

# EPA's Activities on Chinese Drywall

Arnold E. Layne, Director  
Technology Innovation and Field Services Division  
Office of Superfund Remediation and Technology Innovation  
Office of Solid Waste and Emergency Response

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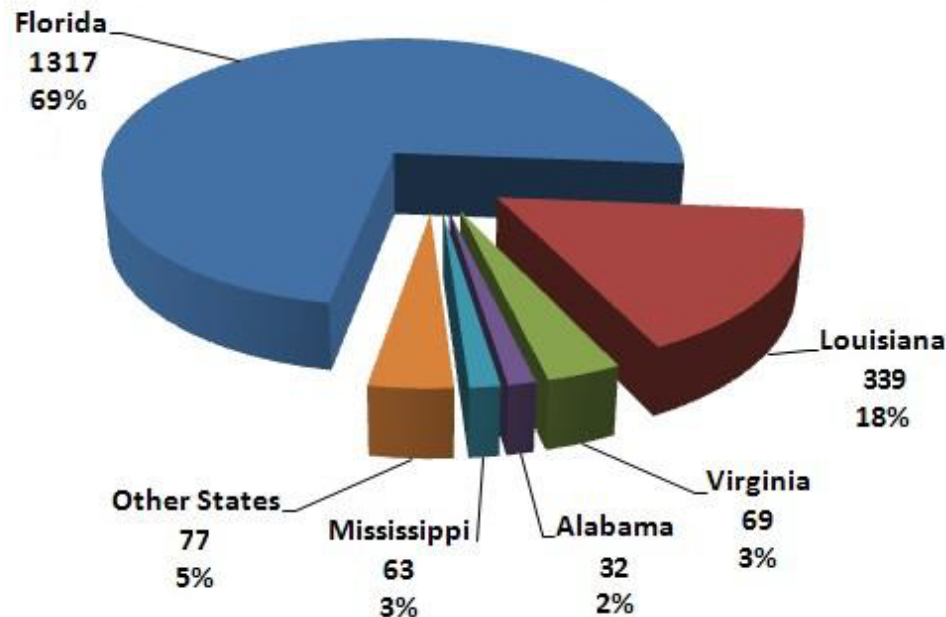
November 5, 2009

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# OVERVIEW

- Homes in 30 states, the District of Columbia, and Puerto Rico may contain imported drywall from China. CPSC has received almost 1900 complaints.
- FL and LA are the epicenter – most complaints. Hurricane victims. VA has third highest complaints.
- CPSC lead federal agency. Federal and state partnership in place to solve issue – CPSC, EPA, CDC, ATSDR, HUD, FL, LA, VA – key players.



# Overview

- Residents complain of rotten egg odors, unusual and frequent corrosion of copper wiring, and various health issues (upper respiratory, headaches, nose bleeds).
- Extensive press coverage and growing Congressional Interest.



# EPA's Role

- EPA in supportive role to CPSC.
  - Testing – content analysis of drywall; indoor air testing, fed/state protocol, radiological testing of phosphogypsum, disposal
  - EPA member of federal/state Technical Committee – review of data
  - Congressional inquires, hearings, and meetings
  - Communications; FOIA (responding to two expansive requests)
- Challenges
  - Unique scientific puzzle - Non-traditional media for analysis; hypothesis testing in uncharted territory; no existing SOPs; modifying existing analytical methods
  - Legal authority and cost to correct
  - Issue is complex and larger than one agency

# DRYWALL CONTENT/ELEMENTAL TESTING

- Performed by EPA
  - **Purpose:** characterize the components of drywall. Samples analyzed for organic and inorganic compounds
  - **6 drywall samples**
    - 2 samples from Florida homes and 4 from local stores in NJ
    - Analysis requested by FLDOH and ATSDR
    - Results released in April.
  - **17 drywall samples**
    - Chinese and controls/domestic samples
    - Blind testing; chain of custody
    - Analysis requested by CPSC
    - Samples from LA, FL, VA, AL, MS
  - **5 drywall samples**
    - EPA initiated
    - Samples from FL, LA, and VA



# DRAFT PRELIMINARY RESULTS

## EPA DRYWALL CONTENT ANALYSIS

Three sets of drywall content analyses (28 total samples). Complex analysis

- Elevated levels of elemental sulfur found in Chinese drywall (15- 420 ppm) samples (one exception), non-detect levels (7.5 ppm) found in domestic drywall (potential indicator of Chinese drywall).
- Elevated levels of strontium (>2500 PPM) found in Chinese drywall (one exception). Does not pose a radiological safety risk. Potential indicator of Chinese drywall)
- Head space analysis (sulfur compounds) shows presence of hydrogen sulfide, carbonyl sulfide and carbon disulfide in four of five drywall samples collected from Florida and Louisiana homes and warehouses (Louisiana and Virginia).
  - Exposure to these “reduced” sulfur compounds can cause headaches, eye, nose and throat irritations and can exacerbate respiratory problems

# IN-HOME INDOOR AIR SAMPLING

- **Purpose:** to develop drywall investigation guidance for Federal partners/states to assess homes with Chinese drywall. Results may determine health effects, building characterization and indoor environmental measurements
- **Testing by EPA**
  - Wide range of chemicals; over 1200 samples taken
  - 3 Homes in Florida
    - 2 homes with Chinese Drywall and 1 Control home
  - 3 Homes in Louisiana
    - 2 homes with Chinese Drywall and 1 Control home
- **Testing by Florida Dept. of Health (FLDOH)**
  - 4 Homes in Florida
  - 2 homes with Chinese Drywall and 2 Control homes



# DRAFT PRELIMINARY RESULTS

## EPA REAL TIME AIR MONITORING

- Continuous monitoring of the air over a period of time in the 6 homes in Florida and Louisiana.
- Low levels of hydrogen sulfide (H<sub>2</sub>S) were detected.
- Sulfuric acid was not detected (detection limit 26 ppbv)
- No significant difference in carbon dioxide and carbon monoxide concentrations measured in all houses.





# DRAFT PRELIMINARY RESULTS

## EPA INDOOR AIR SAMPLING

- Over 1200 air samples were collected and analyzed for a wide variety of analytes using standard EPA/NIOSH/OSHA methods.
- The reduced sulfur compounds (14) were not detected in indoor air samples from Florida and Louisiana houses except for one night sampling event in a test house in Florida where carbonyl sulfide (8ppbv) and carbon disulfide (6ppbv) were detected at low levels. Below health concern levels.
- Low levels of target organic compounds (toluene, xylenes, etc.) were detected in indoor air in all six homes. Literature indicates that these organic compounds are routinely found in indoor air.
- Several tentatively identified organic compounds (propanoic acids, esters, etc.) were detected and are routinely found in indoor air



# DRAFT PRELIMINARY RESULTS

## EPA INDOOR AIR SAMPLING

### FORMALDEHYDE

- The air sampling results show the presence of formaldehyde at levels equal to or greater than 100 ppb during tests with the air-conditioning (AC) system turned off in each FL and LA home (test and control).
- The formaldehyde levels in a LA test house were around 400 ppbv with the AC system off.
- The concentration of formaldehyde was reduced up to 64% with AC systems turned on.
- Predominant sources of formaldehyde and other aldehydes include building materials, carpets, particle board, cabinets, furniture, wall panels, hardwood plywood, draperies, subfloors and urea-formaldehyde foam used as insulation

# SUMMARY

- EPA in a supportive role to CPSC.
- Elemental Analysis – Chinese drywall samples tested contain strontium and elemental sulfur.
- Indoor Air Studies – identify and measure contaminants and inform protocol.
  - Sulfur gases – limited
  - Formaldehyde – found in homes with and without Chinese drywall
    - Not unusual for new or remodeled homes
    - Levels higher without air conditioning
- [WWW.DRYWALLRESPONSE.GOV](http://WWW.DRYWALLRESPONSE.GOV)