Asbestos: What Every Real Estate Professional Should Know

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What is asbestos?

- Various types of mineral fiber in rock and soil
- Naturally occurring
- Actually, officially limited to 6 fiber types
    - chrysotile
    - amosite
    - crocidolite
    - anthophyllite
    - tremolite
    - actinolite

What is asbestos?

- Heat resistant
- Effective insulator and strengthener
- If inhaled or ingested, fibers permanently trapped in the body
- Persistent
- Resists chemical and biological degradation
- Chronic exposure/chronic toxicity
- Inflammation, scarring, and genetic damage

Risk Management Requirements

- Many laws cover asbestos.
- Under TSCA, EPA is required to take action to address chemicals that pose unreasonable risks to human health or the environment.
- Following a determination of unreasonable risk, EPA must issue a rule so that the chemical no longer presents an unreasonable risk.
- Specific requirements regarding consideration of alternatives depending on the options selected and a statement of effects for each risk management rule.
- Public input required.

Regulatory Options

- Prohibit, limit, or otherwise restrict manufacture, processing, or distribution in commerce
- Prohibit, limit, or otherwise restrict manufacture, processing, or distribution in commerce for particular use or for use above a set concentration
- Require minimum warnings and instructions with respect to use, distribution, and/or disposal
- Require recordkeeping, monitoring, or testing
- Prohibit or regulate manner or method of commercial use and disposal by certain persons
- Direct manufacturers/processors to give notice of the unreasonable risk determination to distributors, users, and the public and replace or repurchase
- I'm a researcher, so that is all I am going to say about that….

Chrysotile

- Most commonly used
- Likely to be found in older homes
- Found in walls, roofs, ceilings, and floors
- Insulation around pipes, ducts, and appliances
- Used in brake linings, gaskets, and seals
- Less persistent than amphiboles

Amosite

- Found in cement sheets and pipe insulation
- Also, in ceiling tiles and thermal insulation products

Crocidolite

- Found in steam engines
- Spray on coatings, pipe insulation, plastics and cement products

Anthophyllite

- Limited use in various construction materials
- Has been detected in along with chrysotile in vermiculite and talc.

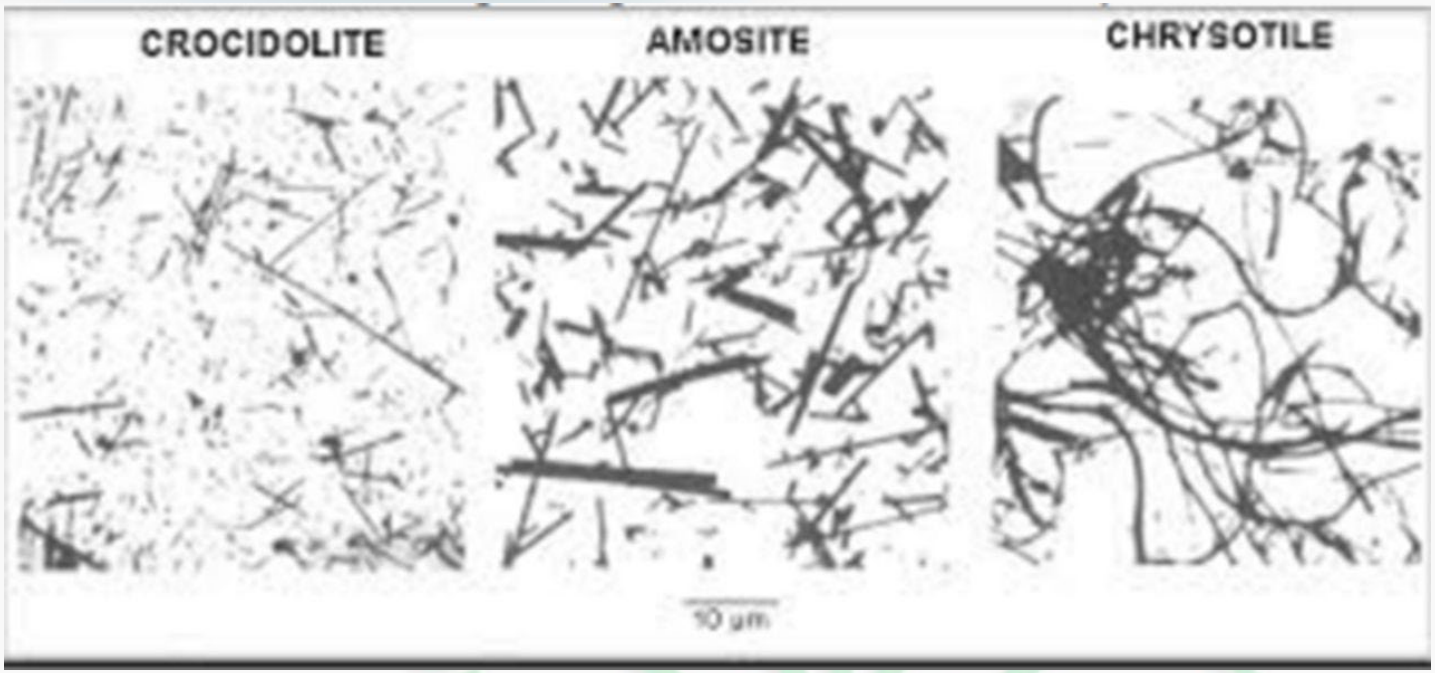
Tremolite and actinolite

- Not used commercially
- Also, co-occurs with chrysotile
- Might be found in naturally occuring asbestos (NOA)

Asbestos-related Diseases

- **Asbestosis** – scarring in the lungs from breathing in asbestos fibers.
- **Pleural disease** –changes in the membrane surrounding the lungs and chest cavity (pleura), which may lead to less-efficient lung function.
- **Lung cancer** – malignant tumors that invade and block the lung's air passages.
- **Mesothelioma** –cancer of the membrane that covers the lungs and chest cavity (pleura), the membrane lining the abdominal cavity (peritoneum), or membranes surrounding other internal organs.
- **Other**– cardiovascular, ?

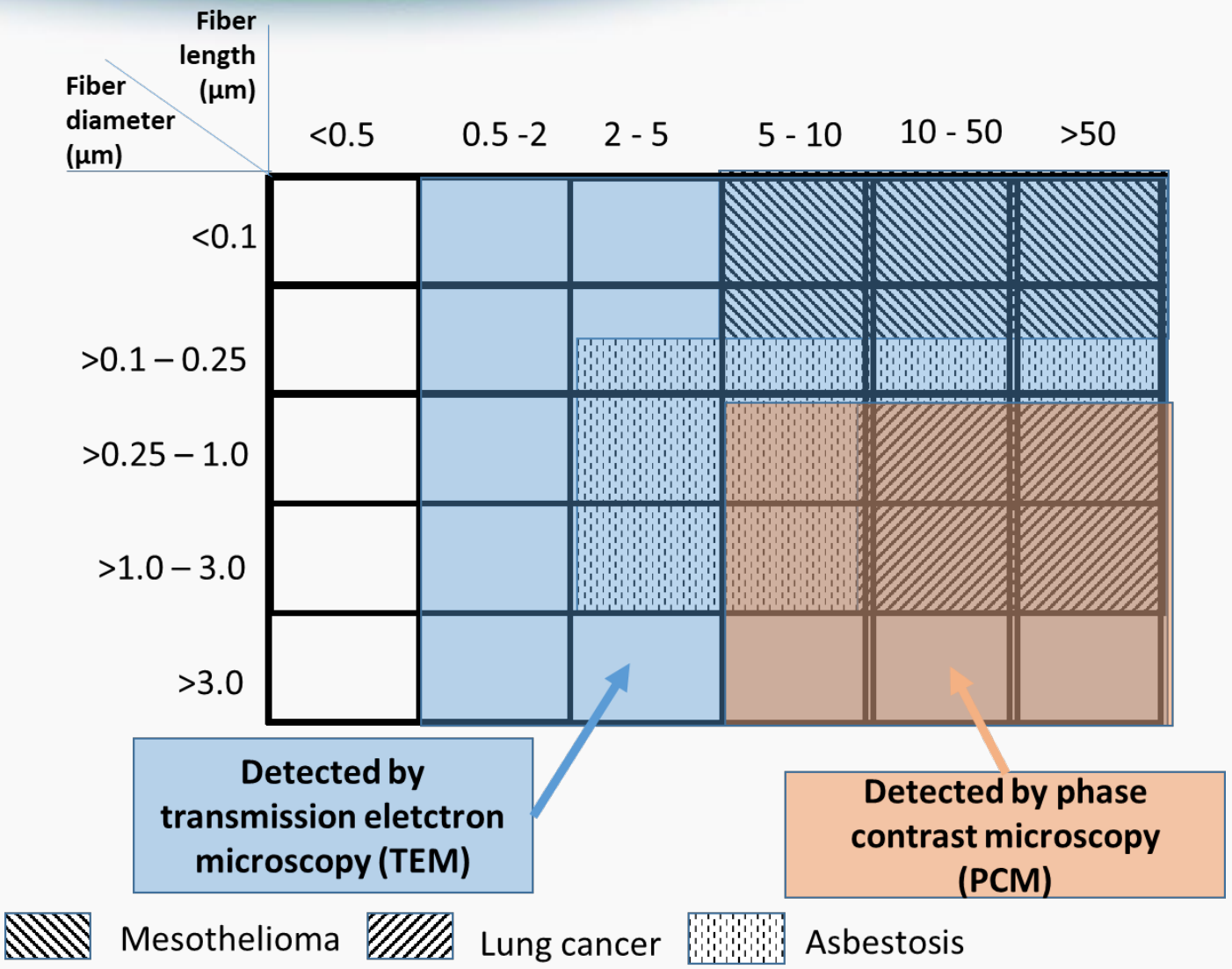
Differences



Electron micrograph highlighting the differences between the brittle, needle-like features of amphibole asbestos (crocidolite and amosite) versus the curly, interwoven serpentine asbestos (chrysotile).

From: Solbes, E., & Harper, R. W. (2018). Biological responses to asbestos inhalation and pathogenesis of asbestos-related benign and malignant disease. *Journal of Investigative Medicine*, *66*(4), 721-727.

Challenges on both health effects and detection



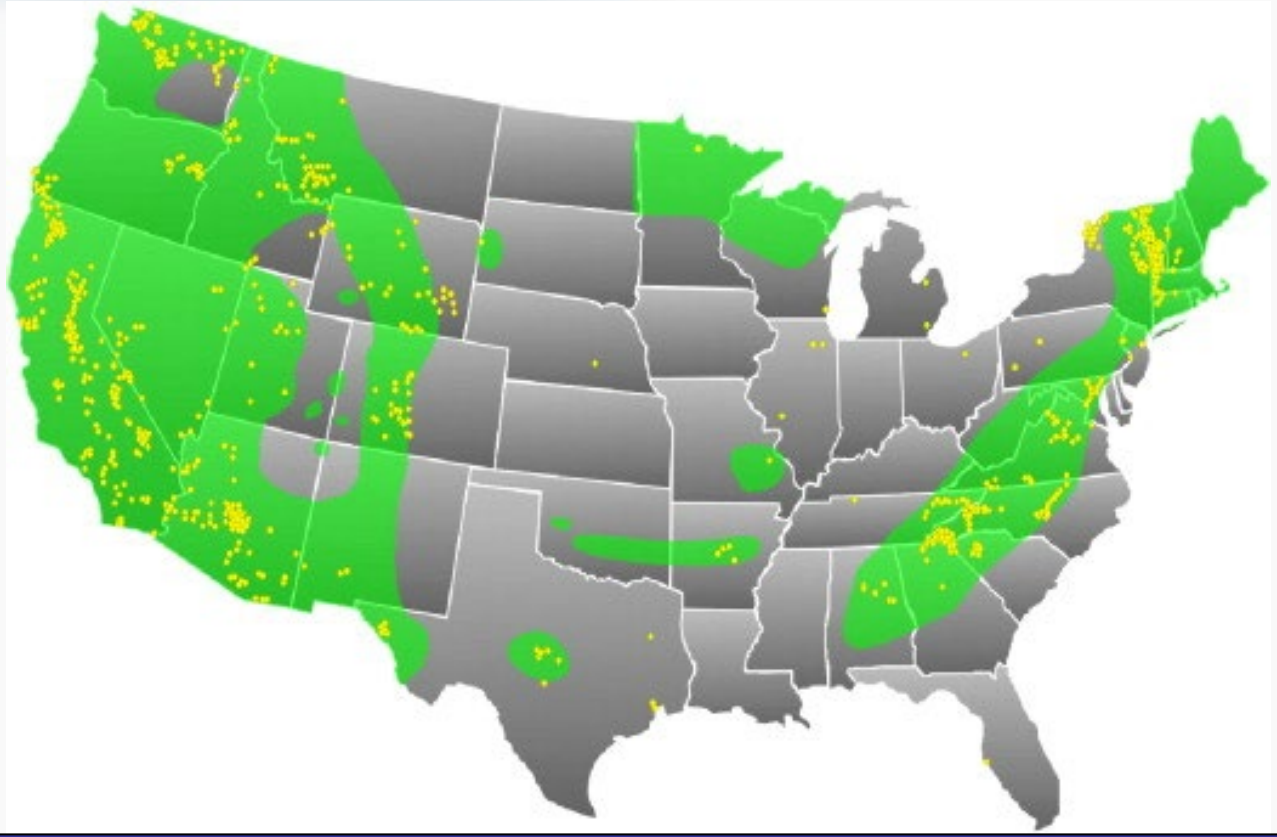
ACM

- Part of your Real Estate Prep questions:
  - "An environmental term referring to any material containing more than one percent asbestos."
  - Friability is the key.
  - Friable ACM contains at least 1% asbestos by weight or area and can be crumbled, pulverized, or reduced to powder by ordinary pressure.
  - Non-friable also contains at least 1% asbestos but can't be crumbled, pulverized or reduced to powder by ordinary pressure.
- Regulated ACM – RACM
  - All friable
  - Non-friable that have become friable
  - Non-friable that have a high probability of becoming friable

ACM

- Often a problem with demolition
  - Hazardous air pollutant
  - Vermiculite insulation
  - Paint
  - Roofing materials
- Bottom line: Depending on age of home, be sure that ACM is not present and, if it is, contact experts.

NOA



Green areas: igneous and metamorphic rock terrains
Yellow dots: potential locations of asbestiform minerals (USGS)

From: Lee, B.R. Strohmeier, K.L. Bunker, D.R. Van Orden, Naturally occurring asbestos—A recurring public policy challenge, *Journal of Hazardous Materials*,153(1–2), 2008,1-21, https://doi.org/10.1016/j.jhazmat.2007.11.079.

Q&A

Thanks!

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