

شركة تكنولوجيا البناء للتجارة والمقاولات

Building Technology Trading & Cont. Co.

**BLDGTEC**



**SCIENTIFIC & CONTEMPORARY STUDY FOR  
ASBESTOS ENCAPSULATION  
USING NUKOTE COATING SYSTEM**

دراسة علمية وعملية لحلول عزل الاسبستوس بنظام  
نيوكوت لأنظمة الطلاء العالمية  
**ASBESTOS ENCAPSULATION**

**By**

**Architect / Abdullah Alshamrani**

المهندس / عبدالله بن ناصر الشمراني

جميع الحقوق محفوظة لشركة تكنولوجيا البناء  
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## ASBESTOS THE PROBLEM AND THE SOLUTION

### Background information:

Asbestos is a group of fibrous metamorphic minerals, naturally occurring as white asbestos (Serpentine Group) or dark color asbestos (Amphibole Group).

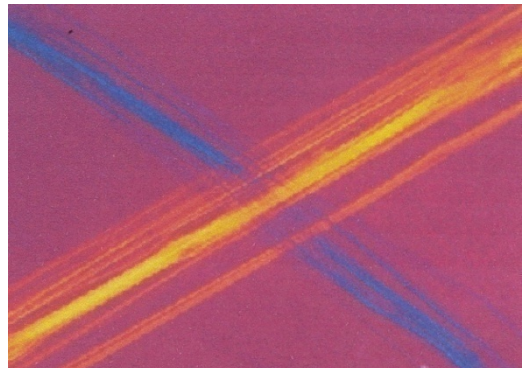
The name is derived for its historical use in lamp wicks (inextinguishable).

It was used in fabrics such as Egyptian burial clothes four thousands years ago.

Asbestos mineral mined, milled, processed and ready to be used in different products.

Asbestos materials exhibit a wide range of physical properties And resistant to heat and combustion, it is highly resistant to acids and chemical attack.

Asbestos was nicknamed (the magic mineral) because its unique chemical composition and physical properties made it suitable for use in thousands of products, from floor tiles to road signs, from sewage pipes to insulating mattresses.



Last century, it has been used in over 3000 products including cement Building materials, pipe work lagging , fire resistant, insulating sprayed fireproofing products boards, robes, gas masks, friction materials for vehicle brakes and clutches, lift and machineries.

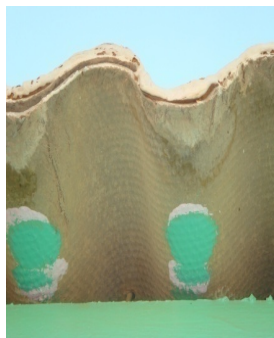
Boilers and pipe work were lagged with asbestos products in hospitals, power stations and through out heavy industry.

Asbestos cement was introduced to building industries since 1920 as asbestos cement sheeting. This product which was basically a mixture of Portland cement, asbestos fibers and water, were compressed to form the asbestos cement sheeting.



It is proved to be extremely popular and as a result large quantities of this material is now found in many different countries of the world.

Asbestos products have been used on a large scale in Saudi Arabia and Arab Countries in buildings as Construction elements like walls, roofs, thermal insulation, fireproofing, acoustic, condensation protection, asbestos pipes for potable water& sewage water and reinforcement in asbestos cement products.



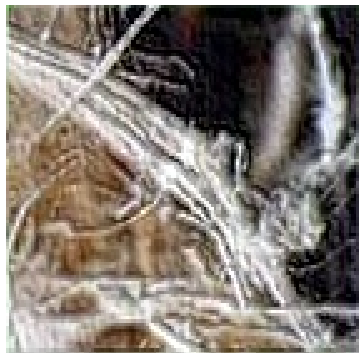
## THE PROBLEM:

Asbestos surfaces undergo a weathering process after many years of exposure and a loose surface layer develops which on roofs become colonized with dark lichen.

The lichen attacks the cement causing exposure of the asbestos fibers, the surface become unstable and asbestos cement sheeting is weakened. Scientifically, these fibers formed as the asbestos crystals have three cleavage planes as other minerals, but in their fibred case there are two cleavage planes that are much weaker than the third direction and when sufficient force is applied they tend to break along their weakest Directions resulting in linear fragmentation pattern and hence a fibrous form.

## SAND BLASTING EFFECT:

Sand movement with high speed wind can release the asbestos fibers in the air and can be inhaled by surrounded humans, especially if the exposed areas are many and in windy climate like Saudi Arabia and Arab countries .



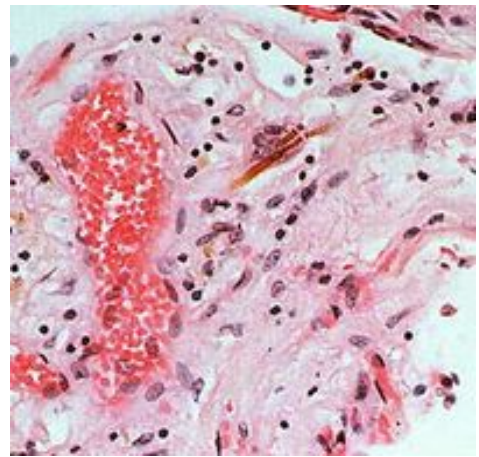
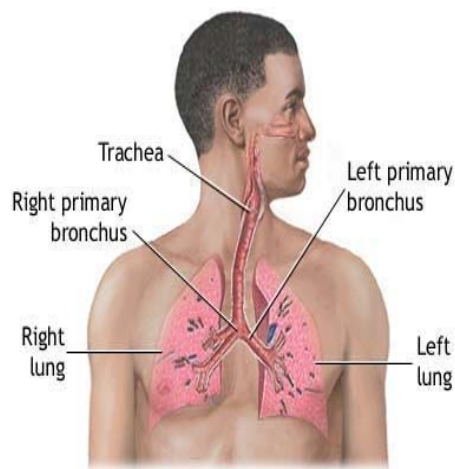


Significant health risk arises from the inhalation of airborne asbestos fibers and their passage into the lungs.

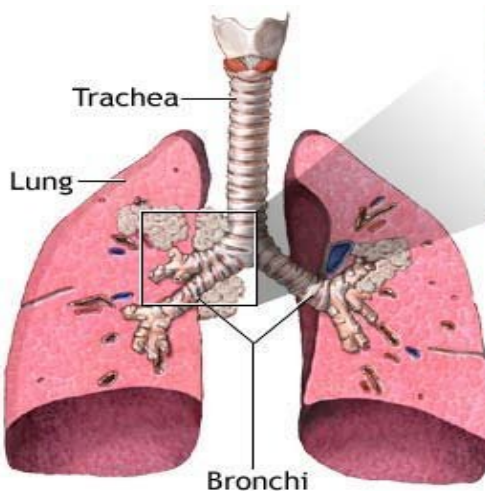
Fibers below 3 micrometers in diameter are repairable and entering the deepest parts of lungs.

Larger fibers are deposited in the nose and major airways, all resulting in dangerous diseases such as:

**1) ASBESTOSIS:** Scarring of lung tissue making it difficult to breathe.



**2) LUNG CANCER:** associated with the inhalation of asbestos fibers.



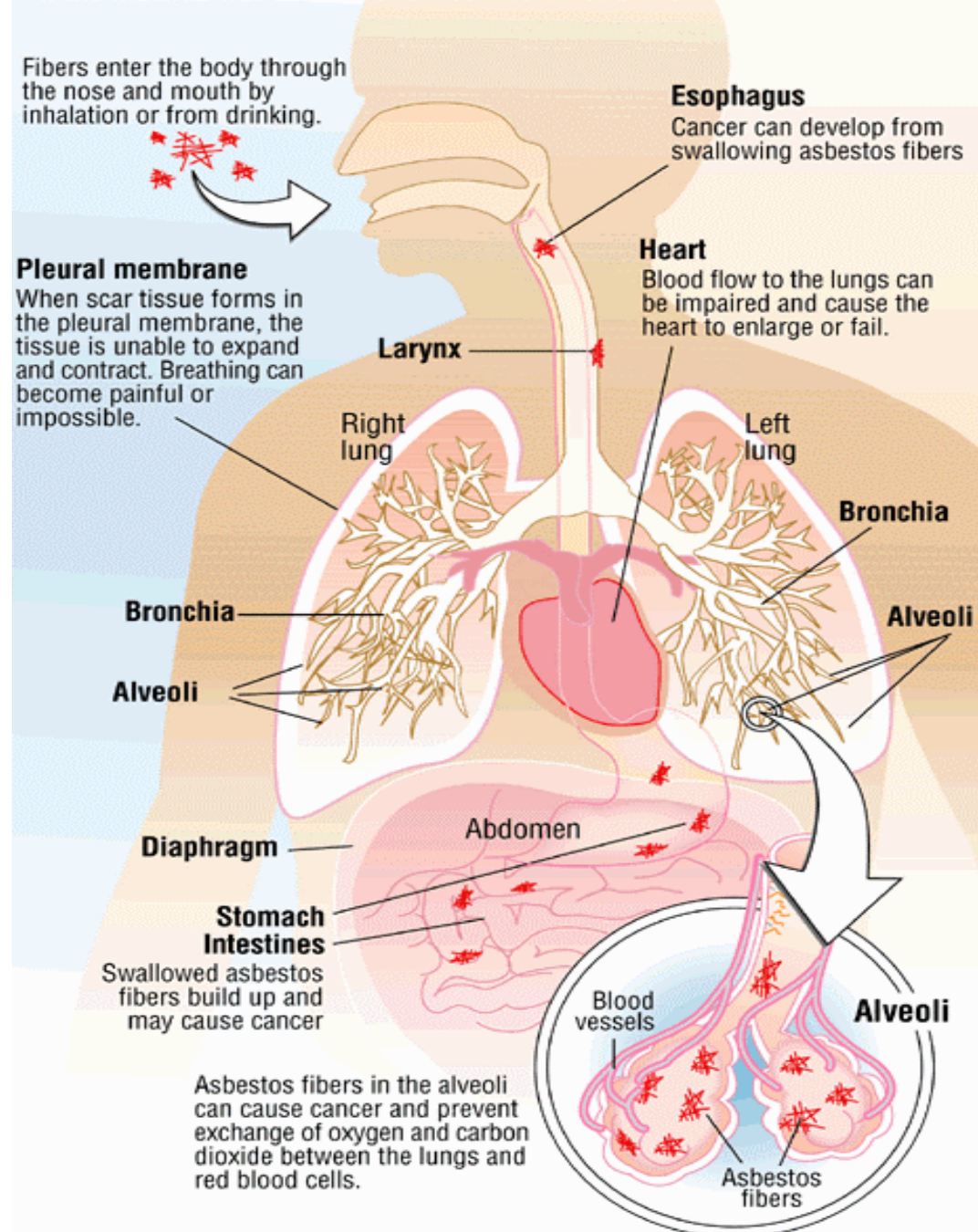
Large cell carcinoma

### 3) MESOTHELIOMA:

It is a cancer of the lining of chest cavity (the pleura) the most common cause of (mesothelioma) is exposure to asbestos.

■ Exposure to asbestos is not an automatic death sentence. Many factors determine health effects and how severe they will be.

**Factors include:** How many fibers entered the body • How long the exposure • If the material was inhaled or consumed in food or drink.



## THE SOLUTION:

**DON'T DISTURB THE ASBESTOS** by removal, disposal and buried in Our environment, this consider to be ( Hazardous solution ) but the Practical and safer solution from our evaluation as BLDGTEC IS “ **ASPESTOS ENCAPSULATION** ” by using our unique NUKOTE COATING SYSTEMS.

**It is well documented that improper removal of asbestos can be far more hazardous than if the asbestos is not removed at all.**



**Definition: “ASPESTOS ENCAPSULATION” is defined as the treatments of asbestos containing materials (ACM) with Certain types of encapsulants that surrounds or embed asbestos fibers.**

Our Research and Development in BLDGTEC find out that it could be Possible to contain and encapsulate asbestos to insure 100% seal with long life, more than 30 years, And with added value to the building such as waterproofing, architectural features and significant support to the structure.

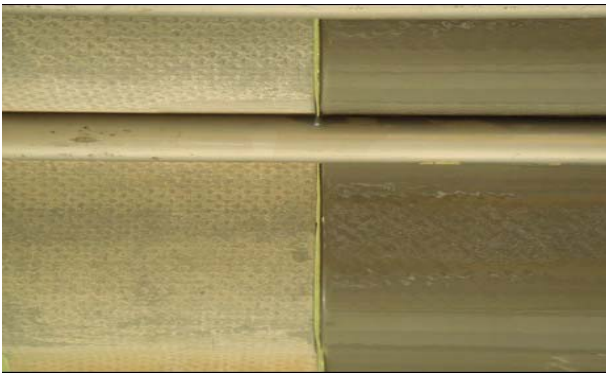
Our System of encapsulation is to use “NUKOTE COATING SYSTEMS” range of products and we recommend “Nukote ST” because it has Very high technical features not comparable with any coating system ever exist.

By applying this unique material of pure polyurea to overcome the problem of asbestos fibers released, we insure 100% asbestos seal.





**NUKOTE ST is comply to ASTM P189 specification for encapsulation of friable asbestos containing materials(ACM) and to the Department of Public Health, specification requirements for asbestos encapsulation code 19a- 332a- 8 .**



### **“NUKOTE ST” TECHNICAL SPECIFICATIONS:**

- Two components pure polyurea with 100% solids.
- Reinforce the physical properties of asbestos.
- UV resistant and has a thermal stability.
- Excellent chemical resistance, e.g., solvents, acids, caustics .etc.
- Excellent corrosion protection.
- Excellent elongation properties up to 430%
- Applied in temperature -30 c to 170 c.
- Fast reactivity and cure time with no catalyst.
- Excellent weathering conditions resistant.
- Has no volatile organic compounds ( zero VOC)
- Environmentally Friendly , it has been approved for use in food processing plants.



## Physical Properties of Nukote ST:

Test Description	Results
Tensile strength	29.99 M Pa
Elongation ASTM D-412	430%
Solid by volume	100%
Volatile Organic Compounds	0 g/l
Mixing Ratio	1A : 1B
Viscosity @ 25 c	A: 689 , B: 650
Fire Rating	Class 2
Accelerated weathering resistant	Excellent, No evidence of Cracking

## Processing Properties:

- Gel Time	10-20 sec.
- Tack free	45 sec.
- Post cure	24 hrs.
- Constant Pressure	2000 psi

## THE TREATMENT :

- 1- All loose and hanging asbestos containing materials shall be adequately wetted and removed.
- 2- Surface to be coated with Nukote System of encapsulation must be clean, sound, and free from laitance e. g., grease, oils...etc.
- 3- Filler materials of non asbestos products will be applied to Gaps and minor cracks must be repaired by using Nukote BF
- 4- Apply a suitable biocide, if necessary, for fungal accumulations and on areas subjected to any organic growth.
- 5- Applications: By using special types of airless spray machines such as manufactured by GlassCraft, Gusmer and Garco.
- 6- Apply first coat of Nukote EP primer of thickness of 60 microns.
- 7- Apply Nukote ST encapsulant, for a thickness of 1mm (1000 microns)

## Warranty:

We as Building Technology guarantee the work of Asbestos Encapsulation by using Nukote ST System for 20 years to 30 years, depend on the stats of the asbestos element condition. This guarantee is applicable on the asbestos elements as free from asbestos and no damage in future unless destroyed by INTENTIONAL ACT.

**LET S SAVE OUR ENVIRONMENT**

