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**Health risks due to nanoparticle exposition
now and in future?**

The Swiss National Accident Insurance, so called Suva is responsible for about 1.9 million workers in Switzerland which means for about 65 % of the working population. Suva is held by law to prevent accidents at work and industrial diseases. For this reason our laboratory carries out measurements of airborne substances at about 200 working places each year. The revealed concentrations of chemical substances then are compared to the Swiss Threshold limit values in order to judge whether the health of workers is in danger or not. Nearly all threshold limit values in Switzerland like elsewhere are based on gravimetric criterias. There is one exception: The Fibres

Why are we involved in the nanoparticle business?

We would like to know if there are already industrial diseases due to nanoparticle exposition now and what the risks are in the future. If we find such diseases we need threshold limit values to prevent them and those limit values, very likely will be based on the number of nanoparticles and not on their weight. First of all we need a nanoparticle definition we of course have to know more about the toxicologic impact and finally we have to know at which sites we can find the nanoparticles in dangerous concentrations.

To have a co-ordination in facing the quite complex questions at the level of national occupational safety and health organisations the following institutions agreed to a definition of what a nanoparticle is. I would like to inform you today about the content of this paper which will be published later.

Nanoparticles : Approach to characterize and eliminate

Why are we concerned?

Industrial diseases?

**Which particles/
concentration?**

Definition

Where do we find them?

Tunnel sites !

Welding shops?

Ceramic Industry?

Foundries?

.... ?

Definition:

Paper

Germany	:	BIA, IGF Frauenhofer Institut GSF DFG
Austria	:	AUVA/ÖSBS
Sweden	:	AI
Slovenia	:	VTVS
Switzerland	:	suva

Definition:

Size range:

**5/10 - 200 nm mobility diameter
(Particleclassification !)**

Max. concentration level to detect:

10^8 [particles/cm³]

Particle state:

solid <-----> liquid

solubility of solid particles

surface

Definition:

Questions:

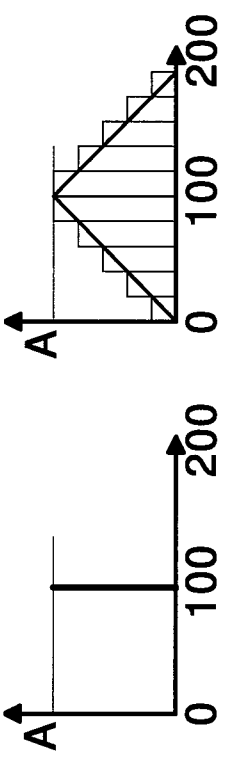
Behaviour of aggregates in the lung

agglomerates <--> aggregates
e.g. sinter products "v.d. Waal"

**What about nanoparticles adsorbed
at bigger particles**

**What about nanoparticles sus-
pended in respirable droplets**

Definition: (Concentration)

TLV (CH)	
	
	A: [# /cm ³]
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DME (TC)	2 · 10⁵
Al₂O₃	3 · 10⁶
TiO₂	3 · 10⁶
Mn (MnO₂...)	2 · 10⁵
Quarz	10⁵
	10⁴-10⁵
	10⁵-10⁶
	10⁵-10⁶
	10⁴-10⁵
	10⁴-10⁵