

Nanotechnology and other risks

PET Course – Risk Communication
12th of October 2010



Marga Jacobs

m.jacobs@leefmilieu.nl

www.leefmilieu.nl

Programme

- Introducing Leefmilieu
(Human Environment)
- Nanotechnology
- Uncertainty about risks
- Nanotechnology project of Leefmilieu
- Conclusions and suggestions

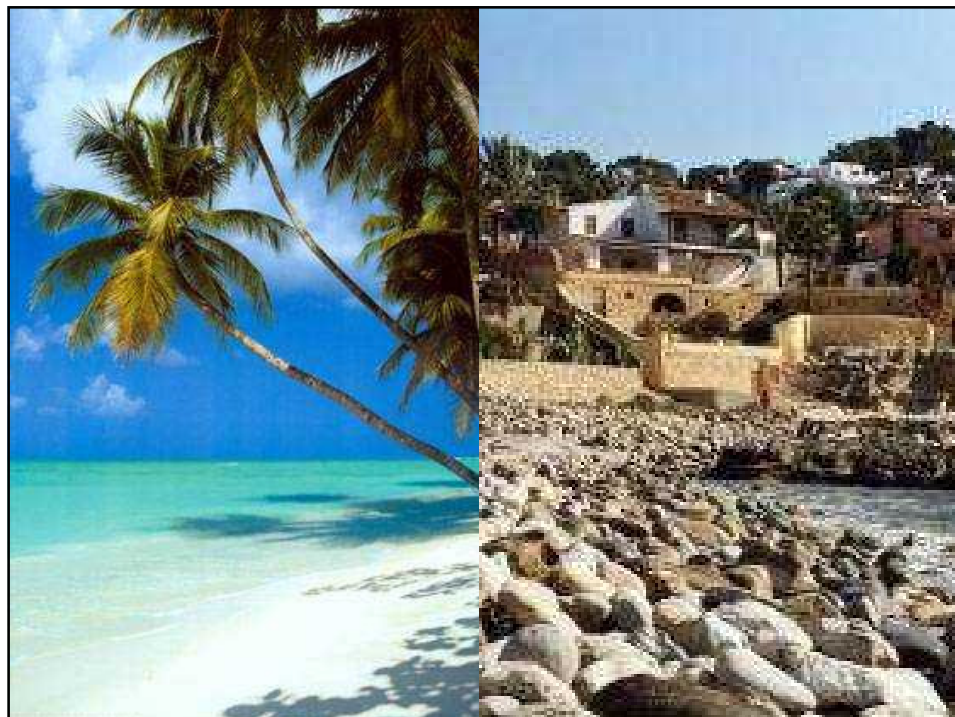
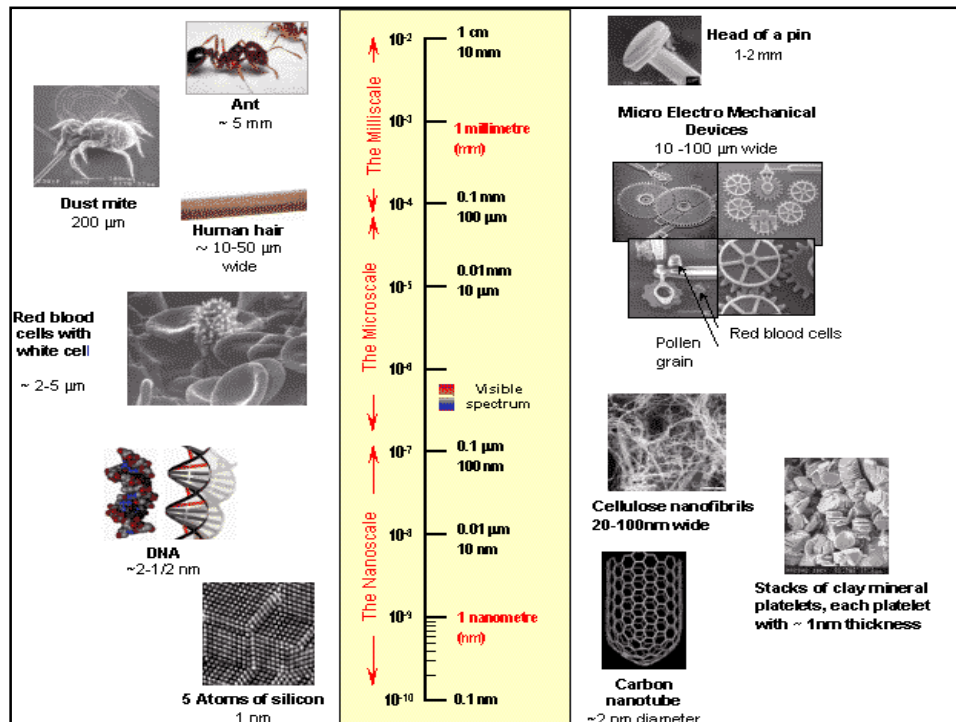


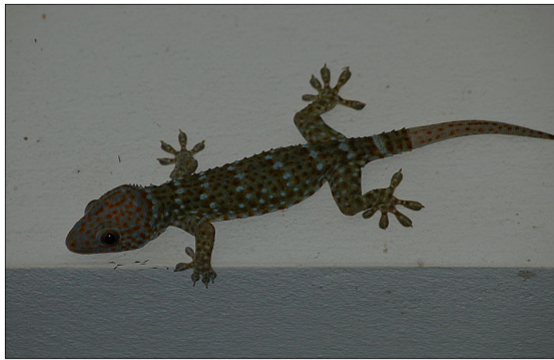
Vereniging Leefmilieu

- Environmental NGO
- Small, staff of volunteers of whom 5 are paid part time
- Working on environmental issues that need expert knowledge
- Supporting local community groups
- Issues: permits of companies, public participation, air pollution, right to know and nanotechnology

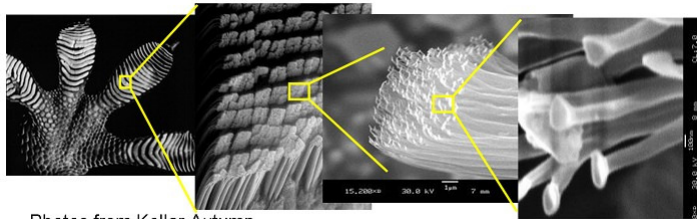
Introduction on nanotechnologie

- What are nano particles? (nano = 10^{-9})
 - At least in one dimension < 300 nm
 - ‘Non-manufactured’ unintended: e.g. PM 0.1 air pollution (ultra fine dust)
 - ‘Manufactured’
 - E.g. carbon black in tyres and toner
 - E.g. medicines and ipods
- Risks
- Applications



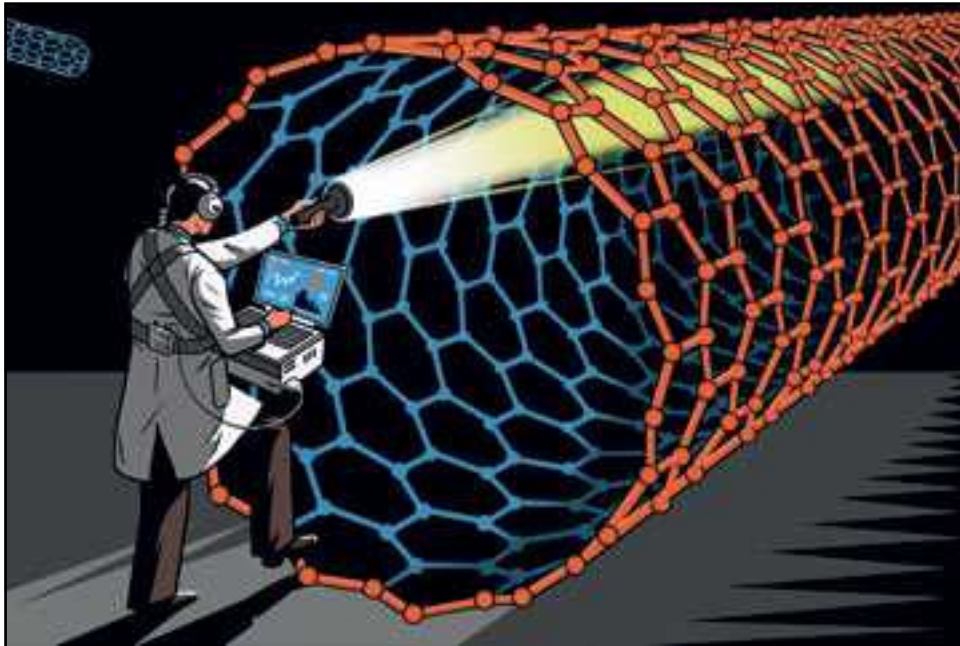


Monique 2007



Photos from Kellar Autumn





About risks still a lot is unknown

Gezondheidsraad - Mozilla Firefox

Bestand Bewerken Beeld Geschiedenis Bladvijzers Extra Help

http://www.gr.nl/samenvatting.php?ID=1340

Aan de slag Laatste nieuws

Publicaties Commissies Gezondheidsraad

Health Council of the Netherlands wrote in a report on nanotechnology in 2006

The very properties that make nanoparticles so interesting from a technological perspective, such as their high degree of reactivity and ability to cross barriers, could also make them hazardous to people and to the environment.

eigenschappen van nanomaterialen te bestuderen en te exploiteren.

De fysicus Feynman voorzag in 1959 als eerste de mogelijkheden die het

Klaar

Gezondheidsraad - Mozilla Firefox

Bestand Bewerken Beeld Geschiedenis Bladvijzers Extra Help

http://www.gr.nl/samenvatting.php?ID=1340

Aan de slag Laatste nieuws

Publicaties Commissies Gezondheidsraad

G

Snel zoeken

Zoek

Homepage

Publicaties

Nieuwsarchief

Nieuwsbrief

Uitgebreid zoeken

Disclaimer

Betekenis van nanotechnologieën voor de gezondheid

Health Council of the Netherlands wrote also

For the time being, the individuals at the greatest risk are those who work with these particles in various research centres. However, this situation may change when more products containing such particles start to appear on the market. For this reason, it is appropriate to focus on the toxicological risks associated with nanomaterials.

De tyficus-eynman voorzag in 1909 als eerste de mogelijkheden die het

Klaar

Diameter and surface

Table 2. Particle number and particle surface area per 10 $\mu\text{g}/\text{m}^3$ airborne particles.

Particle diameter (nm)	Particle no. (cm^{-3})	Particle surface area ($\mu\text{m}^2/\text{cm}^3$)
5	153,000,000	12,000
20	2,400,000	3,016
250	1,200	240
5,000	0.15	12



Applications

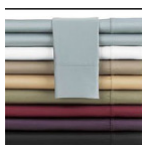
- Nanotechnology is used in all type of consumerproducts





Applications

- Do we know is which products?
- How do we know?



Sheets



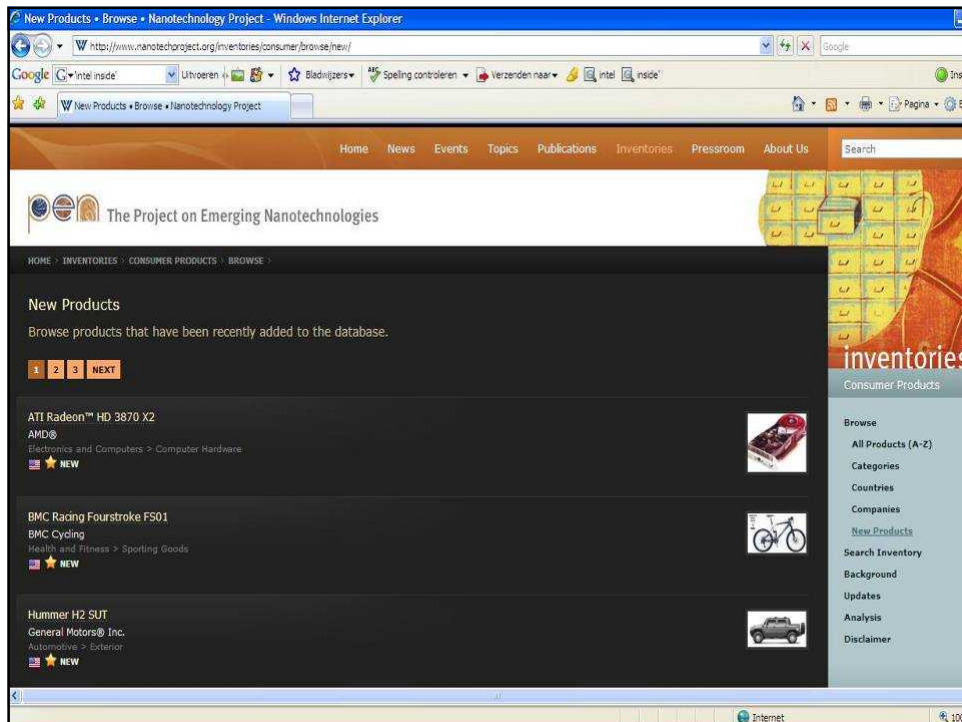
Acnel lotion



Wound
dressing



Air purifier



Activities of Leefmilieu

Project: Nanoparticles and their unknown effects on health and environment

- Capacity building
- Workshops on nanotechnology
- Students reporting from the literature on nanoproducts (nanosilver, ceriumoxide and titaniumoxide)
- Public debate
- Contribute to national policies (risks and standards)

Conclusions till now (1)

- Risks of nanotechnology are mostly debated between experts
- Experts do not agree, not even about the basic assumptions
- Regulation is not in place
- Lack of standardization

Conclusions till now (2)

- There is a certain fear to enter a risk discussion in society
- Interests of companies and research play an important role

Our suggestions

- Policy with more precaution
- Research health and environment risks
- Analyse the costs and the benefits of new products
- No data, no market
- Make enforcement by inspectors possible