

'The Risk Governance of Nanotechnology:  
Recommendations for Managing a Global Issue'

6<sup>th</sup> and 7<sup>th</sup> July 2006, Zurich

Session 3: Frame 2

“We must be responsible custodians of this exciting branch of science and ensure a fair framework that enables the EU to compete effectively on the world stage.”

Source - ENTA

**Del Stark**

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# ENTA established to..

- n Allow industry the opportunity to invest in an integrated programme aimed at promoting the benefits of nanotechnology and mitigating regulatory and reputational risk for the whole industry
- n Membership of a trade body that interfaces with the public, the media, government and bodies actively involved in determining regulatory framework
- n Ensure new nanotechnologies are developed in a safe and responsible manner

[www.euronanotrade.com](http://www.euronanotrade.com)



# ENTA Members include...

- n ICI
- n P&G
- n Unilever
- n nextnano<sup>3</sup>
- n PsiMedica
- n Thomas Swan & Co
- n QinetiQ Nanomaterials
- n Cenamps
- n NanoCover
- n Innos
- n Solvay Infra Bad Hönningen GmbH
- n Hyperion Catalysis International
- n ABB
- n NanoCover Danmark A/S
- n Sulzer Innotec
- n Toshiba Research Europe Ltd
- n Institute of Occupational Medicine
- n Kelvin Institute
- n Capsulation Nanosciences
- n Shell Technology Ventures
- n AQUANOVA

# [ Industry 1 ]

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- n Industry is already working closely with groups like the Department for Environment, Food and Rural Affairs (DEFRA) sharing not only analytical data, but information on manufacturing processes, environmental fate and toxicology. ENTA members are fully committed to cooperation so to help DEFRA shape any future evidence based policy decisions.
- n ENTA members such as PsiMedica who develop nanoporous silicon for drug delivery, Thomas Swan who manufacture single walled nanotubes for energy storage applications and QinetiQ Nanomaterials who are studying how to combat bird flu with nanoparticles are making new innovative products and devices which have the potential to greatly benefit society. They are all taking considerable care to ensure that these activities are managed and monitored in a responsible way.

# [ Industry 2 ]

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- n It is true that some sunscreen products contain nano-sized mineral pigments such as titanium dioxide which filters UV more efficiently than micro-sized pigments. Studies by industrial producers and users, independent academic scientists, as well as the US and the EU health authorities, concluded that nano-sized mineral UV filters do not penetrate through stratum corneum and therefore pose no local or systemic health risk. A number of studies have found that there is no evidence that cosmetic nanomaterials penetrate into or through compromised skin.
- n ENTA members are working hard to provide consumers with safe and exciting products that are beneficial and meet societal needs and they ensure new nanotechnologies are developed in a safe and responsible manner.
- n In conclusion, ENTA represents nanotechnology businesses across Europe and governments should support nanotechnology research and development and recognise the business and societal benefits. Nanotechnology regulation frameworks should not stifle innovation.

# [ Industry 3 ]

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- n Kemira Pigments Oy are now working on communicating its extensive safety work already conducted by the industry. The main issue will be providing the right information to the FDA, to its customers and evidently to the final consumers, which may be alarmed by the publicity of recent activists which make provocative and untrue statements.
- n Kemira Pigments Oy are very willing to answer any questions regarding its products' safety and regulatory status.

*Katriina Heikkilä*  
Product Safety Manager

# [ Question 1 ]

- n Does the separation of potential risks into two frames of reference provide a viable and useful reflection of the current situation? Do you have any suggestions for improvement?
  - i Nowhere was the term benefit mentioned in table 1 - we need to weigh up benefits vs risk on a case by case basis and make decisions on the merits of each case
  - i If nanotechnology is “to penetrate and permeate nearly all sectors and spheres of life” as stated in the white paper, governments should support nanotechnology research and development and recognise the business and societal benefits
  - i Terms like “unstable” are used – this could cause alarm without any substantiated proof or evidence – all stakeholders should be looking to build confidence as Frame 2 2<sup>nd</sup> 3<sup>rd</sup> and 4<sup>th</sup> generation products could lead to huge benefits for society remembering...
  - i Ten Applications of Nanotechnology for Developing Countries and the UN Millennium Development Goals:
    - i Novel Energy Storage – Nanotubes/fuel cells
    - i Agricultural productivity enhancement – nano encapsulation of nutrients for soil
    - i Water treatment and remediation – nanomembranes
    - i Disease diagnosis and screening – nanosensors
    - i Drug delivery systems – nanocapsules
    - i Food processing and storage - Nanocomposites for food packaging
    - i Air pollution and remediation - Nanocatalysts
    - i Construction - Nanomaterials for cheaper and durable housing
    - i Health monitoring – nanosensors
    - i Pest controls – nanosensors and nanoparticles for new insecticides

# [ Question 2 ]

- n What is your opinion of the risk management and communication recommendations identified by IRGC for Frame 2 nanostructures? How can they be improved? Do you have any additional recommendations? Debates lead to emotive discussion and are not always based on evidence and fact.
  
- n **FACT:**
  - i All chemicals require documents called Material Safety Data Sheets which describe the known hazards associated with a material, indicating safe handling procedures and recommending responses to accidents and thus are invaluable sources of safety information. They are prepared by the **chemical suppliers** and
    - i classify the hazards of the chemicals
    - i provide information in the form of labels
    - i package the chemicals safely
  
- n It's all down to providing facts and evidence and making appropriate data interpretation...

Material x – Incompatible with reactive metals

Flush with water in case of skin contact as contact may cause dermatitis

Ingestion can cause gastric distress and diarrhea

Inhalation: *Remove to fresh air; Provide artificial respiration; Provide oxygen*

Rapid temperature rise can result in explosive vaporization, particularly if in a sealed container

# [ Question 3 ]

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- n In your opinion, which Frame 2 recommendations are the most critical and which are the most important? Who should take the lead in developing and implementing these critical risk management strategies?
- n Common rules and standards:
  - i Any new policy must provide a fair framework that enables the EU to compete effectively on the world stage
  - i Policy must assist with the harmonization of environmental, health, and safety issues related to nanomaterials and these must be evidence based
- n Periodic review of national and international institutional frameworks to determine bottlenecks of commercialization
- n Scenario development exercises to assist investors in gauging the market
- n Communication platforms that allow industry to positively engage with stakeholder dialogue and the general public
- n This could be government led with industry support and guidance

# [ Question 4 ]

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- n In your opinion, how should the most relevant recommendations be implemented? Who would need to initiate what kind of actions at what time?
- n Continued stakeholder dialogue on a pan-European level to share best practice possibly initiated through FP7 projects
  - i Thus initiating unbiased, evidence based analytical research conducted jointly between leading industrial and academic scientists which could potentially be used for any future policy decisions.

# Moving forward: reaping the rewards and all the benefits

## n Policy Makers Note:

- i Any new policy must provide a fair framework that enables the EU to compete effectively on the world stage
- i Policy must assist with the harmonization of environmental, health, and safety issues related to nanomaterials and must be evidence based
- i ENTA will be here to give the industry perspective while:
  - n *promoting the benefits of nanotechnology*
  - n *mitigating regulatory and reputational risk for the whole industry*
  - n *supporting all actions that ensure new nanotechnologies are developed in a safe and responsible manner*
  - n *supporting innovation*

## n Industry:

- n The coming months will be a vital period in shaping the future development and application of nanotechnologies...

**It's an excellent time to invest in ENTA.**