

# 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

---



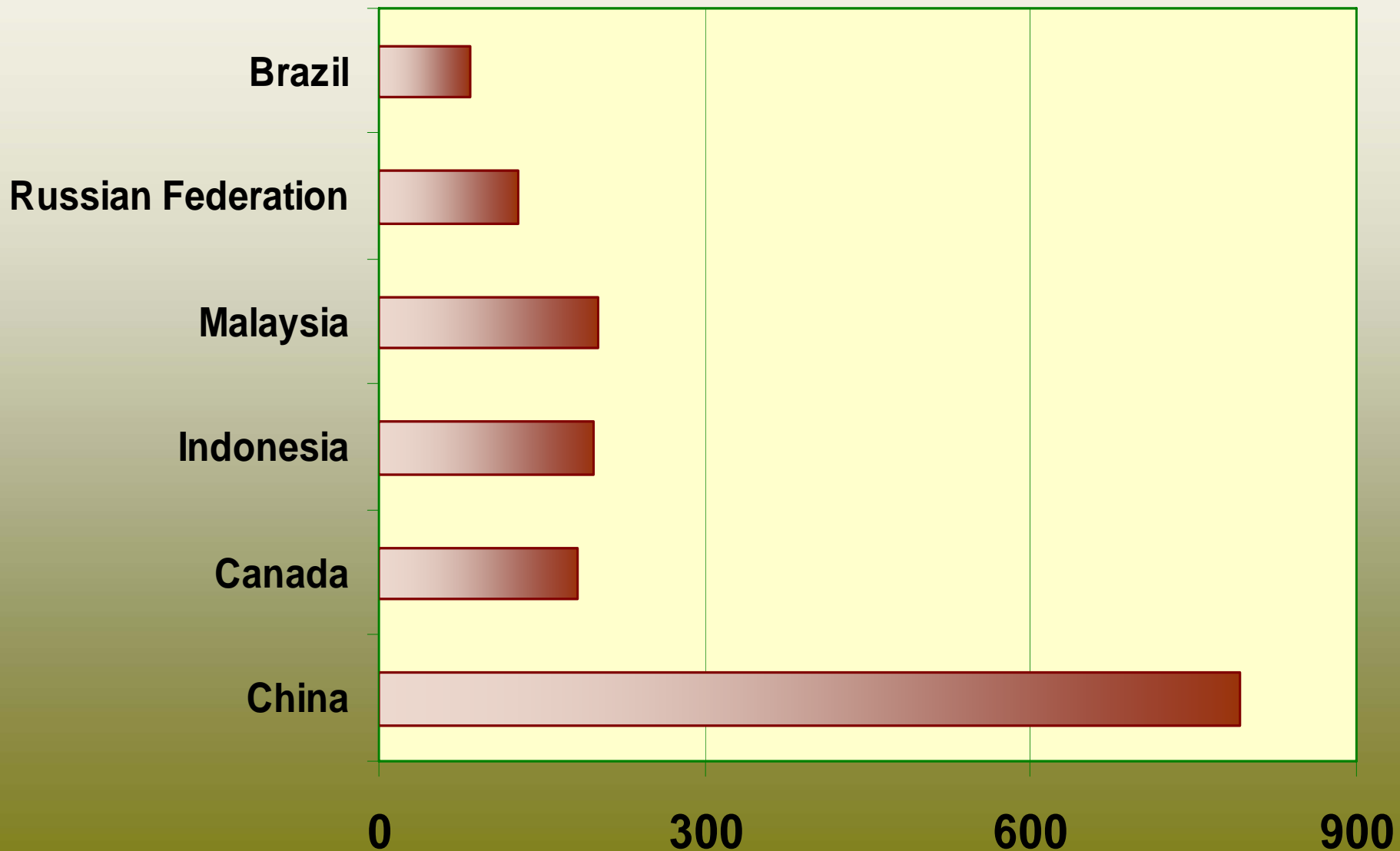
# Role of the California Air Resources Board (CARB)

---

- 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



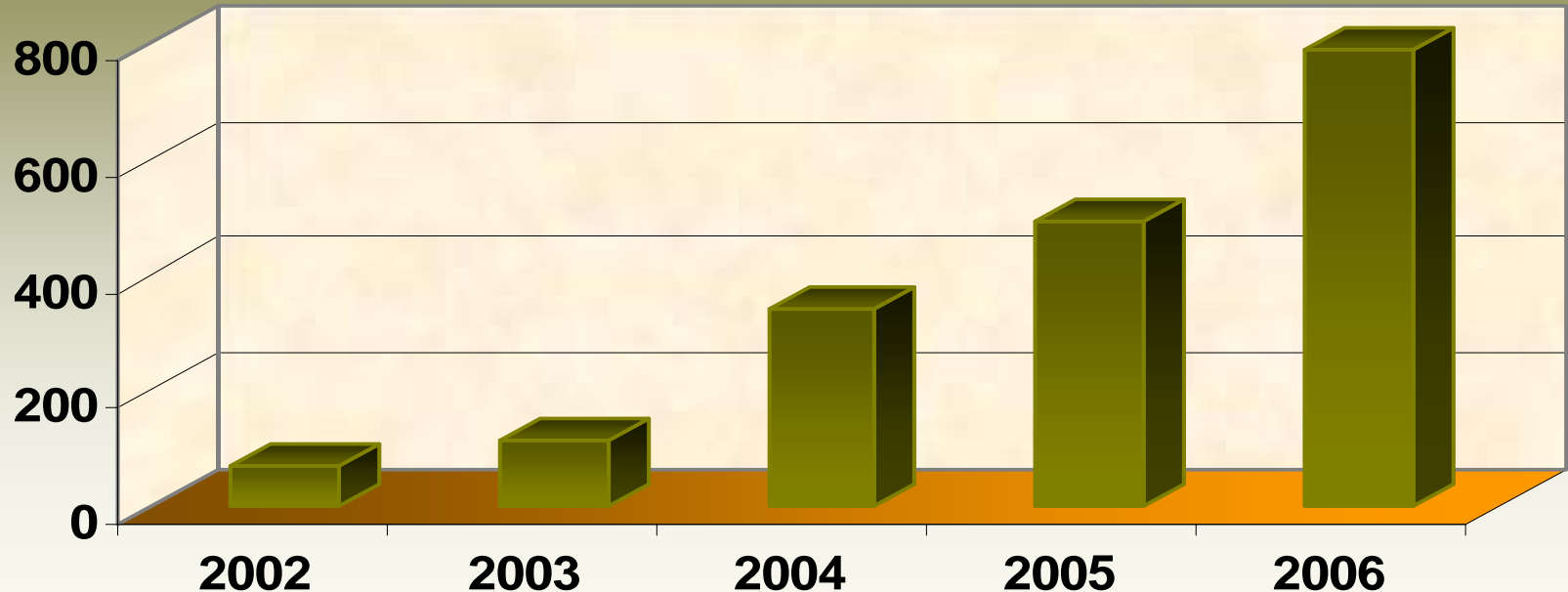
Source: USDA Foreign Ag Service



# HWPW Imports from China: 2002-2006

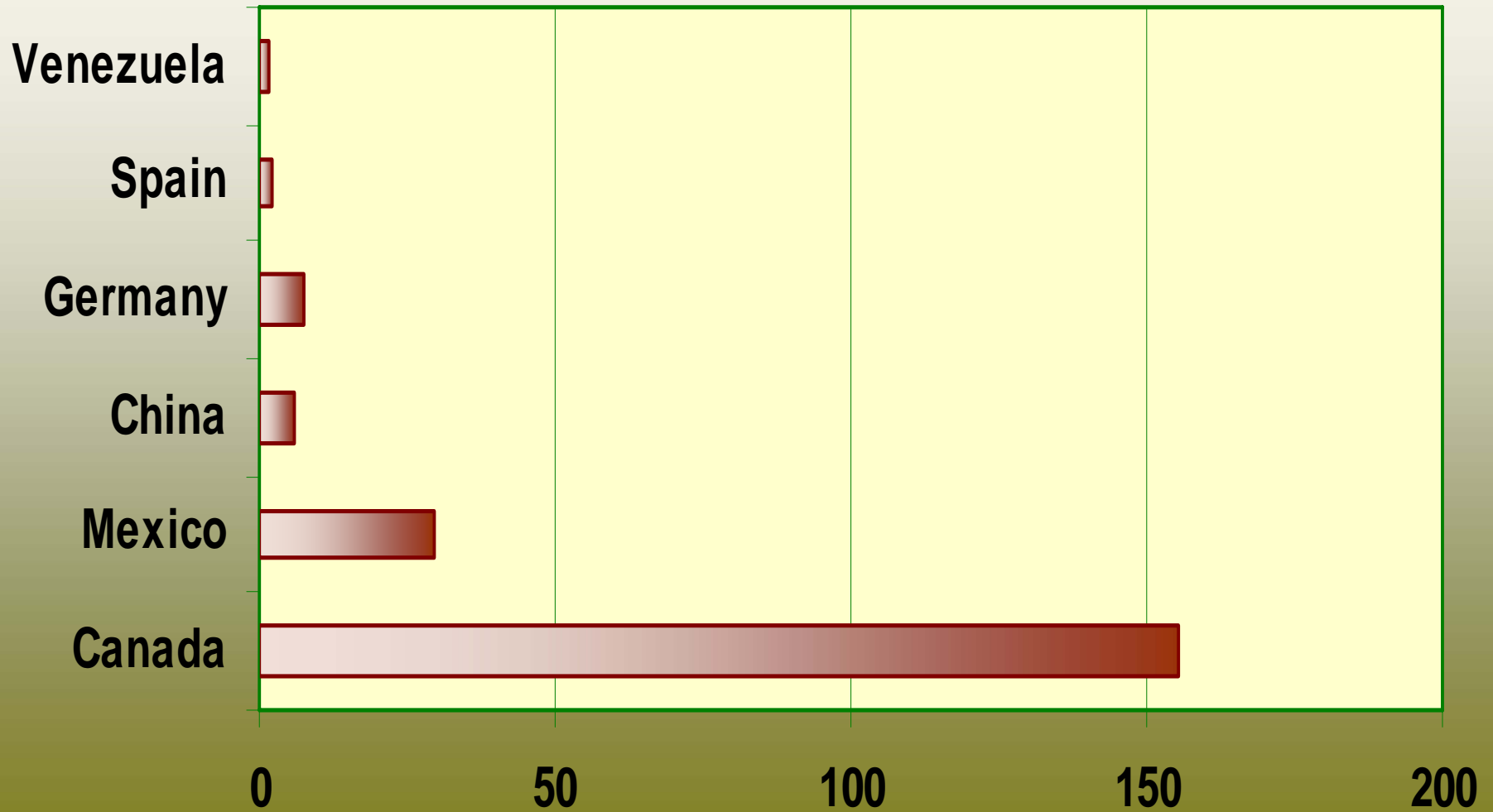
- Imported Products – steady increase in the past 5 years in the U.S.

## U.S. Imports of Hardwood Plywood (\$ Million)



Source: International Wood Products Association (2006)

## 2006 Top Imports of Particleboard \$ Million

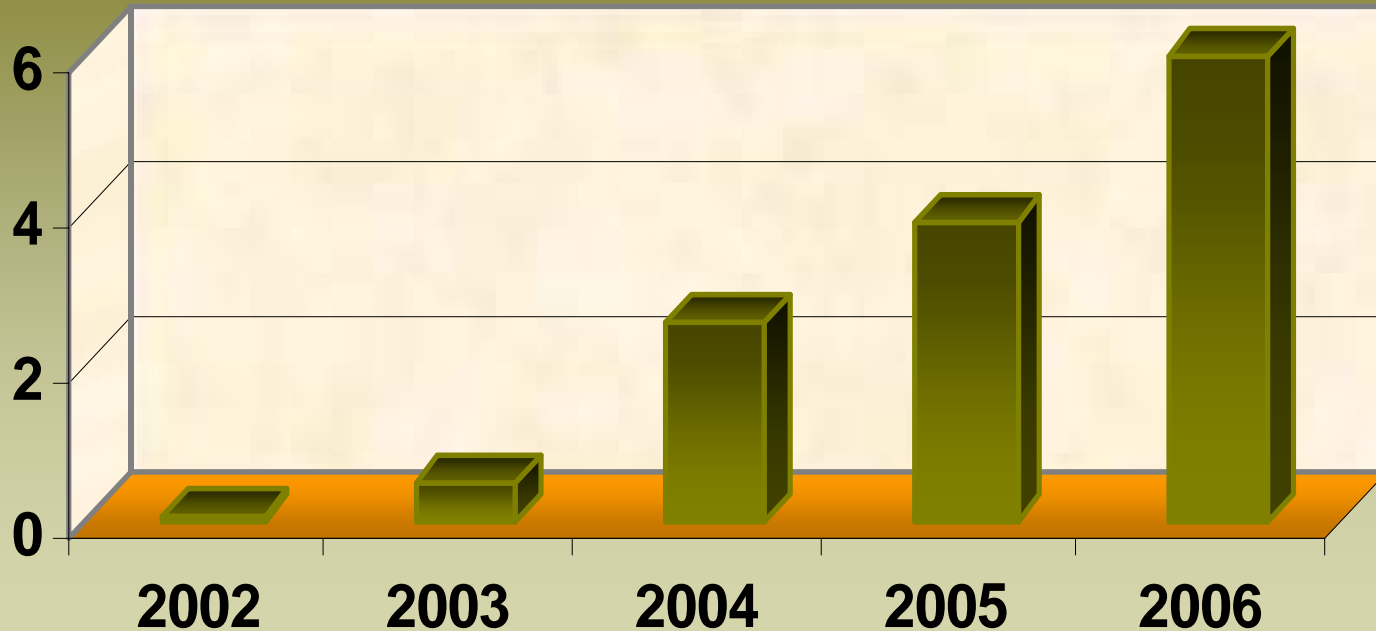


Source: USDA Foreign Ag Service



# PB Imports from China: 2002-2006

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

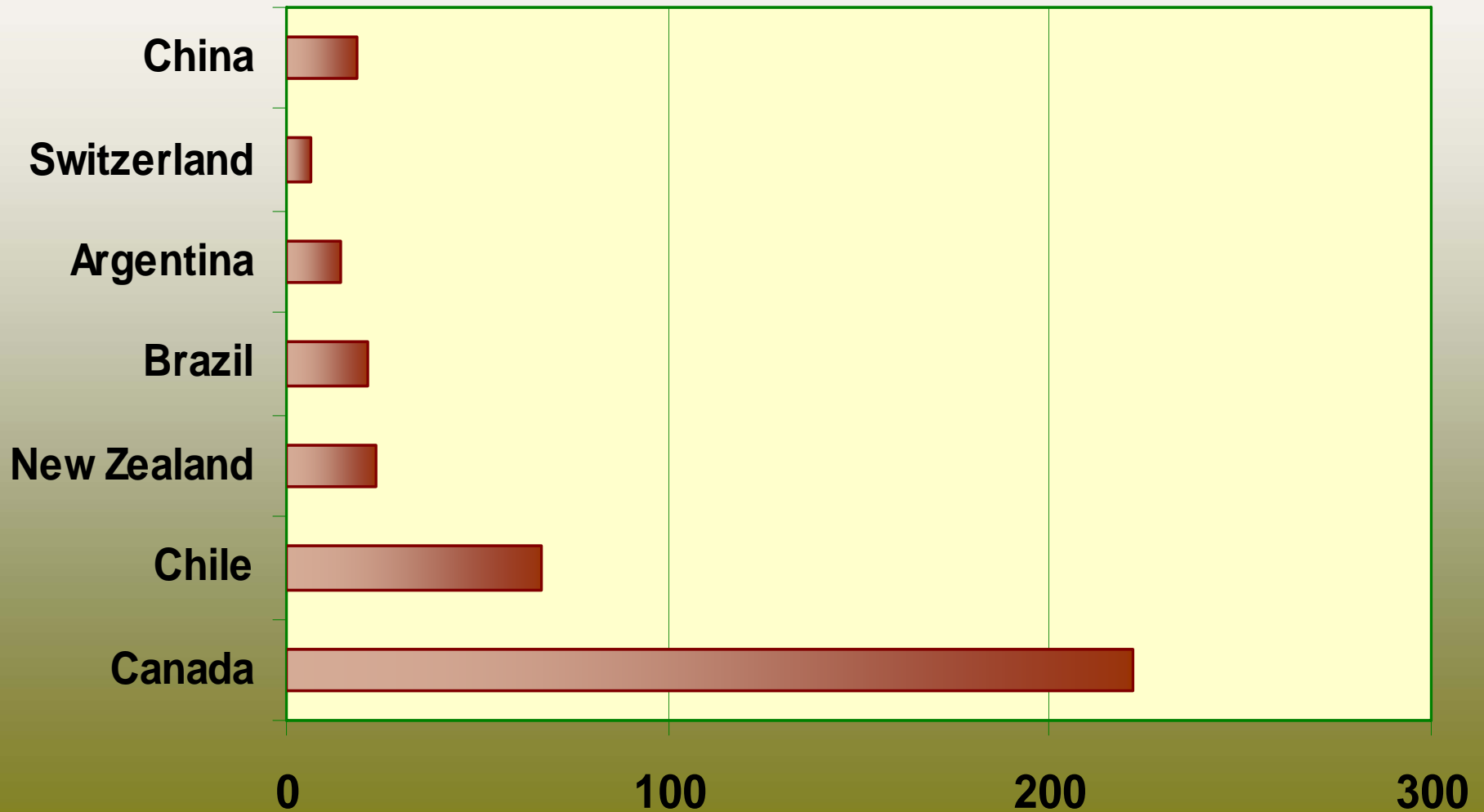


Source: International Wood Products Association (2006)



## 2006 Top U.S. Imports of MDF

\$ Million

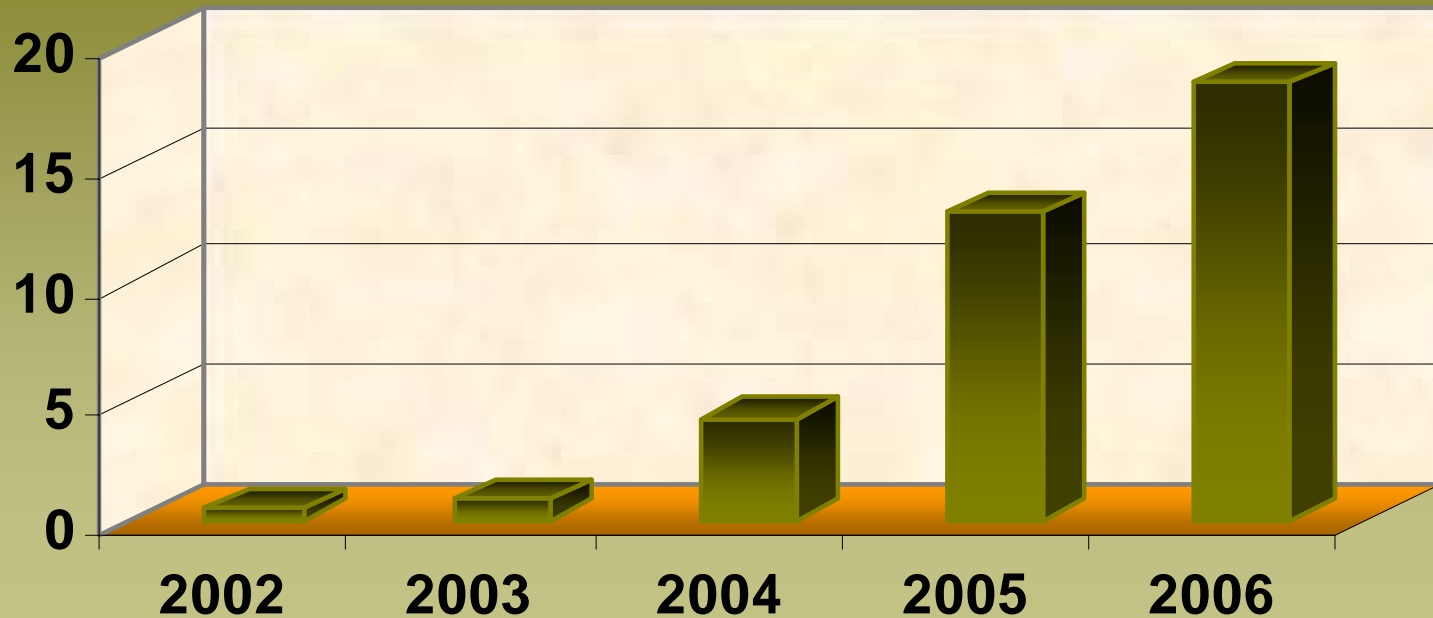


Source: USDA Foreign Ag Service



# MDF Imports from China: 2002-2006

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



Source: International Wood Products Association (2006)



# Control of Toxic Air Contaminants

---



# California Health & Safety Code Requirements

---



- § 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



# 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  $> 8\text{mm}$
  - Thickness  $\leq 8\text{mm}$  (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





# Approved Phase 1 Standards\*

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

\* Based on ASTM E-1333-96



# Approved Phase 2 Standards\*

---

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

\* Based on ASTM E-1333-96



# CARB vs. International Standards

Standard	Product(s)	Test Method	Numerical Value	~E1333 (ppm)
<b>CARB-P1</b>	HWPW	E1333	0.08 ppm	0.08
	PB	“	0.18 ppm	0.18
	MDF	“	0.21ppm	0.21
<b>CARB-P2</b>	HWPW	E1333	0.05 ppm	0.05
	PB	“	0.09 ppm	0.09
	MDF	“	0.11 ppm	0.11
<b>E1</b>	HWPW	EN 717-1	0.12 mg m <sup>-3</sup>	0.14
	PB	“	0.12 mg m <sup>-3</sup>	0.14
	MDF	EN 120	8 mg 100 g <sup>-1</sup>	0.10
<b>F***</b>	All	JIS A1460	0.5 mg L <sup>-1</sup>	0.07
<b>F****</b>	All	“	0.3 mg L <sup>-1</sup>	0.04





# 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



# Manufacturer 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 26<sup>th</sup>, 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](mailto:jaguila@arb.ca.gov)