

Introduction:

**Asbestos** (ancient Greek ἄσβεστος asbestos, German: unvergänglich; historically also called mountain flax or amiant) is a collective name for various naturally occurring, fibrous crystallized silicate minerals which, after processing, yield technically usable fibers of different lengths. The fiber of magnesioriebeckite or crocidolite from the hornblende group (also called blue asbestos) is bluish, while the fiber of chrysotile (serpentine group) is white or green. Other minerals belonging to asbestos are grunerite (amosite, brown asbestos), anthophyllite and actinolite. Chrysotile, also called white asbestos, had the widest technical use, largely as a reinforcing fiber in asbestos cement.

Asbestos was also called the "miracle fiber" because it has great strength, is resistant to heat and acid, provides excellent insulation, and the asbestos fibers can be spun into yarns and these woven. With these prerequisites, asbestos has been able to establish itself in the shipyard industry for shipping, in thermal insulation, the construction industry, the car tire industry, and for textiles in the field of occupational safety and filtration. Due to the now clearly established health hazards posed by asbestos, its use is now banned in many countries, including the USA (permitted for certain applications), the EU and Switzerland (since 1990). Today, the focus is mostly on disposal.

(source: Wikipedia)

Basic condition:

asbestos in fiber form



free asbestos fibers

## Carriage of asbestos/asbestos products (incl. waste with asbestos) according to ADR

UN-numbers: UN 2212 and UN 2590, class 9

Applicable special provision: SP 168

Content of SP 168:

"Asbestos which is immersed or fixed in a natural or artificial binder (such as cement, plastics, asphalt, resins or mineral ore) in such a way that no escape of hazardous quantities of respirable asbestos fibres can occur during carriage is not subject to the requirements of ADR. Manufactured articles containing asbestos and not meeting this provision are nevertheless not subject to the requirements of ADR when packed so that no escape of hazardous quantities of respirable asbestos fibres can occur during carriage."

### Assessment of the goods to be transported

In what form is the good?

According to SP 168, a distinction must be made:

First sentence of SP 168:

„Asbestos which is immersed or fixed in a natural or artificial binder (such as cement, plastics, asphalt, resins or mineral ore) in such a way that no escape of hazardous quantities of respirable asbestos fibres can occur during carriage ....“

and/or

second sentence of SP 168:

„Manufactured articles containing asbestos and not meeting this provision ..., when packed so that no escape of hazardous quantities of respirable asbestos fibres can occur during carriage.“

### Interpretation of the first sentence:

The asbestos fibers are firmly bonded to a binder in a commodity and fixed in such a way that no (hazardous) quantities of fibers are released during transport without other external influence.

examples:



asbestos bound in asphalt



insulation boards



corrugated sheets



tubes



component with spayed asbestos

#### Interpretation of the second sentence:

The asbestos fibers are an integral part of a "manufactured article". A manufactured article is the end product of a previous manufacturing process which is or was intended for use, application or consumption. The article is not the individual component(s), base materials, input materials, or additives that were used in its manufacture. As long as an article is not disassembled back into its original manufacturing components, parts of the article are also a manufactured article. If a release of (hazardous) quantities of fibers cannot be ruled out without other external influence during transport, the item must be packed.

examples:



flowerpot



protective clothing



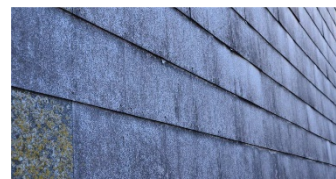
insulation material



corrugated sheets



fireproof material



facade panels



brake/clutch pad



seals



sealing cord

The type of packaging is not described. Possible forms of packaging suitable for practical use are shown here as examples:



big bag



big bag (bag for plates)



foil packaging



container-bag



container-bag



big bags in container

Definition: "hazardous quantities of respirable asbestos fibres" (acc. SP 168)

Neither the SV 168 nor the ADR defines the expression "hazardous quantities". One possibility for a more detailed definition of the expression is (in the area of German regulations) to observe TRGS 519 (Technical Rules for Hazardous Substances, TRGS 519, Title: Asbestos - Demolition, Renovation or Maintenance Work), which under point 2.8 specifies, among other things, an acceptance concentration of  $< 10,000$  fibers/m<sup>3</sup> (air). If this value is not reached, the activity is classified as low exposure and associated low risk.

In relation to the carriage of goods containing asbestos, this value may be suitable as a guide for assessment, particularly in view of the fact that experience has shown that large numbers of fibers are only released from materials if they are mechanically processed (grinding, drilling, cutting, etc.). Under normal transport conditions, therefore, a hazardous release of firmly bound asbestos is reasonably excluded. Consideration must be given to the possible presence of large quantities of dust, which may contain free fibers.



Other cases of practice, here: illegal waste dumping and demolition/construction activities.

Check required whether SP 168 can be applied.

examples:



- no clear material allocation
- construction waste as a mixture of waste
- disposal/transportation must be practicable and be able to be carried out in bulk transport
- application of SP 168 questionable

demolition/renovation/road construction, etc.



- perhaps clear material allocation
- sorting required
- after sorting is perhaps SP 168 applicable

illegal waste dumping



- no clear material allocation
- sorting not possible
- disposal/transportation must be practicable and be able to be carried out in bulk transport
- application of SP 168 questionable

illegal waste dumping

The applicability of SP 168 must be clarified in a practical manner, in particular for the waste management industry, on the basis of the above statements.

(This presentation does not claim to be exhaustive and has been prepared as a basis for discussion and a suggestion for further discussion of the issue).