PLAINTIFF'S EXHIBIT

DOW-483

# CAUTION: ASBESTOS DUST...



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# What is ASBESTOS ?



It's a mineral found in many rock formations. When separated from rock, **ASBESTOS** becomes a fluffy, fibrous material that has many uses.

## 3 most common TYPES of asbestos...

### CHRYSOTILE

About 97% of all asbestos processed. Resists heat but not acid. Can be easily spun into asbestos cloth.



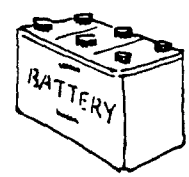
### AMOSITE

Acid and heat-resistant. Used in bulk form for heat insulation and molded into pipe insulation.



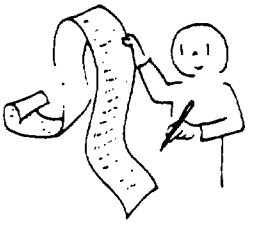

### CROCIDOLITE

Poor heat insulation, but highly resistant to acid. Used to make acid-resistant cement pipe and in electric battery cases.




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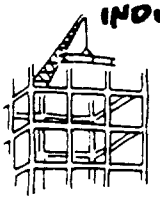
# How is asbestos USED ?

There are around 3000 asbestos products manufactured today!

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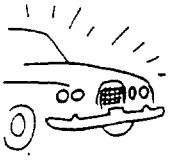
## MAJOR USES OF ASBESTOS

### ❶ CONSTRUCTION INDUSTRY



Uses about 2/3 of all asbestos produced for cement production, roofing, plastics, insulation, floor tiling.

### ❷ AUTOMOTIVE INDUSTRY



Widely used as friction material in brake and clutch linings...also as undercoating to protect against corrosion.

### ❸ TEXTILE INDUSTRY



Fireproof clothing and safety equipment, fire-resistant curtains for theatres, schools.

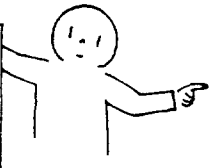
### ❹ OTHER USES



Asbestos is used to strengthen metals exposed to heat – e.g., in the nose cones of space vehicles.

Asbestos is very useful **BUT...**

Exposure to asbestos **DUST** presents **HEALTH HAZARDS**



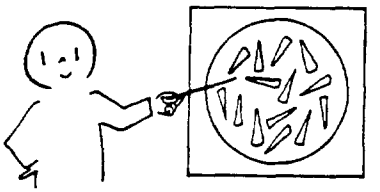


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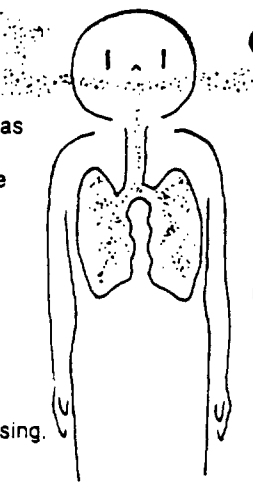
# How can asbestos be a HEALTH HAZARD ?

If air containing asbestos dust is inhaled, the small, sharp fibers may work their way into the lung tissue and remain imbedded for life...a constant source of irritation.



Asbestos bodies (fibers covered with protein) as they appear in the lungs

## The danger **VARIES** depending upon...



**1 INTENSITY OF ASBESTOS DUST**

Danger increases as the number of asbestos fibers in the air within a given space increases.

**2 INDIVIDUAL SUSCEPTIBILITY**

Some people are more likely to develop asbestos-related diseases than others.

**3 FIBER SIZE and variety**

Very fine, short fibers are most highly cancer-causing.

**4 PRESENCE OF OTHER POLLUTANTS**

– such as cigarette smoke can increase the risk of disease.



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## Asbestos-related diseases

# DEVELOP OVER A LONG PERIOD OF TIME

Symptoms may first appear 30 years after exposure!

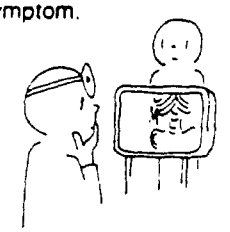
### ❶ ASBESTOSIS

A disease in which lungs are irritated by inhaled asbestos dust – characterized by fibrotic changes in the lung tissue and scarring and thickening of the lung wall. Breathing becomes difficult, thus causing a strain on the heart. Usually appears 10-20 years after exposure.



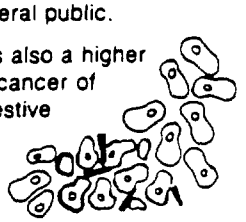
### ❷ MESOTHELIOMA

A cancer of the chest or abdominal lining, which is rare except in people exposed to asbestos. Usually fatal within one year of the first symptom.



### ❸ CANCER of respiratory system is much more common in asbestos workers than in the general public.

There is also a higher rate of cancer of the digestive system.



### ❹ ASBESTOS CORNS

or warts result from chronic irritation caused when asbestos fibers penetrate the skin – usually the hands.

Not believed to lead to skin cancer.



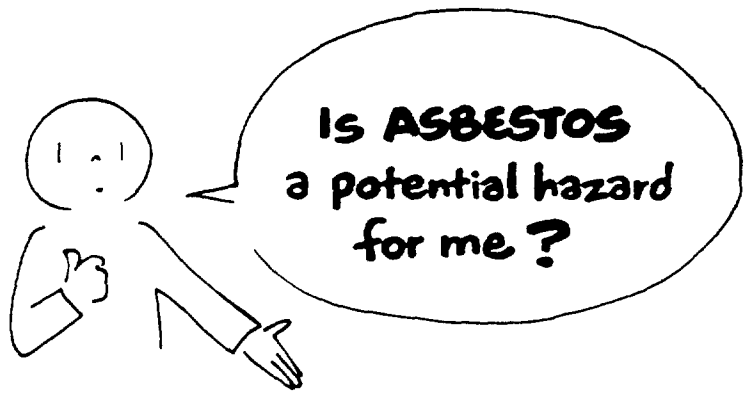
All the hazards of asbestos are not yet fully understood...much research is needed.

**IN THE MEANTIME** -- it's vital to be aware of **WHERE** the danger lies.





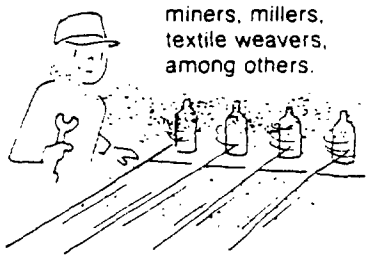
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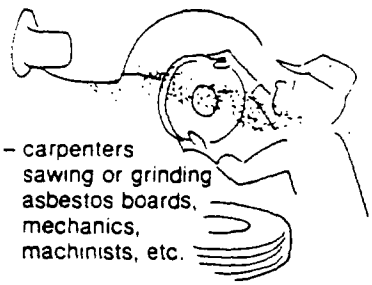
If you work with or around asbestos -- it is!

## PRODUCTION WORKERS



- insulation workers, miners, millers, textile weavers, among others.

## MAINTENANCE WORKERS



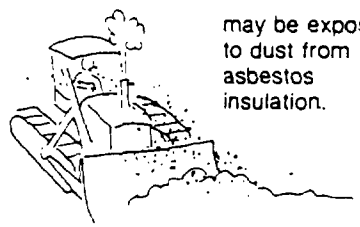
- carpenters sawing or grinding asbestos boards, mechanics, machinists, etc.

## FAMILY AND FRIENDS of asbestos workers



may be exposed to dust carried home on work clothing.

## DEMOLITION WORKERS



may be exposed to dust from asbestos insulation.

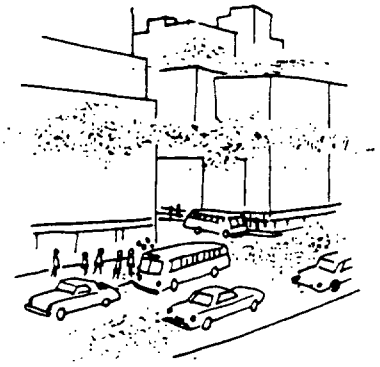


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However...

the hazard doesn't stop there--

# "ASBESTOS POLLUTION" CAN AFFECT ANYONE!



Asbestos dust has been found in the air in large cities and suburbs.

Dust originates from asbestos industry, construction sites, the wear of brake linings, clutch plates, mufflers.

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## AND... IF YOU SMOKE...



Asbestos workers who smoke have around 50 times greater risk of cancer as the non-smoking general public.

There is

**NO KNOWN TREATMENT**

for asbestos-related diseases

But if problems are diagnosed early, exposure levels can be reduced and complications treated.



**SOoo...**

especially if you work with or around asbestos,

**HAVE REGULAR CHECKUPS!**






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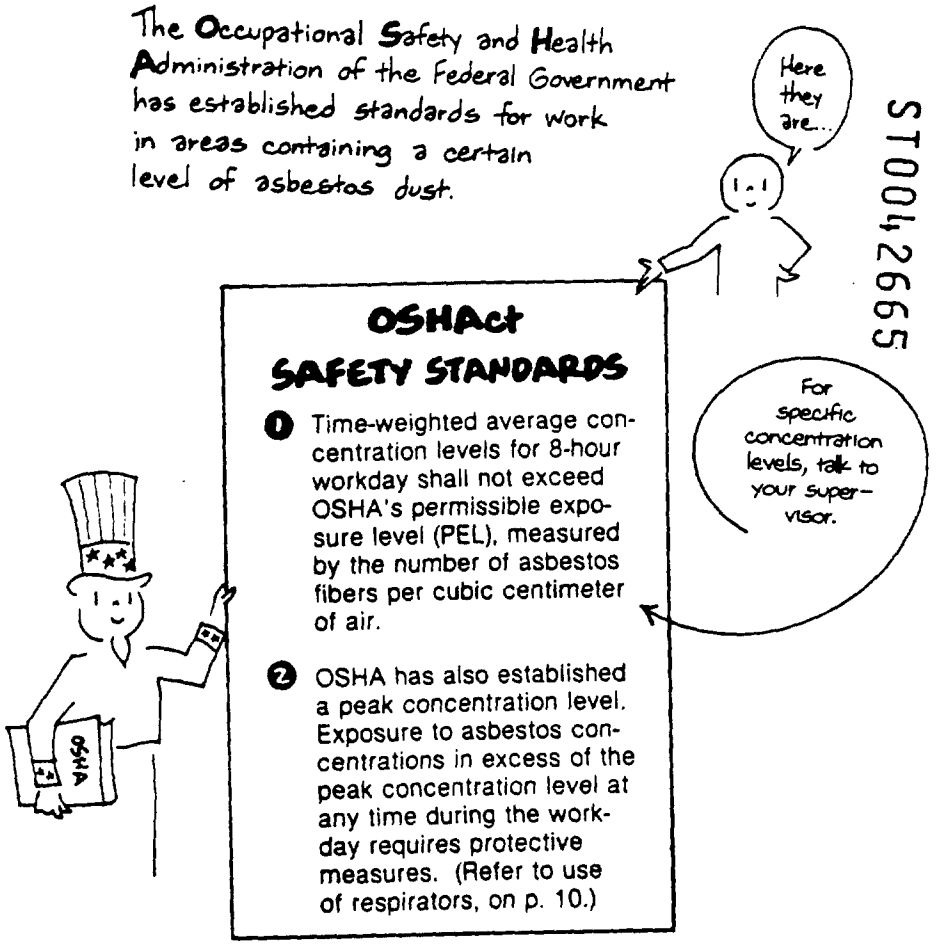
# How EXPOSURE c

## Steps we can take for prote

### First...

### KNOW the OSHAct SAFETY STANDARDS

The Occupational Safety and Health Administration of the Federal Government has established standards for work in areas containing a certain level of asbestos dust.




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# an be CONTROLLED

ction against asbestos dust

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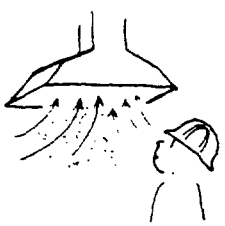
## Then...

## WORK TO MEET THESE STANDARDS

via...

### ❶ NEW ENGINEERING METHODS

...to prevent the escape and spread of floating dust. Dust-producing operations, such as sawing and drilling, can be isolated. Tools can be fitted with exhaust ventilation and dust control systems.



### ❷ BETTER WORK PRACTICES

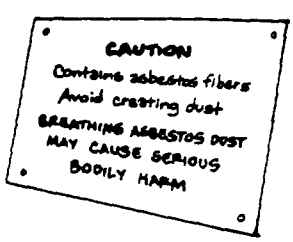
Materials containing asbestos can be wet down before sawing, drilling, etc., to help prevent airborne fibers.

Asbestos waste and debris can be sealed in impermeable bags and containers.




### ❸ CAUTION SIGNS AND LABELING

All products containing asbestos fibers not permanently bonded or contained must be labelled visually and legibly, i.e.,




MORE...

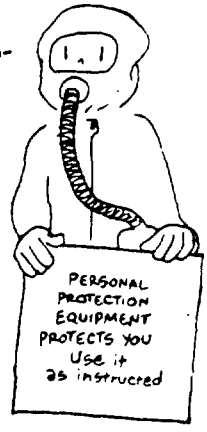


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## ④ PERSONAL SAFETY EQUIPMENT

When handling asbestos and materials or equipment containing asbestos, **PERSONAL PROTECTIVE EQUIPMENT** could be the only way to protect you.




**SPECIAL CLOTHING**... either fabric or resin-coated paper. Includes full suits, coveralls, head covering, gloves, foot covering.

**RESPIRATORS** (3 basic types)

A. REUSABLE OR SINGLE-USE AIR PURIFYING RESPIRATORS – for use when dust level exceeds recommended PEL by no more than 10 times.

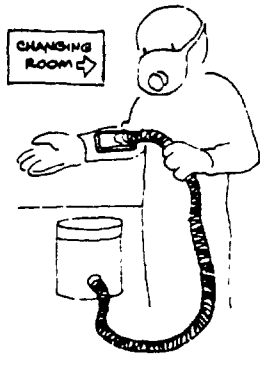
B. POWERED AIR-PURIFYING RESPIRATORS – used when average contamination is between 10-100 times PEL.

C. TYPE "C" SUPPLIED-AIR RESPIRATORS – used when concentration may be more than 100 times recommended levels.

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## ⑤ ON-THE-JOB "HOUSEKEEPING"

Cleanup is important at the end of work periods (breaks, lunch, workday). You will be covered with tiny asbestos fibers. Do not shake or blow dust off.




Vacuum your garments before removal and place them in a designated container. Use special changing rooms to change clothes. Use special vacuum to clean garments.



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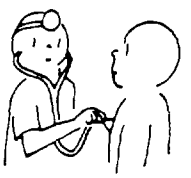
## ⑥ MEDICAL SURVEILLANCE

Proper medical surveillance can show whether employees are receiving adequate protection from the dangers of asbestos.

### Surveillance includes...

**PHYSICAL EXAM and TESTING**

. on a regular basis. Annual checkups for everyone; more frequent attention recommended for those with heart and lung trouble or those who are exposed to levels in excess of the PEL.



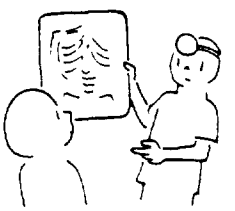
**MEDICAL HISTORY RECORDS**

Medical history of each employee working with asbestos should be carefully kept. Includes history of exposure to asbestos and other contaminants.



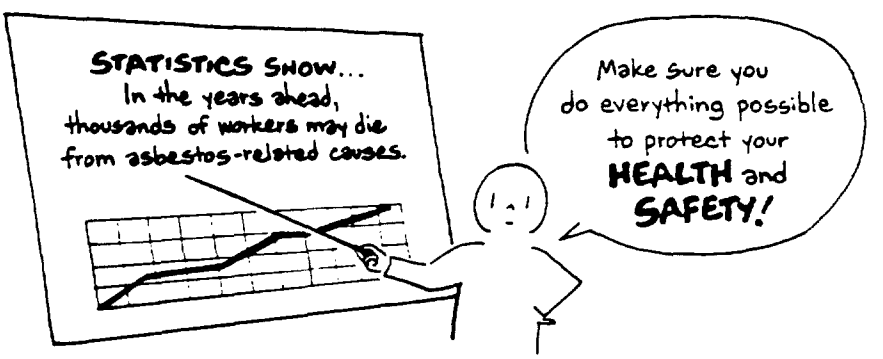
**MEDICAL ADVICE**

Employees should be informed when dangerous signs appear on tests, or when any job-related problems threaten health.



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**POSITIVE FINDINGS** of medical surveillance can result in new job placement, shift rotation, improved work practices, other measures.



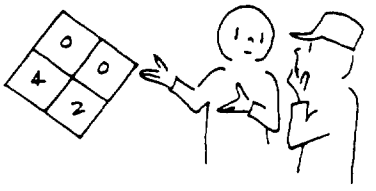



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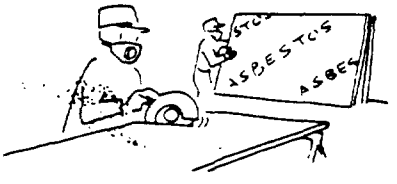
# SAFETY ON THE JOB IS




**1 KNOW** the hazards of your job. Is your exposure direct or indirect? High or low levels? Are there recommended controls?



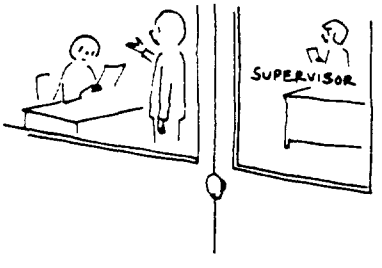

**2 WEAR** and maintain your Personal Protection Equipment.




**3 PRACTICE** good on-the-job housekeeping. Use special vacuums and dust-collecting equipment.

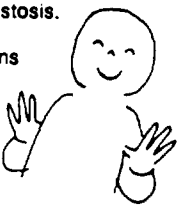



**4 REPORT** hazardous conditions – i.e., unusually high dust levels, need for equipment – to supervisor.




**5 CONSIDER** your health at all times. Don't work with asbestos if you have lung disease, or any symptoms of asbestosis.

Know the symptoms of cancer and asbestosis.
DON'T SMOKE.



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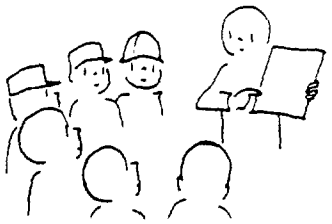
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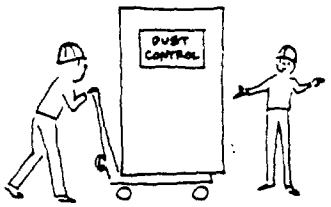
# EVERYBODY'S BUSINESS




**1 ADVISE** employees of the dangers of exposure and the necessity of caution and awareness.



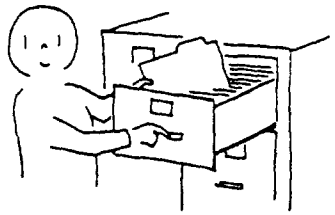
**2 SUPPLY** modern engineering equipment to provide the healthiest possible working environment.



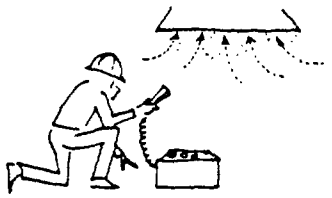

**3 MONITOR** asbestos dust levels. A sampling of air in work areas should be taken every 6 months, where exposure to asbestos is likely to exceed recommended limits.




**4 KEEP** medical records of each worker exposed to asbestos dust. Also provide regular physical checkups.



**5 TAKE** all other necessary precautions to prevent unexpected exposure. Provide for routine testing of ventilation controls.



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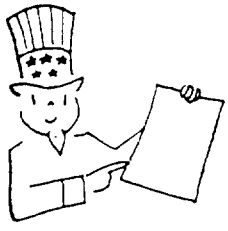

# Sooo...

## WE CAN REDUCE THE HAZARDS OF ASBESTOS

### if everyone works together!

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### GOVERNMENT'S JOB

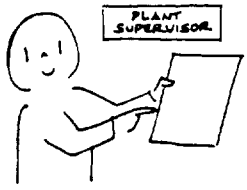


**SET SAFETY STANDARDS** for proper work conditions.

**ENFORCE** the standards via periodic inspection.

**UPDATE STANDARDS** ...as necessary

### MANAGEMENT'S JOB




**RESEARCH** new ways to control asbestos.

**PROVIDE** safe work space and facilities.

**INSTRUCT** employees about dangers, methods of protection.



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# WHAT ?

**YOUR JOB IS**
**TO KNOW HOW TO PROTECT**
**YOURSELF ON THE JOB!**

**Learn...**

- ✓ What asbestos-containing materials are in use at your workplace.
- ✓ How these materials can be worked.
- ✓ How to maintain control equipment.
- ✓ What other precautions you should take to be safe.

**After all...**

**IT'S YOUR HEALTH & SAFETY**
and nothing is more
**IMPORTANT!**

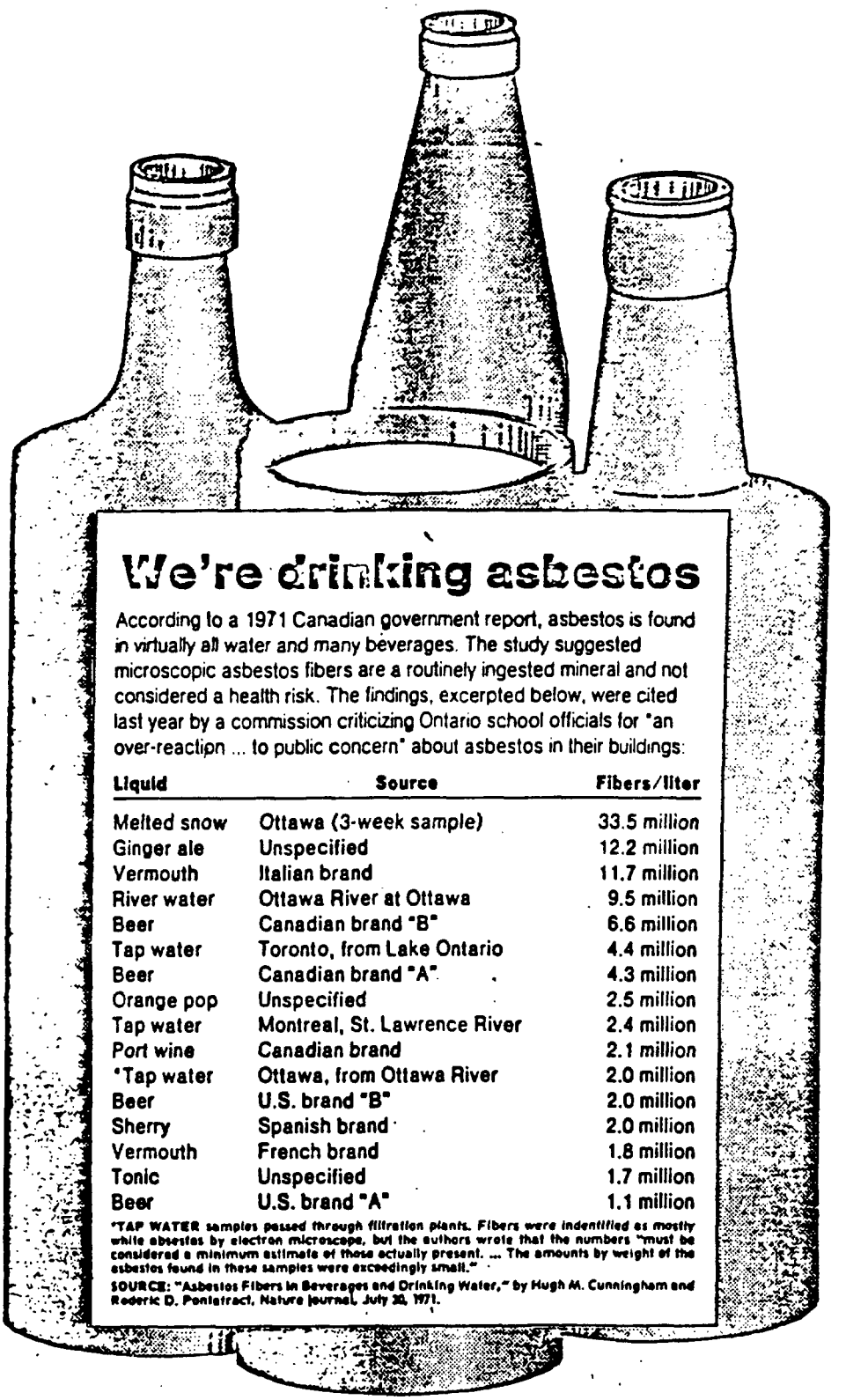


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# We're drinking asbestos

According to a 1971 Canadian government report, asbestos is found in virtually all water and many beverages. The study suggested microscopic asbestos fibers are a routinely ingested mineral and not considered a health risk. The findings, excerpted below, were cited last year by a commission criticizing Ontario school officials for "an over-reaction ... to public concern" about asbestos in their buildings:

| Liquid | Source | Fibers/liter |
|---|---|---|
| Melted snow | Ottawa (3-week sample) | 33.5 million |
| Ginger ale | Unspecified | 12.2 million |
| Vermouth | Italian brand | 11.7 million |
| River water | Ottawa River at Ottawa | 9.5 million |
| Beer | Canadian brand "B" | 6.6 million |
| Tap water | Toronto, from Lake Ontario | 4.4 million |
| Beer | Canadian brand "A" | 4.3 million |
| Orange pop | Unspecified | 2.5 million |
| Tap water | Montreal, St. Lawrence River | 2.4 million |
| Port wine | Canadian brand | 2.1 million |
| *Tap water | Ottawa, from Ottawa River | 2.0 million |
| Beer | U.S. brand "B" | 2.0 million |
| Sherry | Spanish brand | 2.0 million |
| Vermouth | French brand | 1.8 million |
| Tonic | Unspecified | 1.7 million |
| Beer | U.S. brand "A" | 1.1 million |

*TAP WATER samples passed through filtration plants. Fibers were indentified as mostly white absestos by electron microscope, but the authors wrote that the numbers "must be considered a minimum estimate of those actually present. ... The amounts by weight of the asbestos found in these samples were exceedingly small."

SOURCE: "Asbestos Fibers in Beverages and Drinking Water," by Hugh M. Cunningham and Roderic D. Pontefract, Nature Journal, July 30, 1971.

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# HANDLING OF ASBESTOS CONTAINING MATERIALS

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1. WHAT IS ASBESTOS?

A CRYSTALINE FORM OF IMPURE MAGNESIUM SILICATE MINERALS IN THE FORM OF FIBERS. IT CAN BE ANY COLOR. MATERIALS MAY CONTAIN A WHOLE RANGE OF ASBESTOS CONCENTRATIONS --- UP TO 100%.

2. WHERE CAN ASBESTOS BE FOUND?

ASBESTOS HAS BEEN USED IN INSULATING MATERIALS, AS A BINDER MATERIAL, GASKETS, ROOFING, FLOOR TILES, WALL BOARD (TRANSITE), PIPING, CEILING TILES, BRAKE LININGS, AND MANY OTHER APPLICATIONS. THE MOST COMMON DIVISION APPLICATIONS INCLUDE INSULATIONS AND TRANSITE SIDINGS, AMONG OTHERS.

3. HOW IS ASBESTOS IDENTIFIED?

SINCE ACCURATE VISUAL IDENTIFICATION OF ASBESTOS IN MATERIALS IS NOT DONE EASILY, IT IS VERY IMPORTANT THAT IDENTIFICATION BE DONE PRIOR TO HANDLING POTENTIAL ASBESTOS-CONTAINING MATERIALS. CHEMICAL OR PHYSICAL TESTS THROUGH MICHIGAN DIVISION INDUSTRIAL HYGIENE SERVICES OR MAS&TL ANALYTICAL LABORATORIES (1602 BUILDING) ARE REQUIRED FOR ASSURANCE OF ACCURATE DETERMINATION.

4. HOW IS ASBESTOS TO BE HANDLED?

THE PROCEDURES FOR THE SAFE REMOVAL AND/OR DISPOSAL OF ASBESTOS-CONTAINING MATERIALS ARE FOUND IN SAFETY STANDARD S-140 AND ENVIRONMENTAL STANDARD E-500. PROCEDURES INCLUDE THOROUGHLY WETTING THE MATERIAL TO MINIMIZE DUST, THE USE OF APPROPRIATE RESPIRATORY PROTECTION, POSTING OF APPROPRIATE SIGNS AND BARRICADING OF WORK AREA, AND DISPOSAL OF MATERIAL TO LANDFILL IN AN IMPERMEABLE CONTAINER (I.E., TIED, LABELLED PLASTIC BAGS).