to producers, fabricators, importers, retailers**
- **Enforcement**
 - **Manufacturers- 3rd party certification to ensure compliance**
 - **Chain-of-Custody**
 - **Lab verification procedures**

Proposed ATCM Standards*

Wood Product	HUD Std.	Phase 1 (ppm) Effective Date: 2009	Phase 2 (ppm) Effective Date: 2011-2012
Particleboard	0.30	0.18	0.08
Medium Density Fiberboard	None	0.21	0.08
Hardwood Plywood: - Veneer Core - Composite Core	0.20 None	0.07 0.09	0.03 0.05

Solutions Exist to Meet Phase 2

Tradename	Company	Compwood Products	Resin System
Arreis	Sierra Pine	MDF	MDI
Medite II			
Medex			
Purebond	Columbia Forest Products	HWPW	Soy-based
Skyblend	Roseburg	PB	PF
<i>EcoBind</i> resin system	Hexion	HWPW, PB, MDF	MUF/co-react, PF, soy/PVA blend
<i>Kenocatch</i> resin system	Akzo Nobel	MDF, PB	MUF + catcher
<i>Soyad</i> resin system	Heartland Resource Technologies	HWPW	Soy + PF

Benefits of the Proposed ATCM

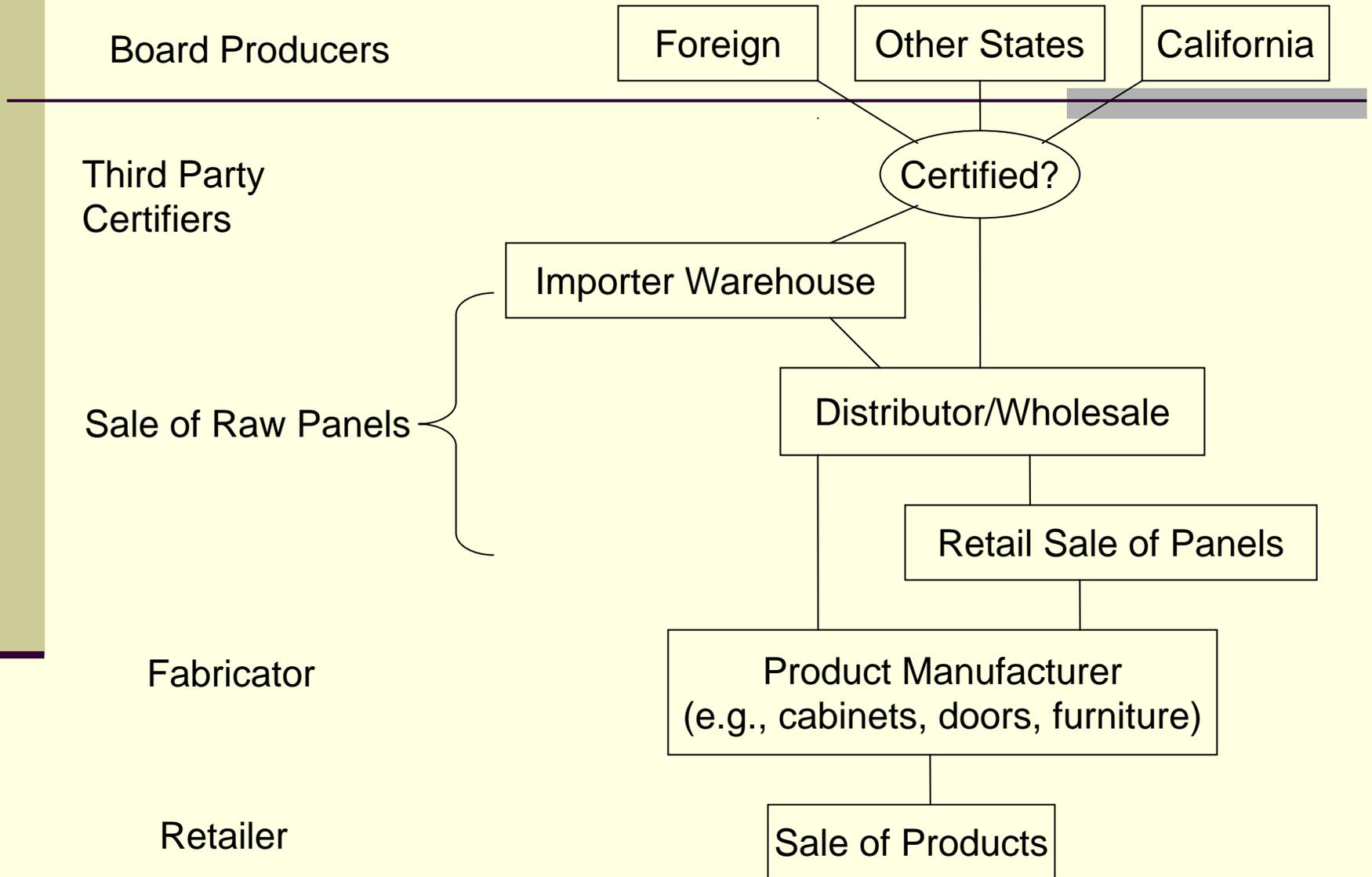
- **Reduce potential formaldehyde emissions**
 - **i.e. effective pollution prevention**
- **Achieves reductions in indoor settings where people spend most time**
- **Reduces composite wood emissions by 30% in Phase 1 and 80% in Phase 2**
- **Reduces overall exposure by 15% (Phase 1) to 40% (Phase 2)**

Enforcement Related Activities

- Internal coordination between enforcement and laboratory
- Initiate planning for ARB raw panel testing
- DHS coordination
- Various tours
 - Door manufacturers
 - Oakland port
 - Architectural plywood
 - DHS laboratory
- Initiate industry coordination for finished product test method development
- Evaluation of Chain of Custody requirements
- Meeting with Chinese Consulate

Points for Enforcement

Flow of Commerce



Composite Wood ATCM

Enforcement - *Inspection Approach*

- Chain of Custody documentation audit
- Review of third party certification emissions data
- Raw panel sampling and testing at ARB's certified small chamber under ASTM 6007
- Use finished product test method (under development) to test components used
- If warranted, ARB enforcement investigation

Composite Wood ATCM

Enforcement – *Other Inspection Approaches*

- Enforcement under ARB's program on ports
- Joint enforcement activities with USEPA, U.S. Customs and local air pollution control districts
- Follow up on complaint hotline

Future Work on Enforcement Program

- Consult with CAPCOA Enforcement Managers
- Fully define third party certification requirements
- Continue dialogue with international producers/fabricators
- Further evaluate options to strengthen Chain of Custody
- Continue development of finished product test method

For Latest ATCM Text and More Information:



Contact the Substance Evaluation Section-

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Visit our website-

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

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