

Asbestos Awareness

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CT Department of Public Health, Environmental Health Section

www.ct.gov/dph



Connecticut Department of Public Health
Keeping Connecticut Healthy



AGENDA

1. WHAT IS ASBESTOS

- * Why is it regulated?
- * Who is exposed?
- * Where does asbestos come from?

2. REGULATORY HISTORY

- * Ban and Phase-out
- * U.S. Production & Consumption
- * Where it is mined today

3. HEALTH EFFECTS

- * Cancer, Asbestosis, Mesothelioma
- * Avoiding Exposure

4. DPH REGULATIONS

- * Standards for Asbestos Abatement
(\$ 19a-332a-1 through 332a-16)
- * Licensure and Training (\$ 20-440-1 -20-441)
- * Asbestos Containing Materials in Schools
(\$ 19a-333-1 through 19a-333-13)

- * “AHERA” 40 CFR, Part 763
- * NESHAP 40 CFR, Part 61 Subpart M
- * DEPT of LABOR, OSHA

5. ASBESTOS IN BUILDINGS

6. VERMICULITE

7. ASBESTOS ACTIVITIES

- * Photos, Examples
- * Asbestos Abatement Examples
- * Historical Knowledge About Asbestos Toxicity

8. VINTAGE ADVERTISING

9. ASBESTOS IN THE NEWS

Slide 2

KD1

I need to run through this for timing and to clean up the presentation a bit. Otherwise, good to go.

Kristen Day, 10/20/2019

1. WHAT IS ASBESTOS



CHRYSOTILE



AMOSITE



CROCIDOLITE



TREMOLITE



ACTINOLITE



ANTHOPHYLLITE

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S-Shaped mineral fiber

Most Common type in U.S.

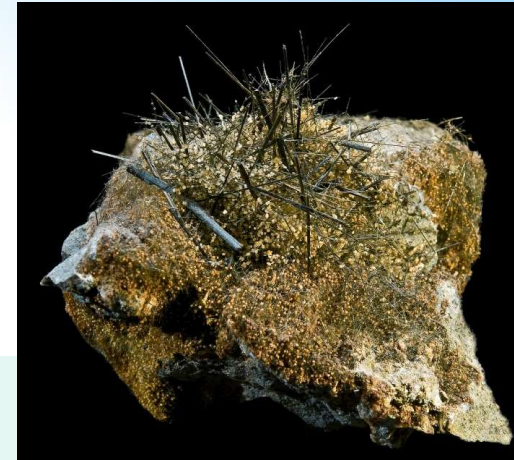
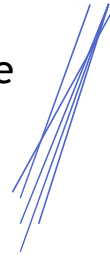
- Formerly Mined at 60 Sites in the US; including Georgia (1894), New England States, Colorado, and other states

- Canada mine open until 2011



*Serpentine-Chrysotile

Rod Shaped - needle like



- ACTINOLITE
- AMOSITE “brown asbestos”
- ANTHOPHYLLITE- once mined in New Hartford
- TREMOLITE- Contaminant
- CROCIDOLITE- “Blue” asbestos, very toxic - Australia

*Amphibole-5 defined types

Where does it come from?

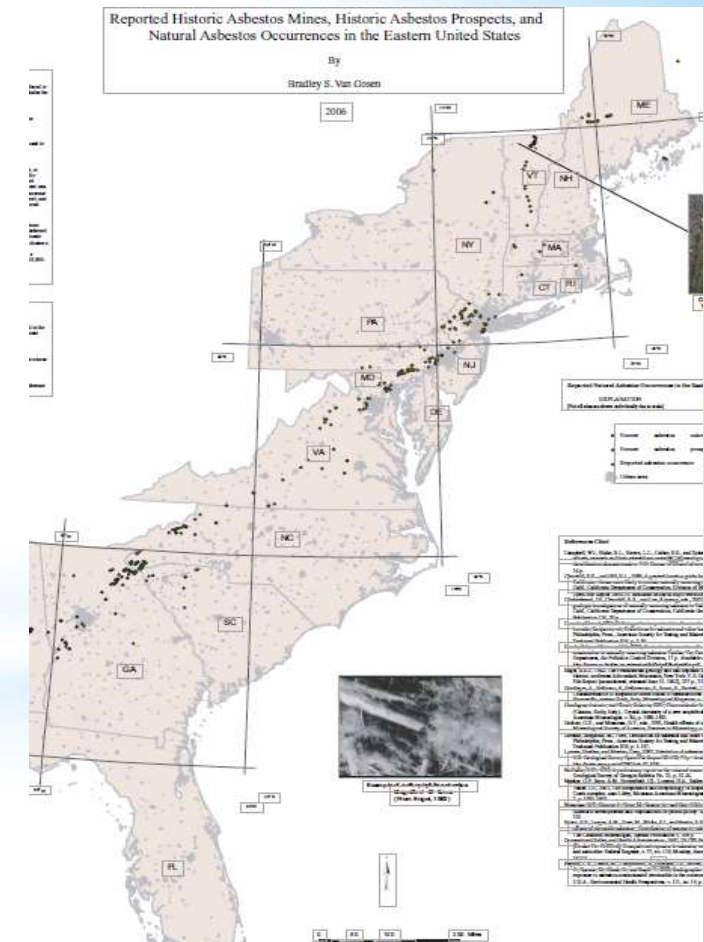
*Soil

➤ Naturally occurring asbestos (NOA)

➤ California state rock and mineral is serpentine <https://anrcatalog.ucanr.edu/pdf/8399.pdf>

*Actively mined in a few countries

➤ Inactive mine sites, mine tailings



From our built environment

Air and Dust- Deterioration of building materials

* Improper demolition or abatement



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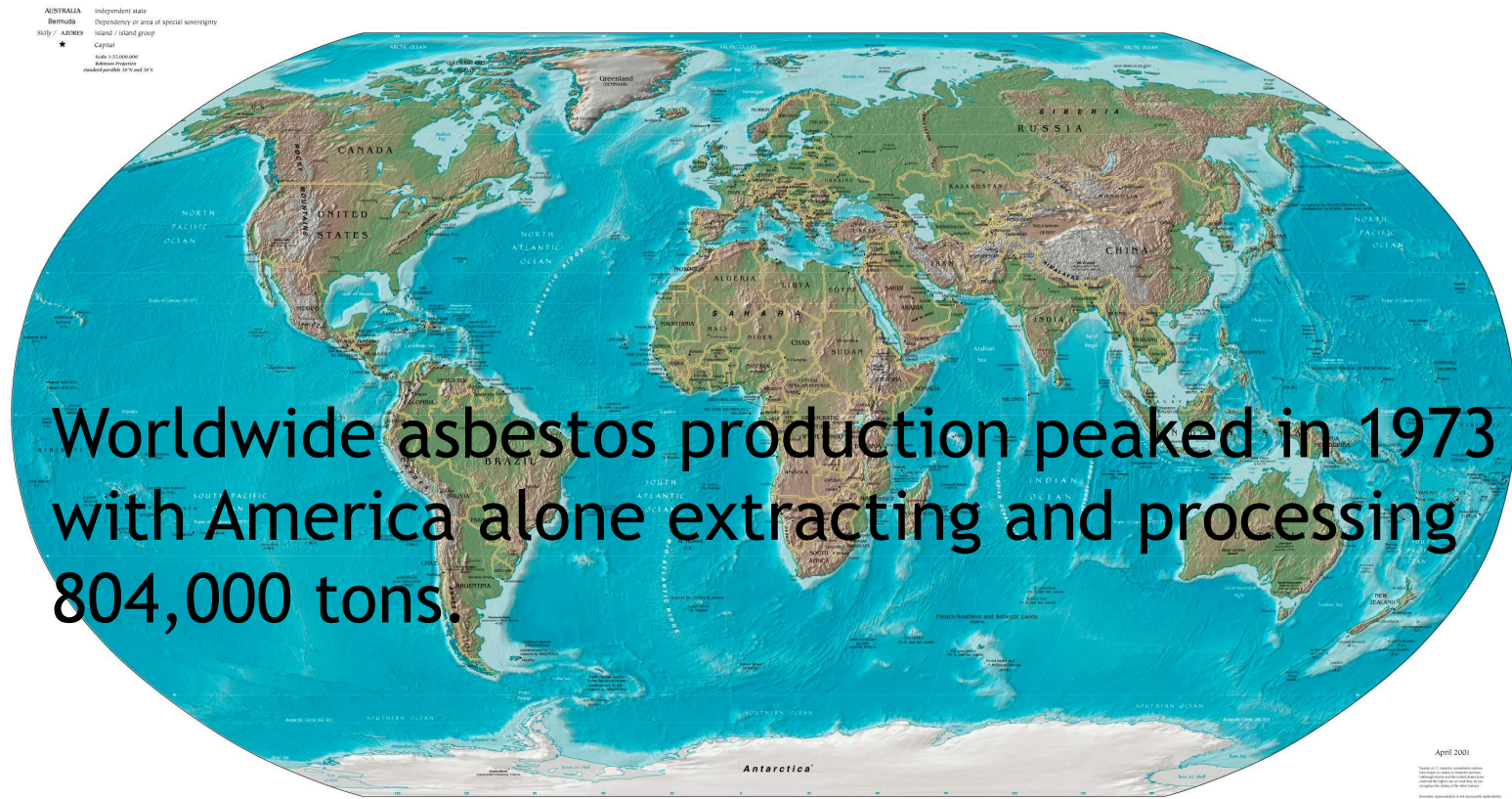
* Brake replacement/brake wear



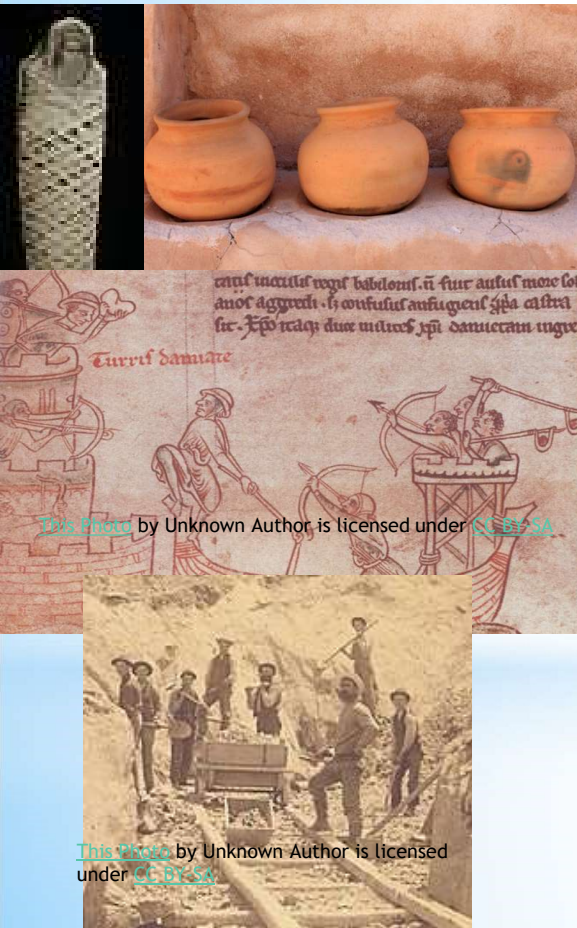
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Asbestos naturally occurs on every continent

Physical Map of the World, April 2001



Early Uses of Asbestos



- 4000 BC wicks/lamps
- 2000-3000 BC Egyptian pharaohs/burial cloth
- 2500 BC clay pots in Finland
- 456 BC Greek burial cloth
- 755 King Charlemagne table cloths
- 1095 Crusade weapons
- 1682 to 1722 paper, purses, bank notes
- Mid 1850s Parisians wore jackets and helmets
- Early 1900's UK mining
- 1920s US Production of ACM Products



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- Possible etiology:
from the Greek
sasbestos, meaning
"inextinguishable."

π

- Or from Latin idiom
amiantus, meaning
unsoiled or
unpolluted

Why is it regulated?
Where does it come from?
Who is exposed?



Why is asbestos regulated?

Asbestos is a known **carcinogen** - that is, cancer-causing material



The World Health Organization (WHO) estimates that 100,000 people a year (worldwide) die of asbestos-related disease



Regulatory Agencies

CT DEPARTMENT OF PUBLIC HEALTH

<https://portal.ct.gov/dph>

Click on topics A-Z, Asbestos



ENVIRONMENTAL PROTECTION AGENCY



CT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION

<https://www.ct.gov/deep>



US Consumer Product Safety Commission (CPSC)



1.3 million American workers are exposed to workplace asbestos today. There are 2,500 to 3,000 new mesothelioma cases diagnosed in the U.S. each year.

June 4, 2019 <https://www.asbestos.net/asbestos/statistics/>

Who is exposed?



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https://www.youtube.com/watch?v=d2MR4AywnsQ&list=PLSnQOEzbGyO053Mliy_9fOOqVA19yLDYg&index=13

Occupational Exposures



Workers involved with asbestos removal and building renovation & demolition have the greatest exposures

Exposure in general industry:

- * Waste handlers
- * Automotive brake and clutch repair
- * Housekeeping and custodial work
- * School and Office workers and occupants



Asbestos Production in the 70s



- * 25 countries mined asbestos in the 70s and produced a yearly estimate of 4.8 million metric tons of asbestos ore
- * Additionally, 85 countries took raw asbestos and manufactured over 3,000 different products with asbestos-containing materials (ACM)

Canada has a town called “Asbestos” and Moscow has a town called “Asbest”

Countries Still Producing & Consuming

RUSSIA

- * Banned only amphiboles in 1999
- * Supplies 60-75 % of all asbestos used worldwide



CHINA

World's leading asbestos consumer
2013-estimated 570,006 metric tons (about 765 x's the amount consumed by the US)

shipped 618,037 metric tons in 2013

Other countries: Kazakhstan, Kyrgyzstan and India

Rotterdam Convention- PIC (Prior Informed Consent)

Meeting held every two years

"This is disappointing.
People will suffer because
of this.

We all know **asbestos is like a
ticking time bomb**. The more
people who are exposed to it
now, the more people will be
sick and die from it later."

[Oladele Ogunseitan](#), Ph.D., Department of
Population Health & Disease Prevention chair at
University of California-Irvine



US Production, Importation and Processing of Asbestos

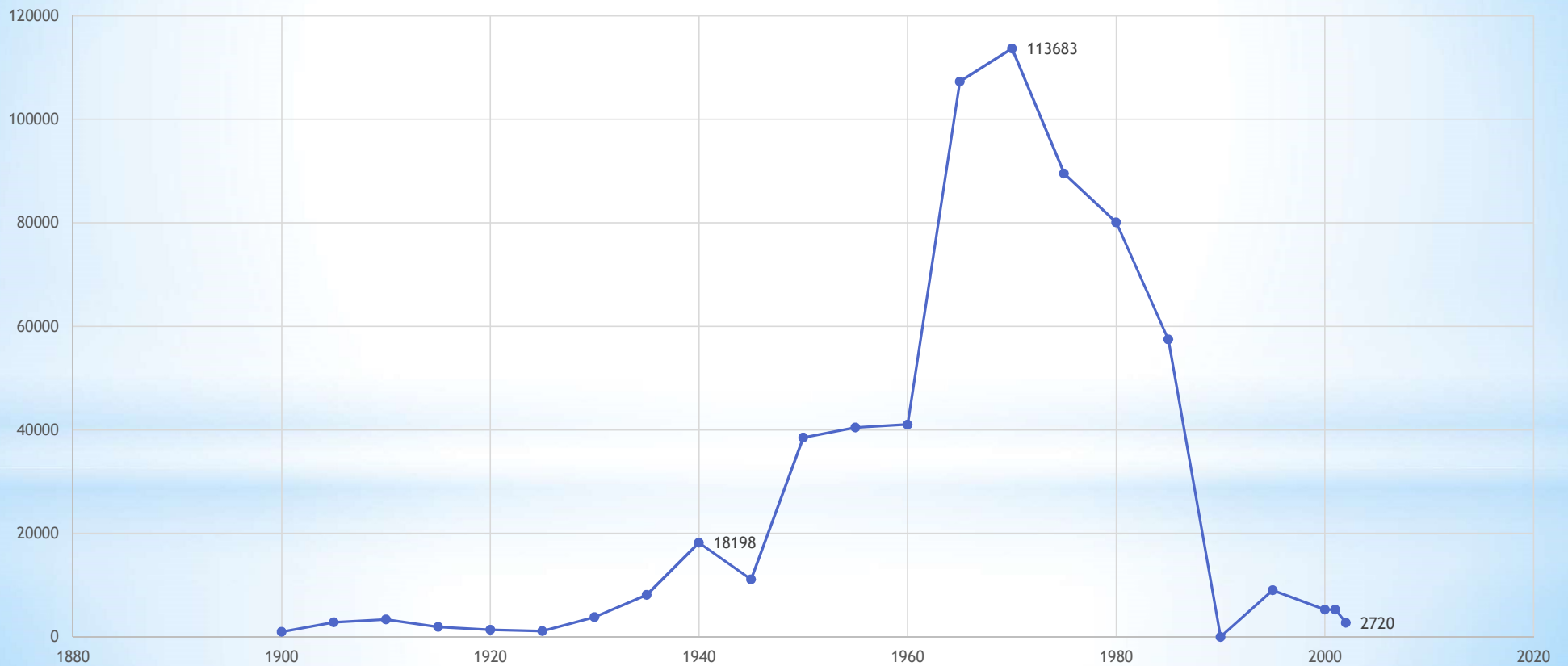
From 1900 to 2003

- * Americans mined approximately 3.29 million metric tons of asbestos ore
- * US imported and processed about 31.5 million metric tons

Early Developments of the Asbestos Industry

1857-1880.....	First packings and flat seals using asbestos
1866.....	First bonded and molded asbestos product for heat insulation
1866-1876.....	Start of systematic asbestos textile processing in Italy
1868-1869.....	First U.S. use of asbestos in roofing felt and cement
1878.....	Asbestos paper first made in the United States
1882.....	Concept of asbestos-containing magnesia insulation developed
1890.....	Asbestos textile processing began in Canada
1893.....	First spinning of crocidolite in Republic of South Africa
1896.....	First asbestos-containing woven brake bands made in England
1899.....	Wet machine process of making asbestos cement developed
1900.....	Method for manufacturing asbestos-cement panels developed
1904.....	Flat asbestos-cement board manufactured in the United States
1906.....	Asbestos first used as brake lining
1918.....	Asbestos-containing molded clutch facing developed
1929.....	Asbestos-cement pipe industry began in the United States
1931.....	Technique for spraying asbestos developed in England
1940s	Asbestos-cement pipe introduced into England
1944.....	Spraying asbestos on deckheads and bulkheads began in British naval ships

Metric Tons of Asbestos-US Consumption



2. FEDERAL HISTORICAL AND CURRENT VIEW

The **Clean Air Act of 1970** classified asbestos as a hazardous air pollutant

Gave EPA the power to regulate the use and disposal of asbestos

Spray-applied asbestos products were banned with the passage of this act

Under the Clean Air Act (CAA), the following asbestos-containing uses were banned

- * **Asbestos pipe insulation and asbestos block insulation** *on facility components such as boilers and hot water tanks pre-formed (molded) and friable or wet-applied and friable after drying*
- * **Spray-applied surfacing; Spray-on application of materials containing more than 1% asbestos to buildings, structures, pipes, and conduits unless certain conditions specified under [40 CFR 61, Subpart M](#) are met**



Toxic Substances Control Act

In 1976, the **Toxic Substances Control Act (TSCA)** provided the EPA the authority to place restrictions on certain chemicals such as asbestos, radon and lead-based paint



The **Asbestos Hazard Emergency Response Act of 1986 (AHERA)** made the EPA establish standards for inspecting and removing [asbestos in schools](#)



In 1980, the National Institute for Occupational Safety and Health (NIOSH) announced, “**All levels of asbestos exposure studied to date have demonstrated asbestos-related disease...there is no level of exposure below which clinical effects do not occur.**”

<https://www.asbestos.com/mesothelioma-lawyer/legislation/ban/>

Asbestos Ban and Phase-out Rule



July 1989: The EPA issued the **Asbestos Ban and Phase-Out Rule (ABPR)**, which planned to impose a full ban on the manufacturing, importation, processing and sale of asbestos-containing products

- * However, the Industry appealed this Rule (Corrosion Proof Fittings v. Environmental Protection Agency)
- * October 18, 1991, the Fifth Circuit Court of Appeals overturned the ban, claiming the EPA failed to demonstrate that a ban was the “least burdensome alternative” to regulating asbestos

Partial Ban Still in Effect

1989 partial ban remains on the manufacture, import, processing, and distribution of these asbestos containing products

- * Paper (Corrugated, Specialty, Commercial)
- * Rollboard
- * Flooring felt
- * New commercial uses that begin after August 25, 1989



Frank Lautenberg Chemical Safety Act

In 2016, after decades of discussion in Congress, this Act gave the EPA **authority** and **responsibility** to address exposures to harmful chemicals, **Asbestos** was one of the first ten chemicals chosen for review under the TSCA

2019: The Alan Reinstein Ban Asbestos Now Act

Bipartisan Congressional Support

Moving through Committees

Should be brought to floor for a vote this year

Other Agency Bans/Recalls

Consumer Product Safety Commission

Consumer Product Safety Act ban

- * asbestos in artificial fireplace embers
- * wall patching compounds
- * RECALL- hair dryers (1976-1985)



Food and Drug Administration (FDA)

- * Asbestos containing filters in pharmaceutical manufacturing, processing and packing

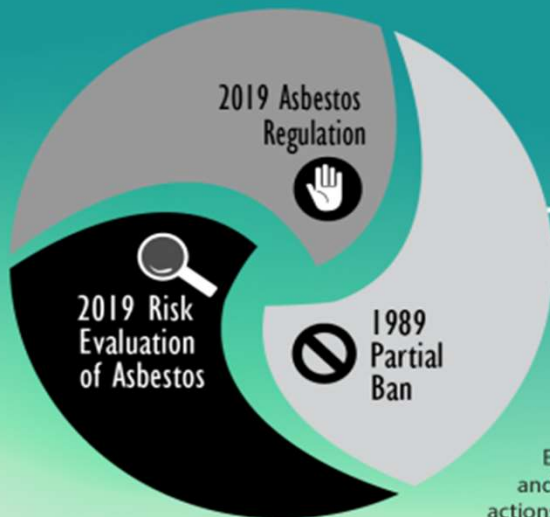
Voluntary Recalls- Talc, Art Items, Make-up, Toys

Partial Ban to Significant New Use Rule (SNUR)

| EPA Actions to Protect the Public from Asbestos

The use of asbestos has dramatically declined since its peak in the 1970s. Today, there are few remaining asbestos-containing products and asbestos is no longer mined in the United States.

There are three key actions that EPA has taken or is actively working on that address asbestos-containing products.



1989 Partial Ban

An EPA rule under the Toxic Substances Control Act banned the manufacture, import, processing and distribution of some asbestos-containing products. The banned product categories include: asbestos-containing flooring felt, rollboard, and commercial, corrugated, and specialty papers. EPA also banned new uses of asbestos which prevented new asbestos products from entering the marketplace after August 25, 1989.



2019 Asbestos Regulation

A final rule that ensures that discontinued asbestos products cannot be reintroduced into commerce without the Agency evaluating them and putting in place any necessary restrictions, including prohibiting use.



2019 Risk Evaluation of Asbestos

This process under TSCA evaluates whether certain asbestos uses present an unreasonable risk of injury to health or the environment. This process must be completed before EPA is able to restrict use or ban use in any of those products, if unreasonable risk is found.

EPA also has a wide range of guidance and tools available online to help homeowners, schools, building managers, and remediation professionals safely manage, clean-up and dispose of asbestos-containing products. Together EPA's actions are ensuring public health is protected as the use of asbestos in the United States continues to decline.

Legacy is not our issue



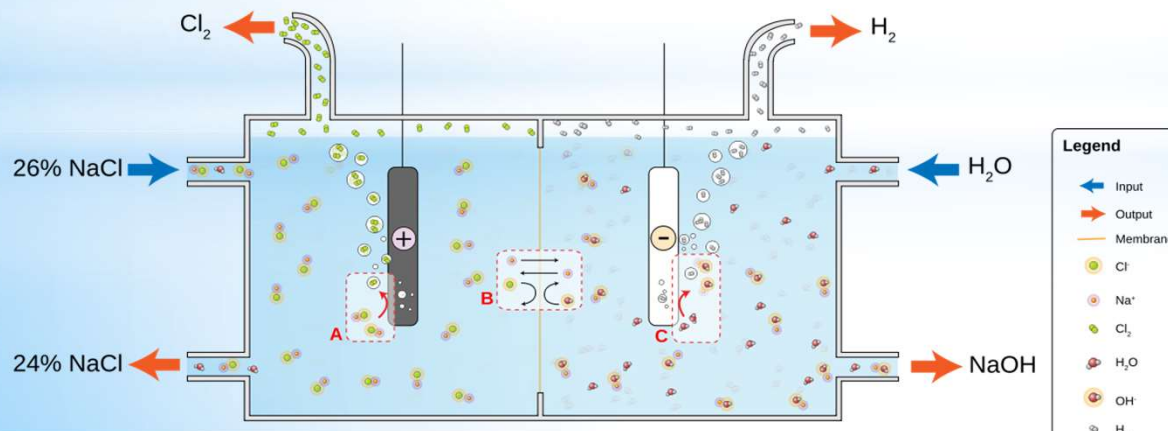
EPA IS NOT LOOKING AT:

- Legacy materials
- Cancers-Ovarian
- Airborne asbestos
- Disposal of legacy materials
- Libby amphiboles
- Consumer products contaminated with asbestos
- Firefighters as vulnerable occupation

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Currently on the Market

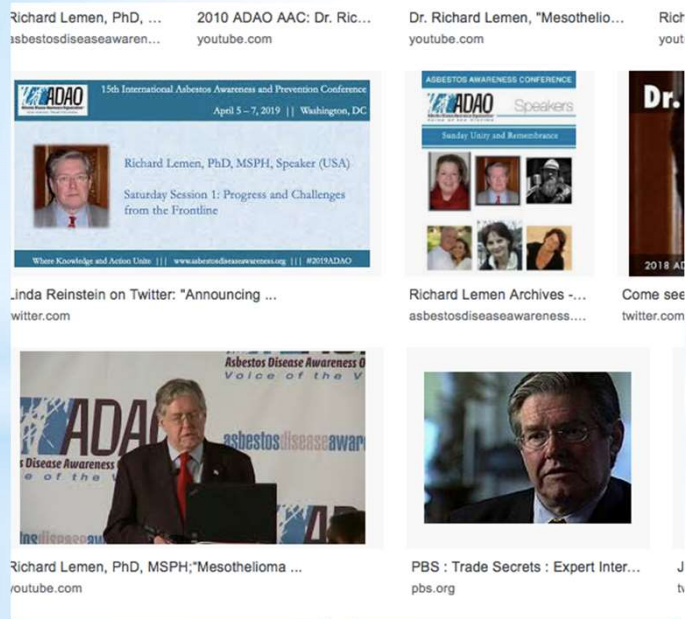
- * Asbestos diaphragms - Chloralkali Industry
- * Rubber sheets for gaskets/other gaskets
- * Oilfield brake blocks
- * Aftermarket automotive brakes/linings
- * Tile, wallpaper and potentially asbestos cement pipe and knitted fabrics



Potential New Uses for Asbestos Subject to SNUR

- Adhesives, sealants and roof and non-roof coatings
- Arc chutes
- Beater-add gaskets
- Extruded sealant tape and other tape
- Filler for acetylene cylinders
- High-grade electrical paper
- Millboard
- Missile liner
- Pipeline wrap
- Reinforced plastics
- Roofing felt
- Separators in fuel cells and batteries
- Vinyl-asbestos floor tile
- Any other building material (other than cement)

3. HEALTH EFFECTS

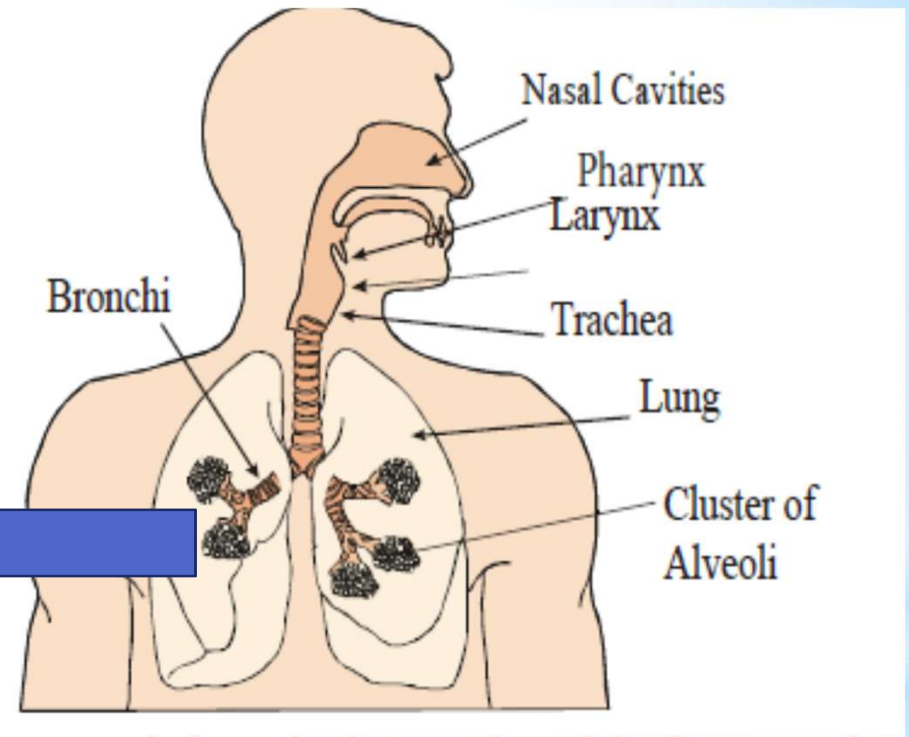
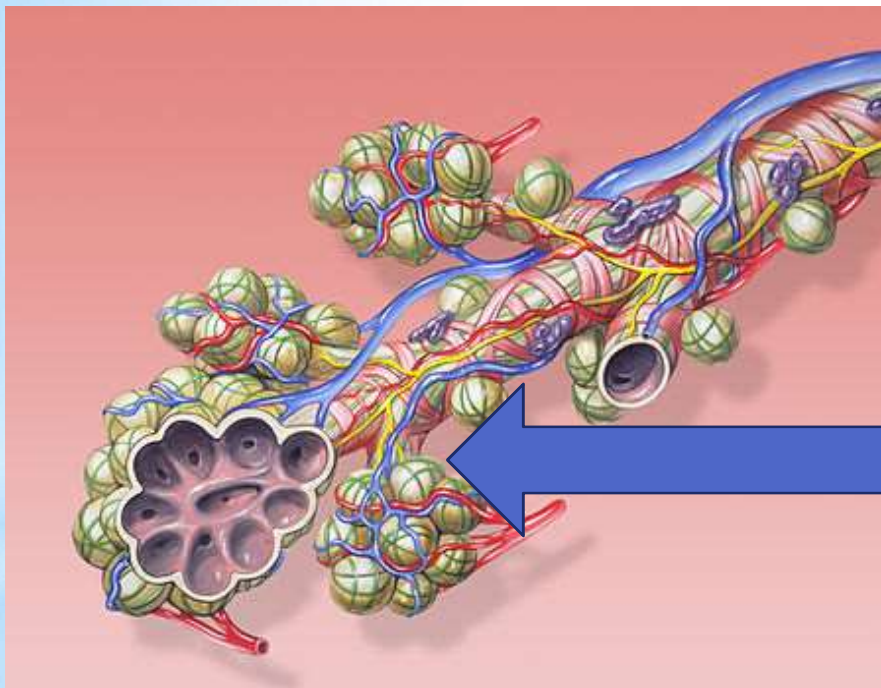


Dr. Richard Lemen/ ADAAO Annual Conference 2019

<https://www.youtube.com/watch?v=QWSx2j20fwE>

https://www.youtube.com/watch?v=QWSx2j20fwE&list=PLSnQOEzbGy0053Mliy_9f0OqVA19yLDYg&index=8

Major Route of Exposure



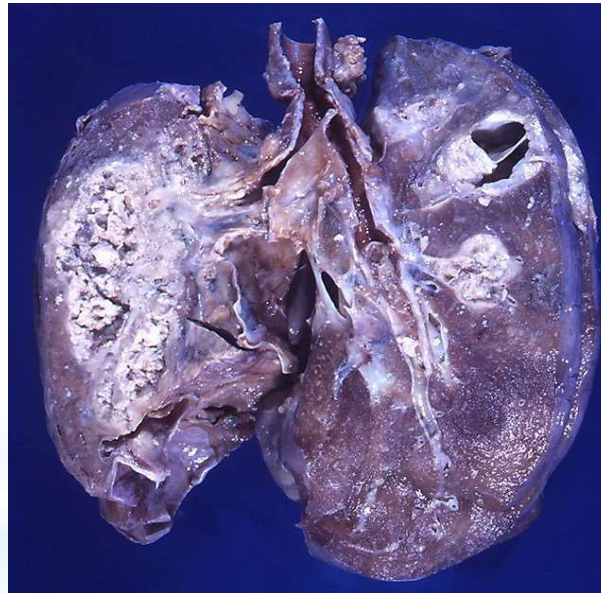
<https://www.youtube.com/watch?v=uN09slqON60>

Most Common Diseases

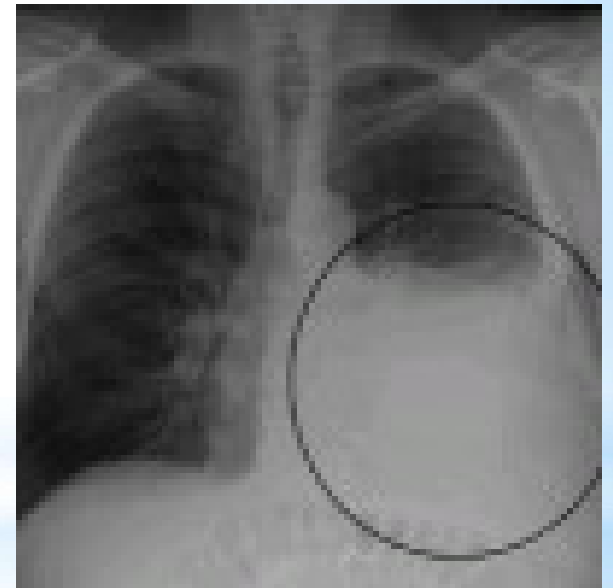
ASBESTOSIS



LUNG CANCER



MESOTHELIOMA



<https://www.asbestos.com/mesothelioma/types/>

Published Research 2018

Asbestos-related diseases cause

- * 39,275 deaths in the United States annually, specifically:
- * 34,270 lung cancer deaths, 3,161 mesothelioma deaths, 787 ovarian cancer deaths, 443 larynx cancer deaths, and 613 chronic asbestosis deaths.
- * “...this latest report confirms that the mortality rate of asbestos exposures is indeed of epidemic proportions. It is essential we immediately ban asbestos, as have most developed countries, in order to curb this suffering and loss of life.”
- * Richard Lemen, PhD, MSPH, Retired Assistant Surgeon General of the United States and ADAO Science Advisory Board Co-Chair

World Health Organization- WHO

2005	Work towards elimination of mesothelioma and other cancers caused by carcinogens in the workplace
2007	World Health Assembly asked WHO to launch global campaign to eliminate A-Related disease; primarily those still using asbestos worldwide
2013	WHO presented a global action plan for 2013-20 to help the 190 member countries prevent and control non-communicable diseases, including those caused by asbestos

How to Avoid Asbestos Exposure

If you do not know that a building material has no asbestos
DO NOT DISTURB IT

Never

Drill	Break
Hammer	Damage
Cut	Move
Saw	Disturb

Never sand or dry buff asbestos containing floor tiles

- ❖ Test materials prior to disturbance using a licensed asbestos consultant inspector or inspector-management planner

4. ASBESTOS REGULATIONS



Regulations of Connecticut State Agencies

RCSA

Standards for Asbestos Abatement

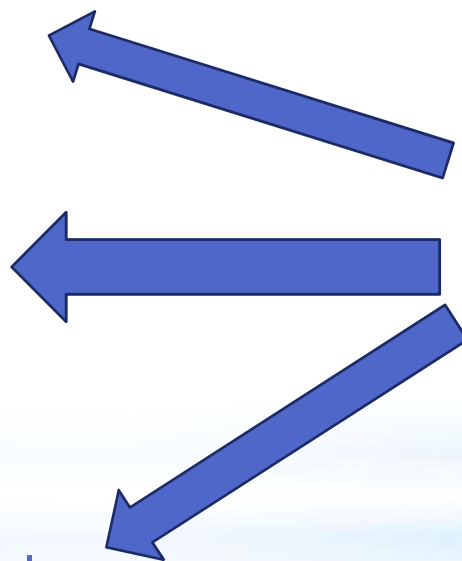
19a-332a-1 through 19a-332a-16

Licensure and Training for Persons Engaged in Asbestos Abatement and Consultation Services

20-440-1 through 20-440-9, 20-441

Asbestos Containing Materials in Schools

19a-333-1 through 19a-333-13





Licensure and Training Requirements

20-440-1 through 20-440-9, 20-441

License Types

I. CONTRACTOR

II. CONSULTANT

- *INSPECTOR
- *INSPECTOR/MANAGEMENT PLANNER
- *PROJECT DESIGNER
- *PROJECT MONITOR

Certification (no license)

- *WORKER - 32 hour EPA accredited + annual refresher
- *SITE SUPERVISOR - 40 hour EPA accredited + annual refresher

Definitions

Dear CLASSIC ENVIRONMENTAL INC.,

Attached you will find your validated license for the coming year. Should you have any questions about your license renewal, please do not hesitate to write or call:

Department of Public Health (860) 509-7603
 P.O. Box 340308 opic.dph@ct.gov
 M.S.#12MQA www.ct.gov/dph/license
 Hartford, CT 06134-0308

Sincerely,

Jewel Mullen

JEWEL MULLEN, MD, MPH, MPA, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH



INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for the person who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.



“License” means a document issued by the commissioner authorizing an asbestos contractor to engage in asbestos abatement work, or an asbestos consultant to engage in any activity directly involved with asbestos consultation services for which the asbestos consultant is certified. Licensure as an asbestos consultant shall authorize the licensee to engage in activities within the scope of the licensee's certification which includes inspector, management planner, project designer and project monitor.



Training Providers- Certification/Accreditation

DPH approves training providers for each class offered

Program must meet the Model Accreditation Plan and be “Self Certified”

DPH reviews course material

Training Providers must submit a fee for each class each year

Certificate issued by training providers very important

Each discipline or license type requires individuals to be accredited by an approved training provider and to maintain accreditation while licensed and practicing in their discipline. No licensed individual may work with an expired accreditation certificate, even if the license is still active.

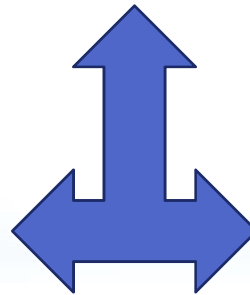
Asbestos Contractor

"Asbestos contractor" means any person engaged in asbestos abatement whose employees actually perform the asbestos abatement work and who has been issued a license by the commissioner;

260 Licensed as of 10/22/19

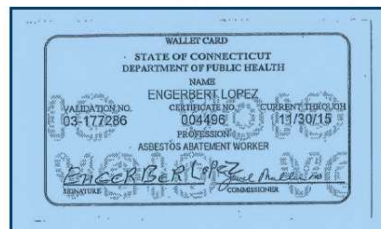
"Asbestos abatement site supervisor" means any abatement worker employed by a licensed asbestos contractor who has been specifically trained as a supervisor in a training program approved by the department and who has been issued a certificate by the department;

1187 certified as of 10/22/19



"Asbestos abatement worker" means any employee of a licensed asbestos contractor who engages in asbestos abatement, has completed a training program approved by the department and has been issued a certificate by the department;

1275 certified as of 10/22/2019



Asbestos Consultant

"Asbestos consultant" means any person who engages in any activity directly involved with asbestos consultation services and who has been issued a certificate by the commissioner and a license by the department



- License type
- Scope of Work
- Educational Background
- Experience
- Accreditation
- Other state licenses
- Fees



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Asbestos Consultant Inspector and Inspector Management Planner

"Inspector" means any licensed asbestos consultant who is certified as an inspector, and identifies, assesses the condition of, or collects bulk samples of suspected asbestos containing material; **290 currently licensed (10/22/19)**

"Management planner" means any licensed asbestos consultant who is certified as a management planner and who uses data gathered by asbestos inspectors to assess asbestos hazards, determine responses and develop implementation plans; **114 currently licensed (10/22/19)**

ACTIVITIES EXEMPT FROM LICENSURE AS INSPECTOR



Periodic surveillance-six month check of ACM in schools

Compliance inspections-state and federal inspectors

Visual inspections-but shall be certified as a project monitor





Asbestos Consultant Project Designer and Project Monitor

"Project designer" means any licensed asbestos consultant who is certified as a project designer and who determines how asbestos abatement work shall be conducted and prepares the plans, designs, procedures, work scope or other substantive direction or criteria for abatement projects; **131 currently licensed (10/22/19)**

"Project monitor" means any licensed asbestos consultant who is certified as a project monitor and who functions as an on-site representative of the facility owner or other persons by overseeing the activities of the asbestos abatement contractor; **243 currently licensed (10/22/19)**



Standards for Asbestos Abatement

§§ 19a-332a-1 through 19a-332a-16

- * Any amount of asbestos-containing material (more than 1% asbestos) is regulated
- * Spot repair-abatement of no more than 3 square or 3 linear feet no license
- * Notification required for more than 10 linear feet or 25 square feet of ACM
- * Work practices, engineering controls, specific requirements, recordkeeping
- * Post abatement visual and final air clearance testing
- * Exterior abatement-if removed intact, can be done by unlicensed entity* (home improvement contractor-when performing work as a businesses)

Contractor license not required

1. Spot repair

"Spot Repair" means any asbestos abatement performed **within a facility** involving **not more than three (3)** linear feet or three (3) square feet of asbestos containing material;

RCSA § 19a-332a-1(ff)

- *RCSA § 19a-332a-10 prescribes how to do this in accordance with the regulation
- *Disposal must be in accordance with CT DEEP regulations

2. Exterior non-friable ACM

3. Employees of a water company-abatement of cement water pipes



Asbestos-Containing Materials in Schools

RCSA § 19a-333-1 through 19a-333-13

- Applies to all K-12 NOT FOR PROFIT Schools
- Requires inspection or exclusion based on architect letter
- Requires periodic surveillance (6 months) and triennial inspection
- Requires current and up to date Asbestos Management Plan (AMP) even if no asbestos present
- Requires Inspector/Management Planner to submit AMP for DPH approval
- Requires appointment of a “Designated Person” to ensure compliance
- Training requirements for Designated Person and maintenance/custodial staff
- Annual notification to parents and staff of availability of AMP
- No asbestos abatement while school is in session without written approval from DPH



Regulations of Connecticut State Agencies

Department of Energy and Environmental Protection (DEEP)

Regulates in-state disposal of asbestos
(special waste)

Regulates asbestos in soils

Regulates emissions under CERCLA/Title V
Facilities-NESHAP

Responds to spills (24/7)





Department of Labor, OSHA

- 1926.1001 General Industry
- 1926.1101 Construction Industry
- Must be an Employer-Employee Relationship. Self employed not covered, students not covered
- Municipal and State Government Employees are covered by State OSHA

OSHA Permissible Exposure Limit established at no more than 0.1 Fibers/CC for an 8 Hour Time-Weighted Exposure, and no more than 1 fiber/CC in a 30 minute exposure



Environmental Protection Agency

AHERA

- * Mirrors (for the most part) CT's Asbestos in Schools Regulation
- * Signed into law in 1986
- * Silent re posting bilingual signs where required
- * Silent re performing asbestos abatement while school is in session

MAP

Accreditation, Training, Reciprocity

NESHAP

- * Federal regulation governs “facilities” which are all but single family up to five unit in most cases
- * Requires a thorough inspection prior to renovation or demolition
- * Requires EPA notification 10 working days if:
 - 80 linear meters (260 linear feet) on pipes or
 - at least 15 square meters (160 square feet) on other facility components, or
 - Or at least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously

5.ASBESTOS IN BUILDINGS

Asbestos In Buildings: Electronic Reference Guide

*3rd Edition
September, 2016*



<https://www.tei-atl.com/asbrefguide/asbestosreferenceguidemain.htm>

Asbestos in the Home

*Asbestos usage has declined dramatically and in several cases, its usage has been banned. As a result, older homes are more likely to be at risk.



A Exterior Surfaces

1. Roof Felt and Shingles
2. Window Putty
3. Cement Asbestos Board Siding / Undersheeting

B Insulation

1. Vermiculite Insulation
2. Batt Insulation

C Flooring

1. Vinyl Asbestos Flooring Material

D Interior Surfaces

1. Sprayed-on Ceiling Material
2. Textured Paint

E Boilers, Heating and Piping

1. Heat Source Covering
2. Door Gaskets
3. Duct Lining
4. Wall Gaskets and Lining

F Electrical Equipment

1. Recessed Lighting
2. Wiring Insulation
3. Fuse Boxes
4. Outlets

G Appliances

1. Refrigerators / Freezers
 2. Range Hoods
 3. Woodstoves (Heat Reflectors)
 4. Clothes Dryers
- * Not Shown: Dishwashers, Toasters, Slow-cookers, Portable Heaters, Hair Dryers

H Miscellaneous

1. Fireplace Logs

J Automotive

1. Brake Linings, Gaskets, and Clutch Facings

Asbestos Containing Materials



*Thermal
System
Insulations*



Spray Applied Fire Proofing



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Acoustical Texture/Plaster

Manufacturers:

WR Grace (1945-72)

National Gypsum “Gold Bond”(1942-72)

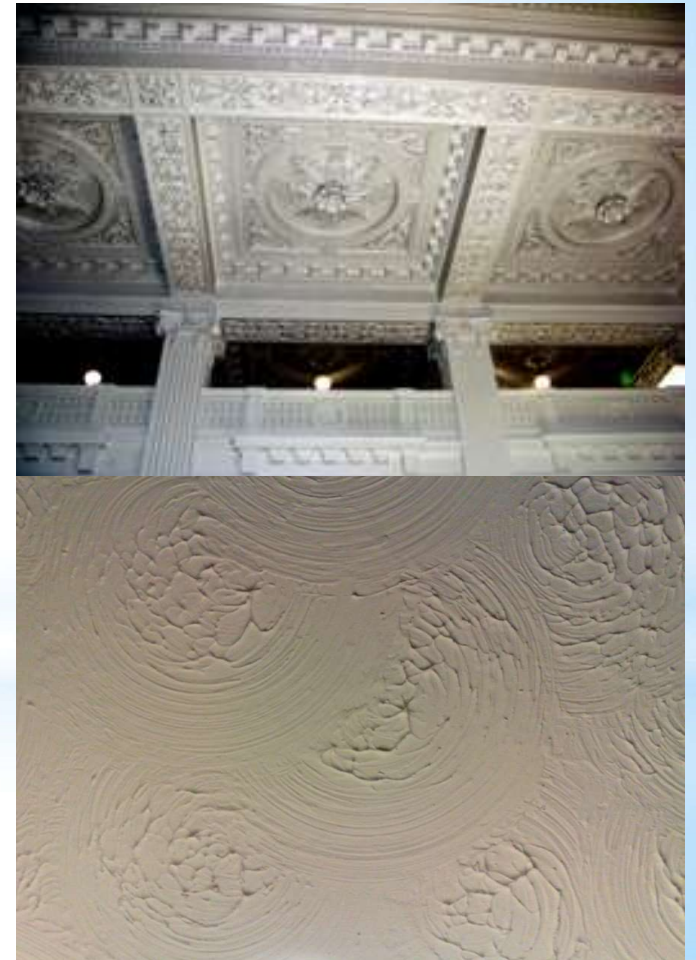
Georgia-Pacific (1950-76)

US Gypsum plaster(1920-75)

Synkoloid plaster (1950-76)

Keene plaster (1963-71)

Ref: <http://www.asbestosguide.org/asbestos-in-plaster/>



Heating, Ventilation, Air Conditioning (HVAC)



Seam Caulk
Gaskets
HVAC Covering

Miscellaneous ACM



Fire door insulation

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Miscellaneous ACM



Insulated Wire



Joint Compound



Rope



Cement pipe

Wall board and joint compound



Ceramic tile and grout



Insulating Board

Structural fire protection - on steel work, behind radiators and boilers, inside doors

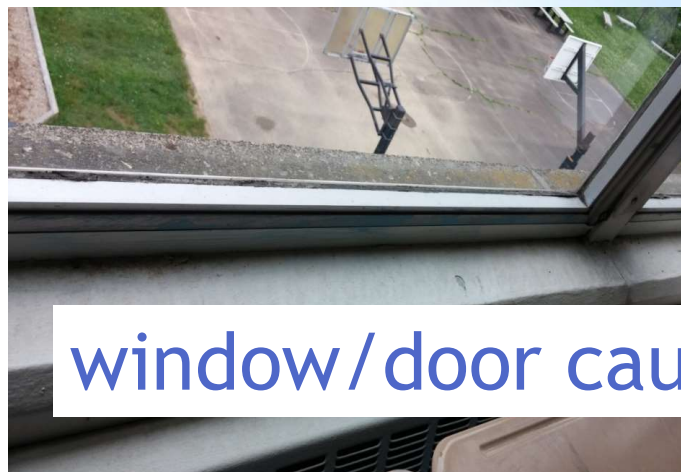
Also used for acoustic insulation, lining, ceiling tiles, general building board (resists moisture ingress) , contains up to 85% asbestos



Miscellaneous Nonfriable ACM



floor
tile and
mastic



window/door caulk



Ceiling Tiles



Cement Board Siding



6. VERMICULITE



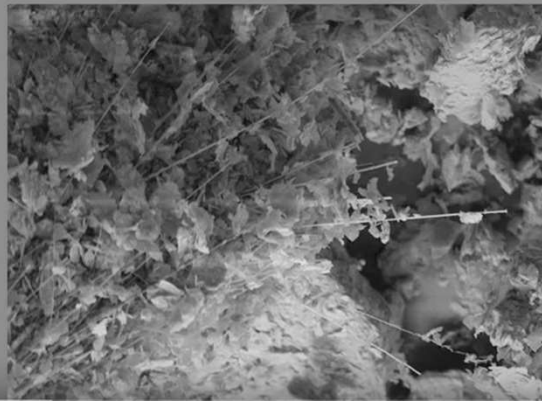
This Photo by Unknown Author is licensed under [CC BY-SA](#)

Asbestos: The REAL Monster in Your Attic

James S. Webber
Wadsworth Center
New York State Department of Health
Albany, NY

Vermiculite Attic Insulation

- During the 1970s alone, more than half a million tons of VAI were put into US attics
- Today, as many as 35 million homes, businesses and schools in the United States may have vermiculite attic insulation



3:02 / 20:22

YouTube Search

Vermiculite Attic Insulation (VAI)

DANNY KAYE
STAR OF ZONOLITE
THE COURT JESTER

INSULATE RIGHT
ZONOLITE

Here's how you can now
Insulate in 2 to 4 Hours
AND SAVE UP TO 40% ON YOUR FUEL BILLS

What Can you Today for
"You Is Just Pleasant?"
Bunk!

NOW ON SALE AT LUMBER AND BUILDING SUPPLY DEALERS

Potential Exposure- 1 Bag of Vermiculite loose fill

Potential Airborne Contamination

- 1% VAI has 12 million fibers per gram
- A 25-lb bag (11,400g) would contain

$$11,400 \text{ g} \times 12 \text{ million fibers/g} =$$

137 billion fibers

Vermiculite is not asbestos! But all vermiculite from Libby, Montana (70% of all used in the US) has asbestos contaminant in the form of tremolite. It may not be seen in a routine laboratory analysis due to fine thin fibers.



“The VAI Trust (Vermiculite Attic Insulation) compensates individuals for abatement of VAI that is Libby vermiculite.

<http://www.zonoliteatticinsulation.com>

Specific information to obtain samples and submit them to the trust fund for analysis.



Libby Montana, Libby Amphibole: ZONOLITE

Libby History

<http://www.epa.gov/asbestos/pubs/verm.html>

1881 Gold miners discovered vermiculite in Libby

1919 E.N. Alley bought the Rainy Creek claims and launched Zonolite Company

1963 W.R. Grace bought the Zonolite mining operations - through 1990

- produced 80 percent of the world's supply of vermiculite
- vermiculite has been used in **building insulation** and as a soil conditioner
- it was contaminated with naturally-occurring tremolite-actinolite asbestiform mineral fibers.

1990-1999 Libby mine closed



Present Day Status of Libby

EPA Pride and
Perseverance:
Community
Engagement and EPA
Cleanup of the Libby
Asbestos Superfund
Site

<https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.photovideoaudio&id=0801744>

National Attention

Seattle Post-Intelligencer wrote a series of articles about Libby in 1999, titled “Uncivil Action: A Town Left to Die,” The EPA set up an information center in Libby to address the problem.



Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation



Libby named a Superfund site in 2002-2018 longest clean up in EPA history

- Estimated 400 Libby residents dead
- Almost **three thousand more** are currently suffering illnesses related to [asbestos exposure](#) such as [mesothelioma](#)
- Company officers of W.R. Grace knew of worker illnesses related to lung disease before purchasing the mine. They knew it was highly contaminated with **tremolite asbestos**, and that asbestos is a carcinogen, yet did not inform employees or town residents

Jan 2004- EPA publishes Research Method for Sampling and Analysis of Fibrous Amphibole Vermiculite in Vermiculite Attic Insulation



Libby Asbestos Lawsuits & Settlements

1960's-W.R. Grace /Zonolite Company was sued by employees and their families. Some cases paid in settlements, others went to verdict

2000-First lawsuit against the state filed

2008 WR Grace ordered to pay \$250 million towards FUTURE cleanup costs.

2011 -Lester M. Jones et al vs. the state of Montana
District court judge approved a \$43 Million Settlement/ 1300 plaintiffs

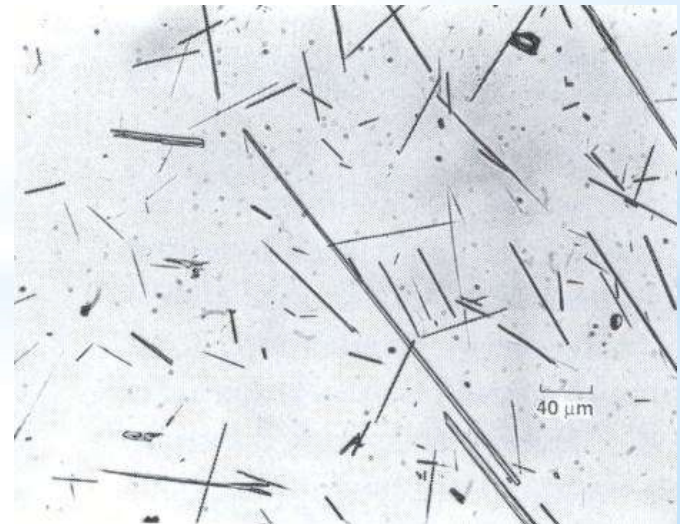
2016-Settlement of \$24 million for community

The Montana Department of Environmental Quality will assume management of the Superfund site in January 2020

“Fiber shape and surface area are important.”



Photo of Chris Weis holding Libby amphibole in his hand prior to learning of the extent of toxicity of vermiculite





Publications

AUGUST, 2000

ERIC CHATFIELD

TECHNICAL CONSULTING LIMITED

2071 Dickson Road
Mississauga, Ontario
CANADA L5B 1Y8
Telephone: (905) 896-7611
Fax: (905) 896-1930

**REVIEW OF SAMPLING AND ANALYSIS
OF CONSUMER GARDEN PRODUCTS
THAT CONTAIN VERMICULITE**

EPA 744-R-00-010

2015

JAMES R. MILLETTE, PH.D., D.I.B.F.S

**Analysis of Vermiculite for Asbestos and Screening for Vermiculite
from Libby Mountain**

**ATSDR-HEALTH
CONSULTATION 2006
(57 Pages)**

**TOXICOLOGICAL REVIEW
OF LIBBY AMPHIBOLE
Integrated Risk
Information System-2014
(685 Pages)**

7. ASBESTOS ACTIVITIES

Types of Inspections/Surveys



Renovation Impact Survey

- * Performed by a licensed Asbestos Inspector
- * All materials (accessible and inaccessible) that will be impacted by the renovation project shall be inspected
- * Destructive testing is probably required
- * Residential >4 Units and All Other Buildings: **Required** by Federal EPA
- * Residential 4 or Fewer Units: **Strongly recommended** to avoid unintentionally performing an “Asbestos Abatement Project”

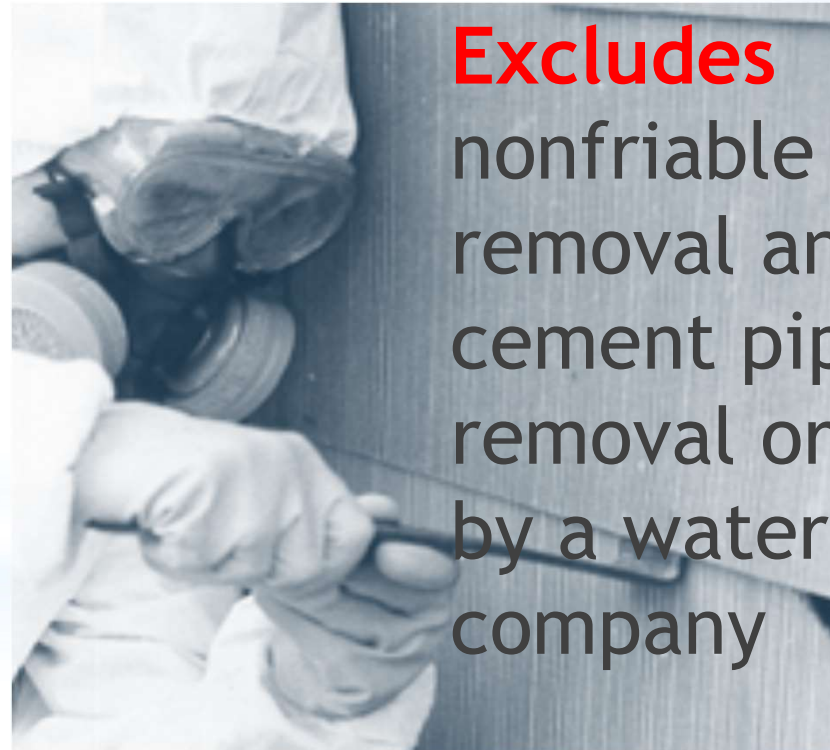
Pre-Demolition Survey

- * Performed by a licensed Asbestos Inspector
- * All materials within or attached to the facility (accessible and inaccessible) shall be inspected
- * Destructive sampling almost always required
- * Residential >4 Units and All Other Buildings: **required** by Federal EPA with exceptions for 1-4 Residential Units
- * Residential 4 or Fewer Units: **strongly recommended** to avoid unintentionally performing an “Asbestos Abatement Project”

Asbestos Abatement

Definition:

*removal,
encapsulation,
enclosure, renovation,
repair, demolition or
other disturbance of
asbestos-containing
materials*



Excludes

nonfriable exterior
removal and
cement pipe
removal or repair
by a water
company

Asbestos Abatement



Discovery of ACM During a Remodel

12x12 Floor Tiles Beneath Carpet & Carpet Mastic



Exterior Abatement of Stucco Paint



Critical
barriers



inside containment
signage



Containment, Negative Pressure, Waste Contained, Packaged & Labeled



Decontamination Unit, Portable Water Source





Improper methods

Dry Sweeping



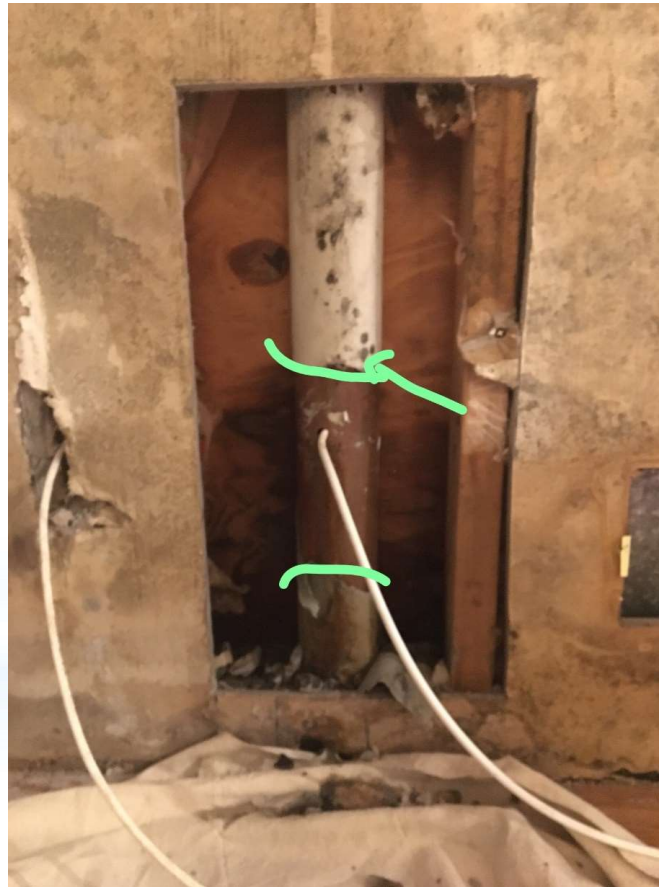
Paper Dust Masks



Dry Removal



Results of Improper Disturbance



Most of the time, when reported to DPH, an alternative work practice application must be submitted by a licensed asbestos project designer to allow modified containments to decontaminate the disturbance

VINTAGE ADVERTISEMENTS

ALL OVER AMERICA...
 MORE SCIENTISTS AND EDUCATORS
 SMOKE KENT with the MICRONITE FILTER
 than any other cigarette!

KENT	
tar	11 mg.
nicotine	0.9 mg.
tar	11 mg.
nicotine	0.9 mg.

KENT	
tar	11 mg.
nicotine	0.9 mg.
tar	11 mg.
nicotine	0.9 mg.

For good smoking taste,
 it makes good sense to smoke **KENT**

REGULAR SIZE, KING SIZE
 OR CIGAR-TOOY SIZE

© 1964 LORILLARD CO.

Crocidolite asbestos in vintage Kent Micronite cigarette filter





 American Disaster Assistance Organization

 VOICE OF THE VICTIMS

Photo Credit: Tony Rich

The No. 5 American Method Shingle (at bottom right) has been scientifically designed for quick and economic application. On the roof, it presents the random widths and thatched butt lines characteristic of the American Method. Furnished in four colors*: Spanish Red, Surf Green, Black and Graystone. Size 15 $\frac{1}{2}$ " x 24" x $\frac{1}{8}$ " thick. 90 shingles per square weighing 30 lbs. Exposure 6" @ 2" headlap.

F&M Spanish Pad (a top fastener) is the most applicable, each shoe is fastened in place by a special (Stem) anchor, provides an especially strong foot. This is a very stable feature in an unshod foot, and is subjected to wind and all high velocity.

The original and patented Dining Table Pad.
Not an imitation.
The best Pad manufactured.
Made of a combination of sufficient thickness and weight to assure protection from damage by heat and moisture, covered with double layered cotton flannel to make it soft and comfortable.
Pads and covers made to fold to convenient size to lay away when not in use.
Covers for Dining and Platter Mats of same materials, size and to fit plates, round, square or oval.
Ask your dealer to show you the "STAR PAD".
All Pads and Mats bear our trade mark, "Star."
Write for descriptive booklet.

L. W. KERNEY & CO.
253 W. 62nd St. Chicago, Ill.

To 1 out of every 3 cigarette smokers:

 **Kent**-the one
show you proof of greater

cigarette that can
health protection

every week, millions see convincing evidence that KENT'S "Mildred" Filter is the cigarette filter that really works against the smoking disease, yet removing up to 7 times more nicotine and tar than other filter cigarettes.

—Is it one of every 7 smokers—yes?—sensitive to the traces of nicotine in tobacco, you must meet not just a promise but a filter tip cigarette will give you the health protection you need.

And KENT is the one cigarette that gives you more than a promise. Every cigarette—on tobacco and in every demonstration—the effectiveness of KENT'S Mildred Filter is tested for your very eyes... tested against other filter tip brands tested as routinely from hospitals brought at retail?

The pictures above show an action shot of one of these tests—as performed by Jonathan Biale, your host on the

Kent
with exclusive
MICRONITE Filter
full smoking pleasure...
plus proof of the
greatest health protection ever

1. Everything equal. Two special glasses made with tubes through which smoke can be drawn are placed in a single draw of plain white paper. Jonathan Reiter explains that one glass will be used to test the smoke of the new KENT; the other glass will test the smoke of another brand of cigarettes.

2. Millions watch him, shake down smoke from the KENT into one glass, smoke from Filter-Tip A into the other. Notice that the smoke does not enter his mouth. It is drawn into the glasses quietly as it comes through the filter of the cigarette—exactly as it would enter your mouth if you were smoking!

3. Time is checked. Slide allows a few minutes for the reaction to take place in the minutes to settle on the white paper. EIGHTY-Minute Filter differs from all other opposite filters, for it's made—just 20 of orange paper, and no white like other filters. Just from a reaction that has been used to purify air in atomic energy plants.

For use in Baking Bread, Pastry,
Fish, Game, etc.
Did you ever burn a Roast?
Try our
**ASBESTOS
SHEETS**
and it will never
happen again.
Size of sheets,
9x14 inches,
12 sheets
in a
book.

When the article is sufficiently browned on top, place the Asbestos Sheet loosely over and it needs no further attention.

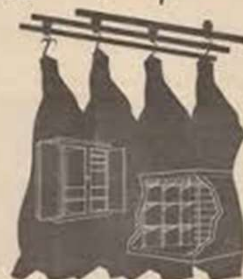
Price, postpaid, 25c.
Send for our Catalogue of
Kitchen Specialties.

GEO. E. THOMAS MFG. CO.
Agents wanted
Memphis, Tenn.

GEO. E. THOMAS MFG. CO.
Agents wanted **Memphis, Tenn.**

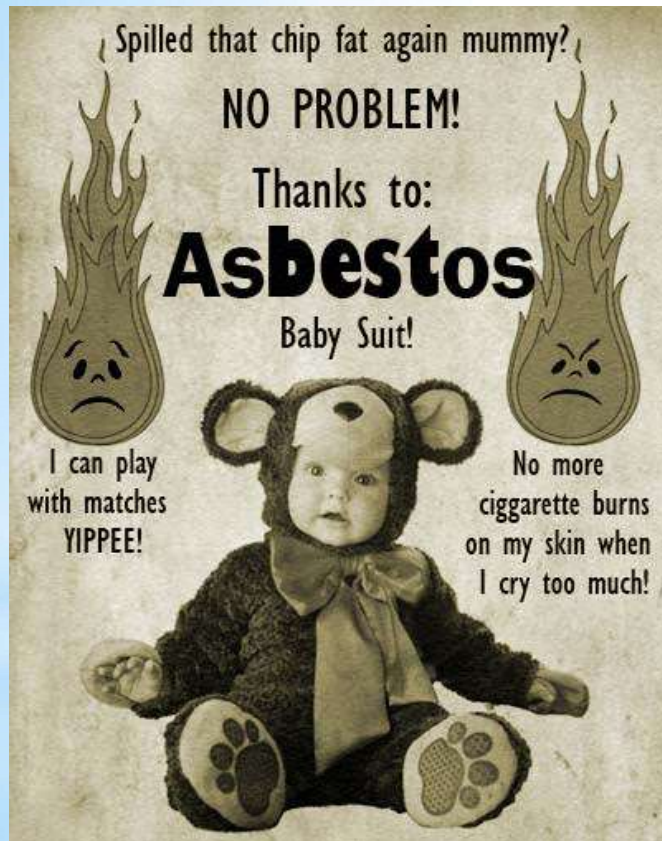
ASBESTOS-CEMENT

solves this problem



The Nation's Need for REFRIGERATOR LININGS





via reddit / Rprob



Vermiculite Attic Insulation (VAI)

This Photo by Unkr



**WHEN THE FIRE ALARM WENT OFF,
IT TOOK TWO HOURS TO EVACUATE
NEW YORK'S WORLD TRADE CENTRE.**

The bigger the building, the more important fire-proofing becomes.
That's why today's buildings have asbestos-cement walls and even floors containing asbestos.
Asbestos contains fire, cannot burn and holds up after metal and glass have melted down, giving vital time for people to escape.
You'll also find asbestos sealing plumbing joints, insulating heating pipes, electric motors and emergency generators.
Asbestos. We couldn't live the way we do without it.

When life depends on it, you use asbestos.

ASBESTOS

Asbestos Corporation Limited,
Sun Life Building,
Montreal, Québec H3B 2X6,
Canada.

Represented by:
Becker & Haag (GmbH & Co.)
P.O. Box 100 548, Spandau 1-3
2000 Hamburg 1, Germany (FOR WEST GERMANY,
EAST GERMANY, AUSTRIA AND HUNGARY)
Other representatives world-wide.

The mid 1990s ad caption reads:

**When the fire alarm went off,
it took two hours to evacuate
New York's World Trade Centre.**

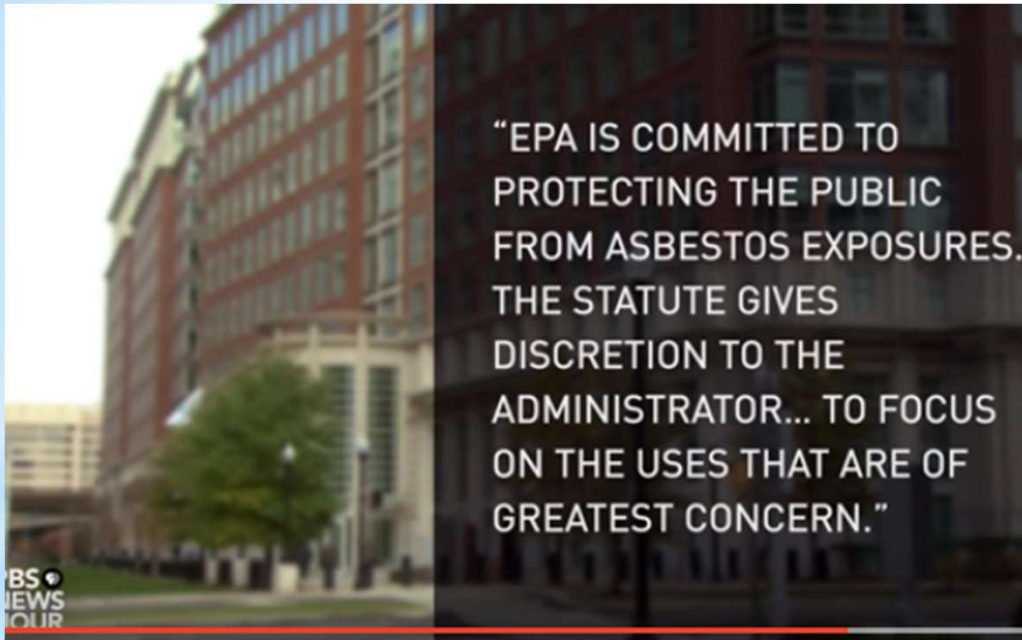
*The bigger the building,
the more important fire-
protecting becomes.*

*That's why today's buildings have
asbestos-cement walls
and even floors containing asbestos.
Asbestos contain fire, cannot burn,
and holds up after metal and glass
have melted down, giving vital time
for people to escape. You'll also find
asbestos sealing plumbing joints
insulating heating pipes,
electric motors and
emergency generators.*

Asbestos.

*We couldn't live the way we do
without it. When life depends on it,
you use asbestos*

LAST TWO DECADES ASBESTOS IN THE NEWS



The stunning truth about asbestos use in the US

<https://www.youtube.com/watch?v=yOFioumFt3Y>

COSTS

Research suggests that mesothelioma will cost the US up to \$200 billion and Europe up to \$80 billion over the next 40 years

From the early 1970s to 2002, more than 730,000 asbestos claims were filed in the US, costing the industry approximately \$70 billion



2/16/04 Yale Poster

CONTROLLING FIBER RELEASES FROM PLASTERS CONTAINING <1% ASBESTOS

T.C. Ouimet, R.C. Klein, Yale University, New Haven, CT

“Routine operations and maintenance tasks with plaster surfaces have the potential to exceed the current OSHA PEL for asbestos even when the plaster contains < 1% asbestos.”



Vanderbilt talc-art clay

2007

Article in the Seattle Post Intelligencer

<https://www.seattlepi.com/seattlenews/article/Ban-on-asbestos-diluted-say-its-backers-1254711.php>

Earlier in the year a CT epidemiologist had informed the Consumer Product and Safety Commission about the art clay used in classrooms may be contaminated with asbestos if it came from upstate NY from a mine owned R.T. Vanderbilt



STATE OF CONNECTICUT STATE BOARD OF EDUCATION



TO: Superintendents of Schools
FROM: Mark K. McQuillan, Commissioner of Education
J. Robert Galvin, M.D., M.P.H., M.B.A., Commissioner of Public Health
DATE: June 20, 2007
SUBJECT: Potential Asbestos Hazard in Art Clay

The Connecticut Departments of Public Health (DPH) and Education (DOE) are writing to inform you about a potential asbestos hazard in art clays used in schools. The DPH has learned that some clays sold to schools in Connecticut may have asbestos contamination as a result of "talc" that is added to certain clays.

Talc is added to certain clays as a "flux" to lower the temperature at which the clay needs to be heated. The DPH has become aware that the talc from at least one mine in the Northeast may be contaminated with a type of asbestos called anthophyllite. Although there has been debate if the asbestos found in talc actually falls under the regulatory definition of asbestos, there is enough uncertainty to warrant caution when using clays with added talc. A recent court case in New Jersey found talc mined by the R.T. Vanderbilt Company of New York was responsible for an asbestos-related cancer (mesothelioma) in a pottery shop owner. The pottery shop owner had purchased talc (Nytal 100) in large bags and mixed it in clays he used and sold.

DPH is concerned if such talc is used in Connecticut schools it could cause exposure to airborne asbestos in art rooms. Exposure to airborne asbestos has been linked to disease, most notably an increased risk of lung cancer, mesothelioma, and asbestosis. Although most clays are purchased and used in a wet form, and therefore are unlikely to become airborne, pieces that fall off will dry and may create a dust in the room. Additionally, some dried clay pieces may also be sanded or chipped. . . . Presently, there is limited information available regarding exposure to asbestos found in talc used in art clay and the health risk that it may present. Given these facts, the DPH and DOE are advising school officials to inventory all art clays for the potential presence of talc.

The federal government has not made a final determination regarding the need to address the presence of asbestos in art clay. The DPH has asked the U.S. Consumer Product Safety Commission (CPSC) to look into this question, but we do not expect an answer in the short term. In the meantime, the DPH advises you to ask your art material supplier if the clay they sell to your district contains talc. Since there are non-talc alternatives for most art clays, the DPH recommends that you should consider using them until the CPSC arrives at a final conclusion on the nature of asbestos in some talc. Further, the DPH recommends that you conduct a thorough wet wipe cleaning of art rooms or kilns where talc added clays were used. Alternatively, a HEPA vacuuming of the area will also pick up any fibers left behind by past activities.

We will keep you informed of any developments in this area. If you or your staff have any questions, please feel free to call Brian Toal, Supervising Epidemiologist 4, of the DPH, Environmental and Occupational Health Assessment Program at (860) 509-7740.

Thank you for your assistance.

Box 2219 • Hartford, Connecticut 06145
An Equal Opportunity Employer

ASBESTOS IN CHILDREN'S PRODUCTS 2000

JUNE 2000

Consumer Product Safety Commission found trace amounts of asbestos in crayons

Statement by The Art & Creative Materials Institute On Crayon Safety

By Deborah M. Fanning, CAE, Executive Vice President

**Consumer Confidence – *Not* Consumer Safety – Is the
Basis of Manufacturers' Decision to Transition to Talc-Free
Crayons**

**Kids Would Need to Consume 3,500 Crayons Annually
Over a Lifetime to Exceed Government Safety Levels**



Makeup and talc 2015-2017

\$12.4 million in damages

2015

COLGATE LOSES TALC LAWSUIT

Woman got mesothelioma
Colgate-Palmolive Company ordered
to pay

Product sold from late 1800's through 1995

- Talc came from mines in North Carolina, Montana and Northern Italy
- Woman used for 35 years
- Linkage ovarian cancer and use of talc



FDA does not have the authority to recall cosmetics
Cosmetics manufacturers **are not required** to test their products for safety

2017

Claire's and Justice 3 makeup products

<https://www.usatoday.com/story/news/2019/03/05/fda-test-finds-asbestos-makeup-claires-justice/3068252002/>

**COSMETICS
REGULATION HAS NOT
BEEN UPDATED SINCE
1938**

Lawsuits 2013

The first lawsuit alleging mesothelioma **from asbestos-contaminated talc** was tried in 2013 before a New Jersey jury. The panel sided against the defendant, Whittaker, Clark & Daniels, Inc., and awarded **\$1.6 million** to the claimant who alleged his cancer was caused by asbestos fibers introduced by his father who worked at a factory where Old Spice and Desert Flower powders were manufactured.



<https://thesandersfirm.com/colgate-loses-talc-asbestos-lawsuit-la/>

August 7, 2018

Playskool crayons found to contain asbestos, advocacy group says

A popular brand of crayons contains toxic levels of asbestos, according to a consumer advocacy group that is calling on retailers such as Dollar Tree and Amazon.com to pull the items from their shelves.

The U.S. Public Interest Research Group (U.S. PIRG) Education Fund says Playskool crayons tested positive for asbestos, which can lead to lung cancer and mesothelioma if inhaled or ingested.



<https://www.chicagotribune.com/business/ct-biz-playskool-crayons-asbestos-20180807-story.html> first published in Washington Post

TALC 2019

EWG (Environmental Working Group) found more than 2,000 cosmetics and personal products that contain talc. EWG has an online public database, **Skin Deep®online database**

<https://www.ewg.org/skindeep/>

Source: <https://www.ewg.org/release/fda-finds-asbestos-beauty-plus-products-issues-voluntary-recall>



INDIAN TALC CONTAMINATED WITH ASBESTOS

<https://www.drugwatch.com/talcum-powder/settlements-verdicts>

\$1.6 million

Landmark Asbestos Verdict Over Cosmetic Talc Survives Appeal

Article authored by Mary Pat Gallagher in the New Jersey Law Journal on March 27 2019

- Asbestos verdict upheld (*Kaenzig v. Charles B. Chrystal Co.*), involving cosmetic talc
- Decision upheld by a three-judge panel in award against talc supplier Whittaker Clark & Daniels;
- WC&D was the primary supplier of raw talc for a plant that produced Old Spice and Desert Flower talcum powder that was contaminated with asbestos.

“Asbestos Closes Two Philadelphia Public Schools”

10/1/2019- Test results ...were below the Philadelphia Department of Health's threshold for occupancy and no airborne asbestos fibers were detected outside the construction work area, though fibers at a low concentration were detected on a sample collected within the construction area.

<https://patch.com/pennsylvania/philadelphia/asbestos-closes-two-philadelphia-public-schools>

150 Schools in the Philadelphia District have asbestos; teacher recently diagnosed with mesothelioma; \$37 million spent in last 3 years, teacher's union asking for another \$100 million to be spent.



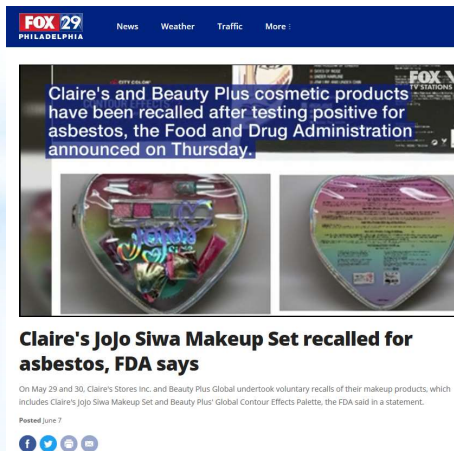
SCHOOLS WILL BE CLOSED THROUGH JANUARY 2020

Beauty Products 2019

MARCH 2019-Congress oversight hearing
FDA tests that found 3 talc-based personal care
items that could be contaminated with asbestos.
Media reports about Johnson and Johnson (1970s
through 2000) knew and hid the fact... Now facing
over 1100 lawsuits

<https://www.vox.com/the-goods/2019/3/13/18263493/baby-powder-regulation-congress>

Claire's JoJo Siwa
Makeup Set and
Beauty Plus
Global Effects
Palette 2, both made
with talc
MAY 2019 FDA WARNING



SEPTEMBER 10, 2019

FDA Finds Asbestos in *Beauty Plus* Products,
Issues Voluntary Recall
FOR IMMEDIATE RELEASE:

WASHINGTON – The Food and Drug Administration has issued a safety alert urging consumers to stop using cosmetics from Beauty Plus, after the agency found the deadly carcinogen asbestos in at least four different talc-based products.

FUTURE LAWSUITS??

NEWS12
BROOKLYN

TOP STORIES WEATHER CRIME VIDEOS

Transit workers raise concerns to MTA about asbestos in bus depot

Posted: Sep 25, 2019 7:35 PM EDT
Updated: Sep 25, 2019 8:39 PM EDT



Transit workers from Transport Workers Union Local 100 are speaking up about asbestos coming out of an East New York bus depot.

TWU says that the vents that pump air in the depot are lined with asbestos-laced cloth, and that they demand the MTA test all the workers for exposure.

1,000 workers including 700 bus drivers, 120 Maintenance workers, 50 dispatchers, 100 office workers and at least 20 high school interns exposed.

<http://brooklyn.news12.com/story/41101383/transit-workers-raise-concerns-to-mta-about-asbestos-in-bus-depot>

MOVEMENT TOWARDS TOTAL BAN

Across South East Asia hundreds of thousands of tons of raw asbestos are imported.



Australian NGO Cooperation Program (ANCP).



Know your environment.
Protect your health.



SNUR - EPA

H.R.1603 - Alan Reinstein Ban
Asbestos Now Act of 2019



They knew it was a danger and yet....

- 1898 The Evil Dust - the history of asbestos, an excerpt
- 1906
- UK-Turner and Newell-one of biggest (worldwide) asbestos manufacturer-workers began dying in the **1920s**
- Published medical studies(1930)- led to Asbestos Regulations in **1931**
- 1952 Saranac Symposium (missed opportunity to publish due to industry pressure)
- **1955**, Dr. Richard Doll- published high incidence of lung cancer among T&N Factory workers

First public notice that asbestos is a killer

- 1964 International Conference on Asbestos - New York

Dr. Irving Selikoff- and others studied members of the Asbestos Workers Union in NJ and NY in 1962-63

Found of 392 workers- 339 had asbestosis (published in the JAMA)

YouTube Documentaries

Canada's Dirty Secret 2009 Documentary of asbestos use in India

<https://www.youtube.com/watch?v=Od-s7tsuqmU&t=51s>

**The "Wonderful" Uses of Asbestos - Amazing Inventions
British Pathé August 2015- historical footage**

<https://www.youtube.com/watch?v=HxfZSEboVM4>

What does asbestos look like? July 2016

https://www.youtube.com/watch?v=z_keF0EP0Ss

Asbestos Awareness Safety Training 2011

<https://www.youtube.com/watch?v=TNXn1mNnWCA>

"The Asbestos Tragedy: Exposing the Truth"

2016 ADAO Conference Keynote Speaker: Paul Brodeur

<https://youtu.be/woOoWp7mt9c>



YouTube search "ADAO
speakers at annual
conference for asbestos"

COMMENTS?

QUESTIONS?

*Thank you for listening and
learning!*