“Small and smarter electronics, big impact: the importance of micro- and nanoelectronics in our digital economy and society”
European Economic and Social Committee, 12 November 2014.
Brussels

NANOMATERIALS:
WHAT ARE THE ISSUES FOR WORKERS?

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Section 1. Concerns with working with nanomaterials

Section 2. OSH issues

Section 3. Key messages: What do workers need at the workplace?
SECTION 1
Concerns with working with nanomaterials
EC definition

A nanomaterial is any material with any external dimension in the nanoscale.

Size range from: 1nm to 100nm approx.
EXPOSURE THROUGH ALL LIFE CYCLE

- Synthesis
- Production
- Transportation
- Use
- Waste

ALL INDUSTRIAL SECTORS
Example of product and exposure to humans:

**Staubsauger Daewoo RC-4006B**

Daewoo Home and Garden, Cleaning / Turkey

**NanoRiskCat**

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<th>Exposure</th>
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**Image Reference**

- Data: Exposure Profile: Staubsauger Daewoo RC-4006B
- Data: Safety Profile: Silver

**Manufacturer’s description**

Staubsauger - 1600 W maximale Leistung - HEPA S-CLASS Filter - abwaschbare Nano-Silber-Box 4 Liter

www.guenstiger.de/gt-preisvergleich/Haushaltselektronik_Daewoo_RC_4006B.htm
Example on nanoelectronics: No data
Routes of exposure:
1. Inhalation
2. Ingestion
3. Dermal

NPs interaction with biological system:
- Deposition in organs
- Translocation
- Bioaccumulation
- Fiber Paradigm
Scientific literature shows very little safety practices:


There are concerns that available information about nanomaterials is not sufficient to guarantee its safe use.
SECTION 2
OSH ISSUES
1. Health effects in humans are unknown

Translocation into the body and all systemic effects are possible.

• Pulmonary inflammation, gastrointestinal absorption of nanoparticles (TiO2 – Nano Ag)
• Oxidative stress
• Genotoxicity
• Carcinogenicity

2. So, there is a need to identify the processes in which workers are in contact with nanomaterials.

Who is exposed to what?

Who does what?
3. There is a need to identify the possible risks:

Workers need a good understanding of nanomaterials to understand the benefits and risks. Therefore participation by workers in setting the appropriate prevention measures is a key factor.
4. Information that guarantees the **safe use** is needed:

1. Safety Data Sheets with nano-specific information. (Nanomaterials need to be registered in ECHA)

2. Employers need to provide specific training on how to handle nanomaterials.

3. Workers need to be involved on risk assessment.
SECTION 3
KEY MESSAGES:
WHAT DO WORKERS NEED AT THE WORKPLACE?
1. Difference bulk vs. nanomaterial

There remains many unknowns about the appropriate handling and health effects of nanomaterials.

**Nanomaterials should be handled differently to traditional materials.**
2. Workers are in contact with nanomaterials

Register the exposure

Who is exposed to what?

Who does what?
3. Information on Safety Data Sheets

Verify that SDS contain enough information.

Request employers to produce or make available a complete, useful and consistent SDS.
4. If exposure: introduce medical surveillance

Long term non-specific examinations during and after the work life.

Track exposure and detect possible patterns & diseases.

Useful for epidemiological studies.
5. ‘No data, no market’

When no data on hazards is available, workers must not be exposed and processes have to be performed in closed systems.
Our trade union actions

Organization of trainings and information sessions

Examination of work places

Awareness campaign of politicians for the building of a national register (collaboration with NGO’s)

Knowledge sharing within international trade union network
Thank you.

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