

# IAQ 101: Formaldehyde and other chemicals found in flooring and furniture

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# Why Indoor Air Quality

- EPA states indoor air is 5 to 100 times more polluted than the outdoor air
- The average person spends 80% of their time indoors.
- 20 million in US have Asthma, including 1 in 7 children.
- We don't have a count of the number with allergies to indoor pollutants

# Regulations

- For homes there are no regulations for indoor air quality, only guidelines
- IC 16-41-37.5 Instructs ISDH to inspect any school (k-12) or state government building when we get a complaint of IAQ
- No IAQ regulations for childcare, kindergartens, or universities.

# Sources of Indoor Pollutants

- Biological – Insects, dust mites, pets, mold, *plants*, foods (peanuts)
- Particulates – dust, soot (heaters, candles), cooking, smoking
- Chemical – Smoking, cleaners, fragrances, pesticides, hobbies/crafts, paints, garage??
- Chemical – building materials and furnishings

# Formaldehyde in Laminate Flooring

- Why is it there and where else is it found
- CARB (Cal. Air Resource Board) emission standard
- TV 60 Minutes report

# Guidelines / Limits for Exposure to Formaldehyde

- EPA – symptoms starting at 0.100 ppm
- CARB – recommends 0.030 ppm
- Workplace
  - NIOSH 0.016 ppm
  - OSHA 0.75 ppm for 8 hr workday, 0.5 ppm action level

# Health Effects of Formaldehyde

- At very low concentrations no adverse health effects
- Low concentrations irritation to respiratory tract, eyes, and skin
- Higher concentration / long term exposure may cause some types of cancer. EPA – probable carcinogen
- ATSDR: Nasal and eye irritation, neurological effects, and increased risk of asthma and/or allergy have been observed in humans breathing 0.1 to 0.5 ppm. Eczema and changes in lung function have been observed at 0.6 to 1.9 ppm.

# Other chemicals in furnishings

- Carpet – styrene and 4-phenylcyclohexene
- Plastics – Phthalates: banned in children's toys still in some vinyl flooring
- VOC's – paints, varnishes, adhesives  
EPA – significant evidence causes sensory irritation, may cause headache, fatigue
- SVOC's – small fraction as a gas but persistent in the environment : pesticides, plasticizers, flame retardants



# Flame retardants (SVOCs)

- Brominated and chlorinated compounds with growing concern about health effects
- Not chemically bound but incorporated
  - > May leach out to be ingested or inhaled with dust particles
- California TB-117 required FR in foam cushions – default national standard – recently changed

# Green Certifications

- Green Certified , MAS Certified Green
  - > 3rd party, low VOC emitting products
- Green Seal – 3<sup>rd</sup> party
- EcoLogo – was Canadian government but now part of Underwriter's Laboratory
- LEED – Leadership in Energy and Environmental Design, entire building

# Green Certifications cont.

- CARB – California Air Resource Board – several rules like for formaldehyde
- Greener Choices – Consumer Reports  
[Greenerchoices.org/eco-labels/](http://Greenerchoices.org/eco-labels/)
  - Able to search through green certifications for all kinds of products – tells you what the certification means.

# Contact Information

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