Hazardous Substances
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x Which strains and pollutants is the lung subject to while working?

x How do possible strains and pollutants affect us?
Aerosols are extremely fine AIRBORNE particles as solid or liquid particles such as dust, fume, mist. Aerosol is the collective term for dispersed solid and liquid particles in gases (suspended matter). Typical examples are components of mist (water drops) or dust (solid particles).

Dust is the collective term for extremely fine solid particles in gases, especially in the air, that result from mechanical processes or have become part of the air because they were raised.

Mist consists of fine drops of liquid (especially water drops) in the air.

Fume are gaseous residues of combustion. Apart from gases and vapours smoke additionally contains solid matter in a very fine shape (often colloidal) such as soot, metal oxide particles or aerosols like drops of oil.
Gases and vapours are gaseous substances. All of them represent a potential risk for human breathing!
Hazardous substances may affect the human organs in many ways. Certain types of hazardous substances affect different organs.

Also solid dust does not only affect the respiratory organs but if it enters the blood via the alveoli it might cause severe damage in the whole organism as do gases and vapours.
Particles are differentiated by size. Depending on their origin the particle size varies extremely and thus their danger and the possible protective measures. If the particle size is below 5 µm we speak about so-called fine dust. These are the airborne particles that can be inhaled by human beings and can reach the lungs. Therefore this range is particularly relevant for respiratory protection.

In order to understand the proportions in size of the different particles you see objects below the scale that correspond to these dimensions. For example the size of a virus compared with a granule is approximately the size of a pea compared with a skyscraper.
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The way into the body – and back out again?

Depending on their size particles find their way into the body via the respiration. All kinds of dust that are inhaled are a potential risk – the most dangerous particles are those of a critical size that are inhaled but not exhaled again.

The bigger the particle, the lower the probability that it is inhaled.

But with very small particles it is also possible that they are exhaled again.

e.g. soot, asbestos, quartz, oil mist are not exhaled even if their diameter is very small.
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Occupational diseases

Especially the lung and other organs that enable human respiration can be damaged.

Typical occupational diseases that can be avoided by proper respiratory protective measures are:

- Respiratory diseases
- Silicosis
- Asbestosis
- Occupational asthma
- Allergies
- Cancer
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