



The Use of Metals in Vinyl Products

Allen Blakey
Sr. Director, Public Affairs
The Vinyl Institute, USA
CPSC Roundtable on Lead
May 13, 2008





About the Vinyl Institute

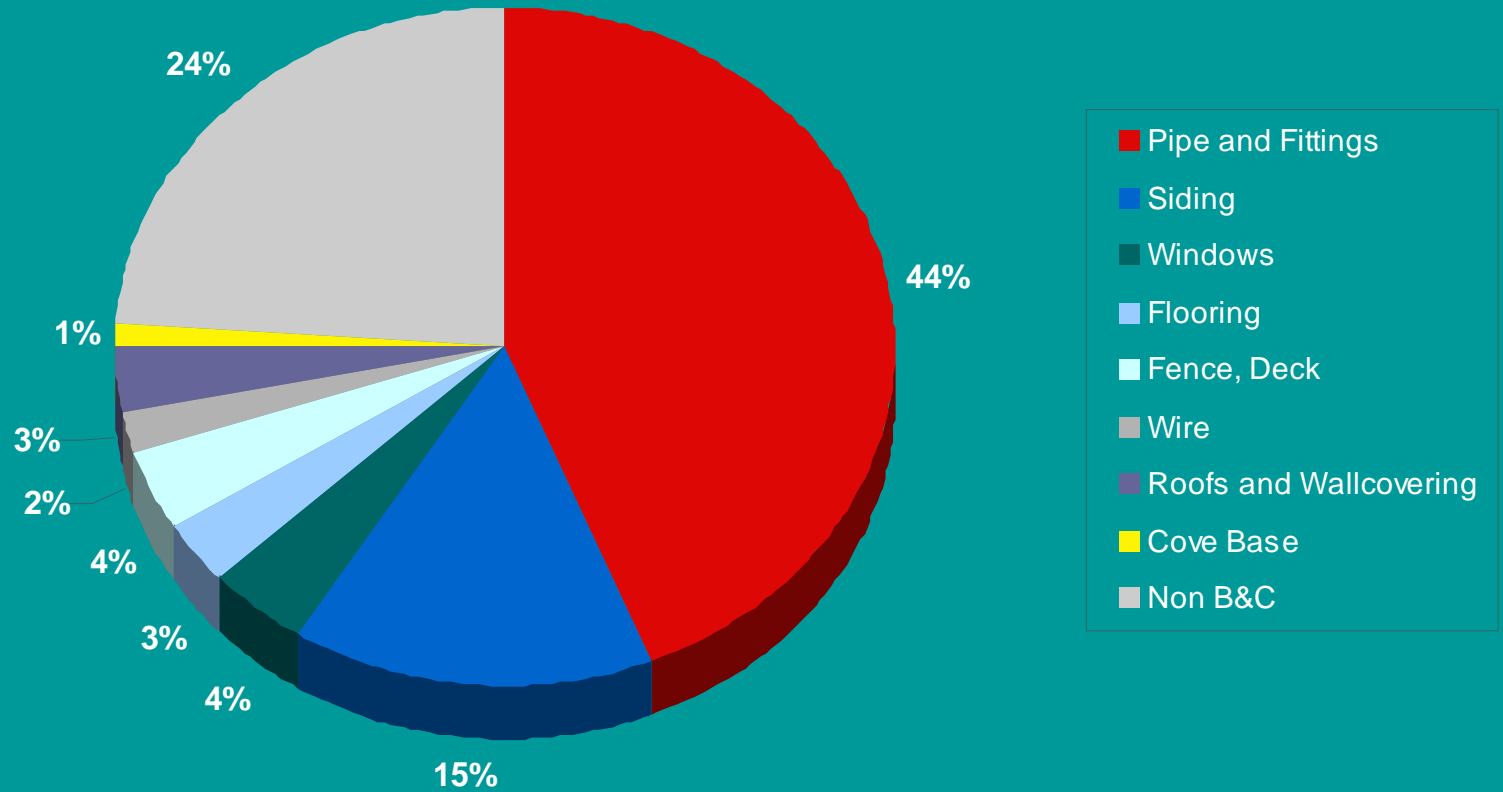
- National trade association for the vinyl resin industry
- Members: U.S. vinyl resin mfrs., other companies involved in making vinyl plastic
- Mission: To advocate the responsible
 - manufacture of vinyl resins
 - lifecycle management of vinyl products
 - promotion of the value of vinyl to society



About Vinyl

- Polyvinyl chloride = vinyl = PVC
- 3rd largest volume plastic (15 bil. lbs. US)
- Chlorine + ethylene + processing = PVC resin
- Resin + additives (stabilizers, colorants, plasticizers, etc.) = PVC compound
- Compound is molded, extruded, calendered, etc. to make finished products

Vinyl Is Most Used in Building Products





Why Metals Are Used In Vinyl Compound/Products

- Stabilize PVC compound (major use)
 - Lubricate/control integrity of product during manufacturing
 - Add to long-term durability, weatherability, UV resistance
- Provide color as pigments/dyes
 - For aesthetics, weatherability



Primary Metal Stabilizers Used Today in U.S.

Type of Vinyl Product	Primary Stabilizer
<i>Rigid (pipe, siding, window frames, etc.)</i>	Tin
<i>Flexible</i>	
• Wire/cable insulation	Lead
• Flooring	Barium zinc
• Flexible sheet	Barium zinc
• Misc. plastisol coatings	Zinc
• Blown film	Calcium/zinc



Why Lead in Wire/Cable?

- Vinyl is material of choice for wire insulation
 - Excellent fire, dielectric (insulating) properties
- Lead stabilizers give required performance/insulating qualities
 - Long-lasting, resistant to weathering
 - Lead chloride insoluble, inert,
 - Slow to break down in behind-wall applications → reduced risk of electrical failure
 - Cost-performance traditionally better than others



Lead Use Decreasing In U.S. Wire/Cable

- Alternatives are being introduced/used
- Driven by
 - Innovation
 - Response to concerns about lead
 - High cost of lead → calcium/zinc comparable cost, almost equal performance
- US wire/cable mfrs. likely to be out of lead in next 2-3 years
 - At least one mfr. will exit this year



Many Products Are Subject to Lead Regs/Standards

- Fed/state regulatory limits apply
 - Products made with recycled, leaded vinyl typically are labeled
- Certified PVC pipe for drinking water
 - No intentional lead, 15 ppb extraction limit (NSF International)
- Certified vinyl siding
 - Must conform to ASTM D3679 (no lead used)
- Certified vinyl window/door profiles
 - No deliberate lead; trace levels < 0.02% (AAMA)



Many Products Are Subject to Lead Regs/Standards

- Mini-blinds
 - Use of lead stopped after CPSC investigation into lead dust on imported blinds
- Auto industry GADSL generally prohibits lead
- European RoHS policy leading to replacement of lead in electrical/electronics
- In development: Voluntary U.S. std. for lead in vinyl children's products (ASTM F15.62)



Recent Issues with Lead in Imported Products

- Lead found in some imported vinyl children's products
- CPSC tested imported vinyl lunchboxes, bibs
- Advised
 - Lunch boxes would not present a health hazard to children
 - Mfrs., importers should avoid lead in children's products, test products before shipment
 - Cracked/peeling vinyl in bibs, if ingested, could present exposure risk
 - Parents/caregivers should discard worn bibs



Recent Issues with Lead in Imported Products

- VI issued statement on bibs
 - Lead does not need to be used and is not used in U.S. for these products
- Lead, cadmium found in imported packaging tested by Toxics in Packaging Clearinghouse
 - 61% of flexible PVC packaging (mostly from Asia) tested above CONEG limits (100 ppm)
 - No rigid PVC blister/clamshell packaging (mostly from Asia) tested above CONEG limits



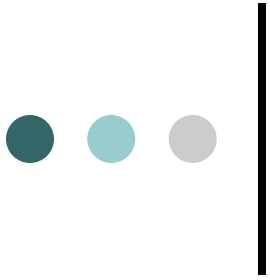
Issues/Questions Raised By Imported Product Testing

- Measured lead levels (CPSC, TPC) indicated lead not added deliberately as stabilizer
- Testing methodologies showed dramatically varying results (order of magnitude difference)
- How did lead get into products?
 - Pigments?
 - Recycling of vinyl stabilized with lead?
 - Contamination from previous run of lead-stabilized material?



Summary

- Most U.S.-made vinyl products are lead-free
- Many vinyl products in U.S. are subject to lead restrictions via regulations/standards
- Lead is being phased out even where it has dominated (wire/cable)
- Lead issue is largely related to imports
- Manufacturing-import-retail chain must set, enforce standards



Thank you!

