Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Institut für Europäische Politik

STATE OF PLAY AND MAIN CHALLENGES OF ASBESTOS TREATMENT IN SERBIA

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Content

- What is Asbestos?
- Where is Asbestos Found?
- Managing or removing asbestos?
- Treatment of asbestos waste.

What is Asbestos?

- Asbestos is a serious health hazard commonly found in our environment today. It is important for employees who may work in buildings that contain asbestos to know where it is likely to be found and how to avoid exposure.
- ***Asbestos is a general term for a group of fibrous silicate minerals.***
- *Chemical formula*

Mg6[Si4O10](OH)82Na2O*6(Fe,Mg)0*2Fe2O3* 17SiO2*ZN2O

- In nature, it occurs in a fibrous form.
- Named after the Greek word which means Αμίαντος incombustible.
- It is resistant to high temperature and does not burn.

Types of asbestos

- **Chrysotile (white)**

This is the most commonly used form of asbestos.

It can be found in roofs, ceilings, walls and floors in homes and businesses. Used in automotive brake linings, insulation of pipes, seals and boilers. The safest of all asbestos

- **Amosite (brown)**

It originates from Africa.

It was used mainly in cement and pipe insulation. It can be found in ceiling tiles and thermal insulation products.

It has needle-like fibers.

Types of asbestos

- **Crocidolite (blue asbestos)**

Fibrous in nature, which allows it to be easily disintegrate in the air and turns into dust particles.

Extracted mainly in South Africa and Australia, Bolivia

The most dangerous type of asbestos.

Less is used because there is no same features heat resistance as well as other asbestos

- **Tremolite**

Can be found in the talc powder.

Found in certain paints, sealants and roofing.

May be white, green, gray.

Types of asbestos

- **Actinolite**

Sharp texture

Not flexible

Fibers are easy to inhaled

It is used for insulation and as a fire protection material.

- **Anthophyllite**

Natural

Gray-brown

Was least used

Can be found in cement tiles, the most parts of the roof and the water, such as seals.

What is Asbestos?

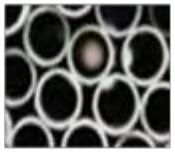
- **All types of asbestos tend to break into very tiny fibers.**
- **These individual fibers are so small they must be identified using a microscope.**
- **Some fibers may be up to 700 times smaller than a human hair.**
- **Because asbestos fibers are so small, once released into the air, they may stay suspended there for hours or even days.**
- **Asbestos fibers are also virtually indestructible.**
- **They are resistant to chemicals and heat, and they are very stable in the environment.**
- **They do not evaporate into air or dissolve in water, and they are not broken down over time.**

What is Asbestos?

- Asbestos is probably the best insulator known to man. Because asbestos has so many useful properties, it has been used in over 3,000 different products.
- Usually asbestos is mixed with other materials to actually form the products. Floor tiles, for example, may contain only a small percentage of asbestos.
- Depending on what the product is, the amount of asbestos in asbestos containing materials (ACM) may vary from 1%-100%.

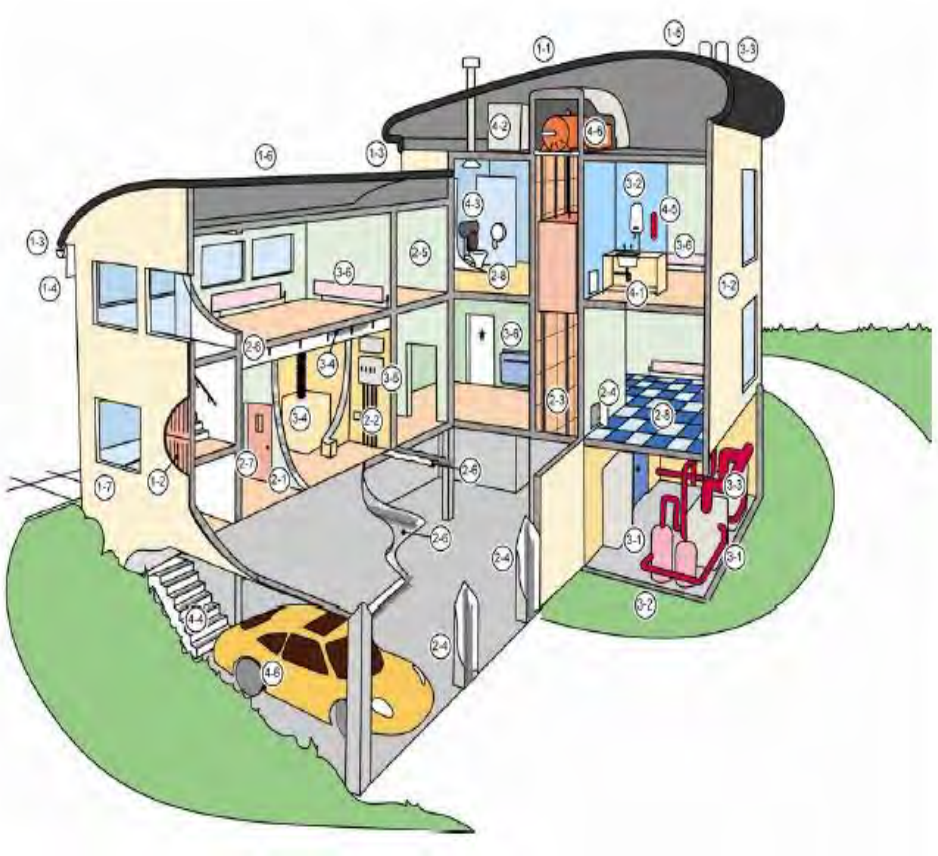
Where is Asbestos Found?
Asbestos in schools and commercial buildings

- Acoustic insulation
- Cement pipes
- Fireproof fabric in laboratories or halls (eg a theater curtain)
- Floor tiles and ceiling panels
- Thermal insulation
- Tubes for boilers and boiler insulation
- Air conditioning equipment
- Safety gloves



Asbestos in the home

- During the 20th century, asbestos was a popular building material that was used in many homes and buildings to the 1970s.
- Asbestos products generally are not hazardous if not damaged in some way.
- ***If the asbestos material is in good condition, it is recommended: <u>do not touch.</u>***



Asbestos in the home

1. Insulating materials

Cement

Asbestos cement products can be found in garages and sheds. These may include cement chimneys, salonit roofs, guttering and wall coverings. Asbestos cement products are not dangerous if not treated mechanically: sawing, digging or cutting.

2. Composite materials:

panels for bathrooms, equipment for water in the toilet, the toilet seat in the bathroom and window boards.

Asbestos in the home

3. Floor tiles:

vinyl, asphalt and rubber floor tiles may contain asbestos.

From floor tiles to be carefully handled because it can release asbestos fibers if perform their sanding

4. Seals:

Seals in furnaces, stoves, on coal and wood burning stoves may contain asbestos.

Asbestos in the home

5. Insulation table:

Asbestos insulation is commonly used for Fire resistance of house. Maybe it used about a furnace. It can also be found in ceiling tiles, fire doors and wall panels.

6. Application by spray coating for fire protection and sound insulation.

These products may contain up to 85% asbestos and are very dangerous. They can easily break, and smaller disturbances release large amounts of asbestos fibers.

Asbestos in the home

7. Textiles:

Fire textiles may contain asbestos, such as fire blankets, heat-resistant gloves or textiles in the fuse box.

8. Textured Coat

Textured coatings can be used on walls and ceiling for decoration and can contain asbestos.

Asbestos in the home

9. Various types of insulation:

Boilers

The panels for the doors

Slats

Walls

Pipelines

Parquet

10. Home Appliances:

Ashes from the fireplace

Hairdryer

Heaters

Furnaces and stoves

Toasters

Refrigerators

Asbestos in various buildings

- Commercial buildings have the same risk of asbestos as well as homeowners.
- Asbestos is most commonly found in buildings in cement and insulating materials.

- Boilers
- Ceiling
- Cement pipes
- Isolation
- Panel board
- Panels
- Pipes
- Roof
- Sealants and coatings
- Steel Structures
- Textiles
- Textural colors
- Thermal insulation
- Tiles
- Wall coverings
- Systems for tanks

Asbestos at industrial sites

- Industrial facilities may have any of the asbestos material to be located in homes and buildings. In addition, the asbestos is used in some of the materials that are specific to each industry. Risk industries are shipbuilding, chemical and automotive.

- adhesives
- clutches
- brakes
- cooling towers
- anticorrosive containers
- components for electric motors
- electrical insulation
- laboratory furniture
- laboratory protective clothing
- packaging

Asbestos in various subjects (consumer products, constructional products, vehicles)

- Over decades, asbestos was used by the automotive industry in brake pads and clutch. Millions of these products is still in use on vehicles.

Asbestos in various subjects (consumer products, constructional products, vehicles)

- Toys that contain asbestos?

In 2000 it was found asbestos in pencils of three major brands: Crayola, Prang, and Rose Art. Asbestos has been found in the talc that is used for color.

Asbestos concentrations ranged from 0.03% to 2.86%.

Classification of asbestos

Friability is the degree to which the solid can be divided into smaller pieces with a minimum of effort, whether minerals can be scattered on a human hand.

1. Friable - may be disperse fibers

Friable asbestos materials are those that are the most dangerous. They can easily release asbestos fibers into the air, and these fibers are a significant health risk.

2. Which is not friable.

Asbestos / Management

Sum of all tasks of Planning, Steering and Controlling in order to reach the aims of a project.

Aims of any asbestos management:

Sustainable prevention of any emission of asbestos fibers into the indoor air

Groups of persons that could be at risk due to asbestos in buildings:

- Users
  - during usual operation of the building
  - during ongoing works
- Maintenance workers
- Removal workers
- Environment (passengers, neighbors)

"Home Safety Test Kits" око 50$
U.S.A.
Азбест <1%

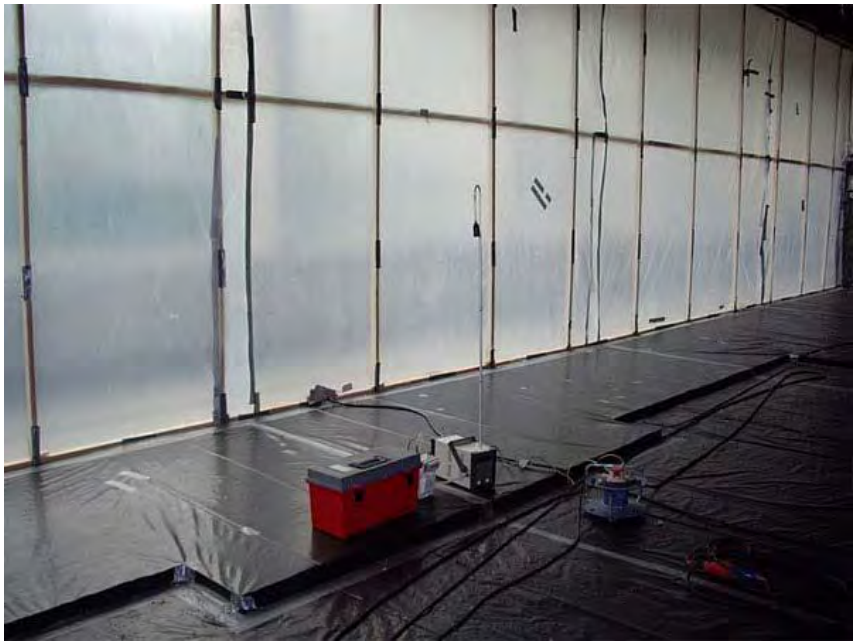
ASBESTOS MANAGEMENT -PRICIPLES / PHASES

- **Phase 1: Investigation and Planning**
  - Responsibilities, Organigram
  - Investigation of Buildings, Asbestos cataster
  - Risk Assessment
  - Working Plan, Working Methods,
  - Safety Program
  - Qualification of Contractors / Key Persons
- **Phase 2: Operational Tasks**
  - Construction Site, Working Areas
  - Enclosures, Air Locks
  - Negative Pressure System, Filtering of Exhaust Air
  - Personal Protective Equipment
  - Cleaning Technologies, Waste Disposal
- **Phase 3: Supervising / Controlling**
  - Accompanying Controlling
  - Measurements / Monitoring
- **Phase 4: Lack Management**
  - Documentation
  - Communication
  - Training

ASBESTOS MANAGEMENT

ASBESTOS MANAGEMENT
Dust protection walls mainly with foils
Covering objects (e.g. machines) inside the zone with foils

ASBESTOS MANAGEMENT



ASBESTOS MANAGEMENT

3-chamber **airlock** for **persons** (for decontamination)

- Undress (neg. press.)
- Shower
- Dressing

2-chamber **airlock** for **material**

- Decontamination
- Handing over

ASBESTOS MANAGEMENT

- **Labeling of the entrance**

Enter with caution

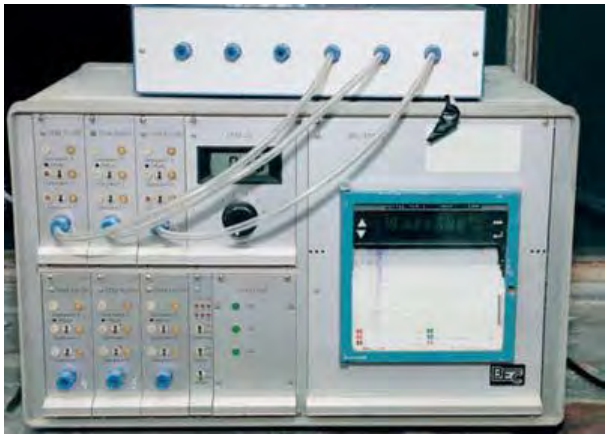
Appropriate outfit

- **Filter** system for the **sewage water** from the shower

ASBESTOS MANAGEMENT

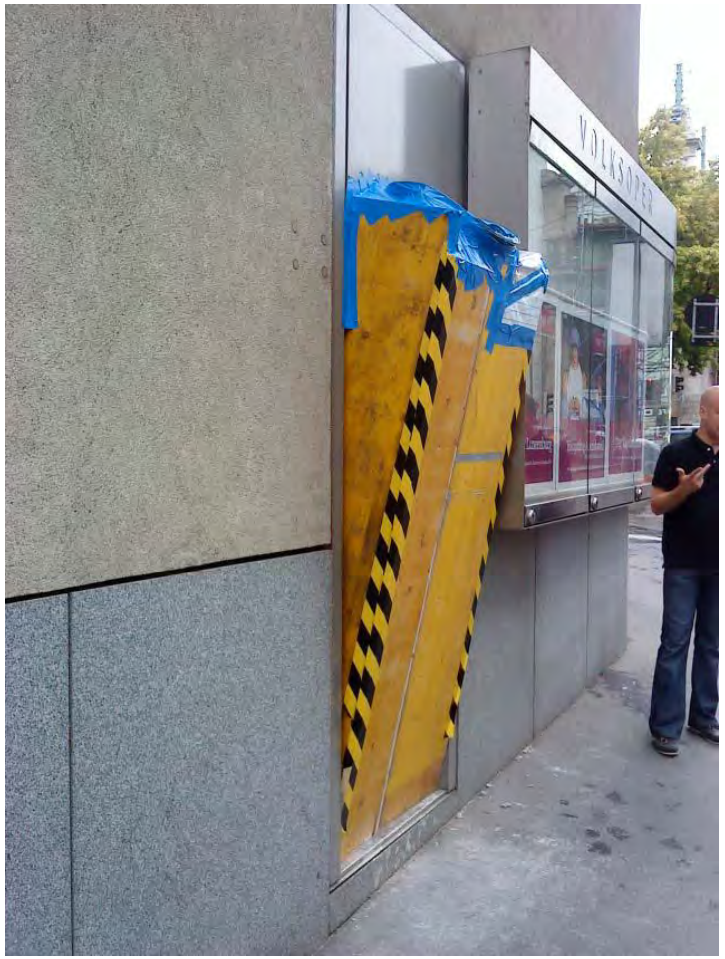
Keeping the remediation zone under **negative pressure** (20 Pascal) and **monitoring**

- **Filter** system for **exhausted air** (< 500 fibres/m³)
- **Exchange of air** per hour inside the zone: 5 times



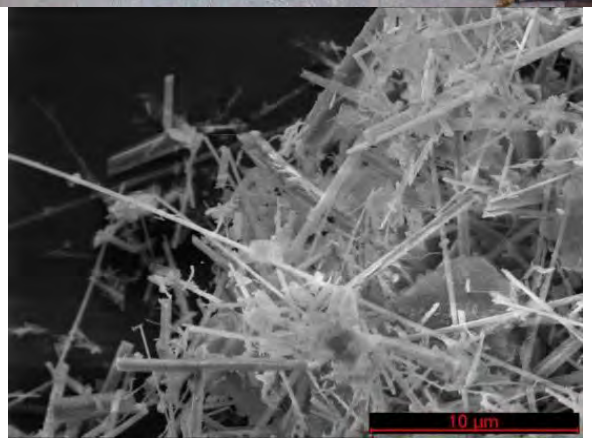
ASBESTOS MANAGEMENT

- **Exhaust** filtered **air to atmosphere**



Finalisation

- Cleaning with an **industrial vacuum cleaner**
- **Final check** from an external **civil engineer**
- Determination of asbestos **concentration in air** (< 1,000 fibres/m³)
- **Dismantling** of the remediation zone



Treatment of asbestos waste

- **Solidification** with cement in a plastic tub
- **Packing** in plastic (e.g. asbestos boards)
- **Labelling**
- Deposit on **landfills**

Deposit on landfills /EU

Deposit on landfills/EU

Republic of Serbia - Asbestos management

FOPA Vladičin Han

Grot

Republic of Serbia - Asbestos management /Deposit on landfills

PWW Deponija dva Leskovac

Republic of Serbia - Asbestos management/Deposit on landfills

PWW Deponija dva Leskovac

Republic of Serbia - Asbestos „management“

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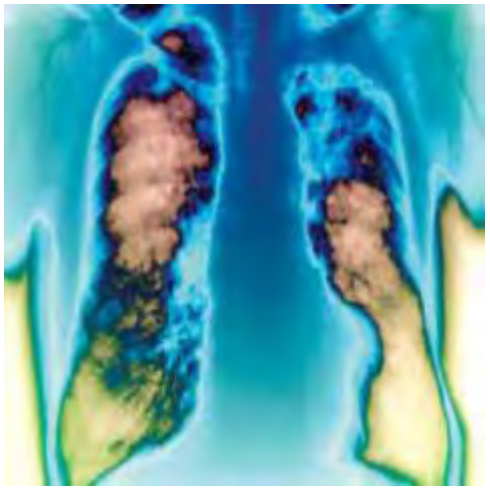
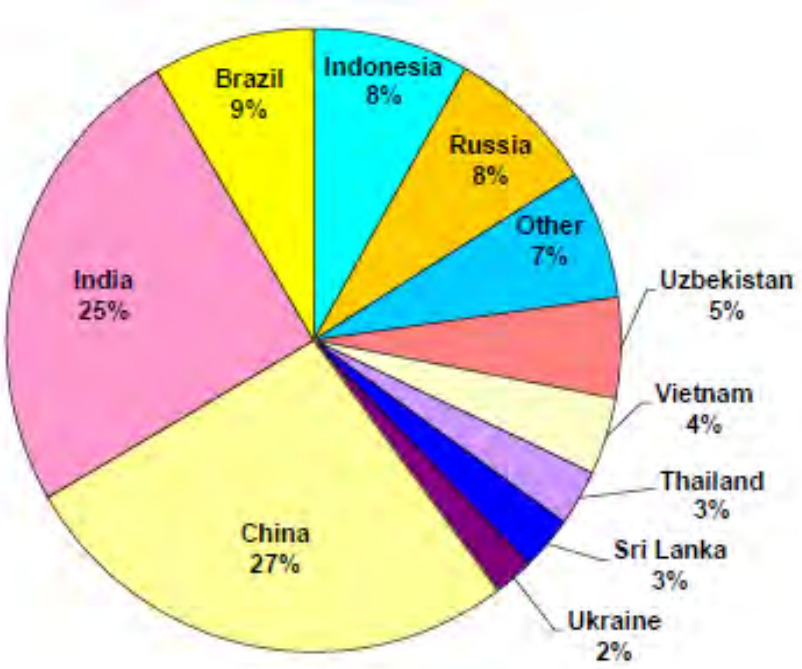
Where is disposed salonit roof?

THANK YOU





Global Asbestos Fiber Consumption, 2012

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