

Environmental Effects of Nanoparticles and Nanomaterials.
Organised by Richard Handy (SETAC-UK & The Society for Experimental Biology) and Richard Owen (Environment Agency UK).

Monday 18th September 2006

09.30-10.30 Registration/coffee

10.30 – 10.40 Opening remarks, background and workshop objectives (Richard Handy & Richard Owen)

Session 1: Exposure: Environmental Fate and Behaviour of Engineered Nanoparticles (Chairs: Jamie Lead & Clive K. Thompson)	
10.40	Keynote Dr Jamie Lead (University of Birmingham) Fate and behaviour of manufactured nanoparticles in aquatic systems [1.1]
11.10	M. Hassellöv and B. Stolpe (Göteborg University) Natural and Anthropogenic Nanoparticle Carrier Phases for Trace Elements in Aquatic Environments as studied by Flow Field-Flow Fractionation coupled to ICPMS. [1.2]
11.30	F.V.D. Kammer (Vienna University) Field-flow fractionation multi-detection analysis for the characterisation of size, shape and element association of natural and engineered nanophases. [1.3]
11.50	A. L. Manciulea and J. Lead (University of Birmingham) Interactions of natural and manufactured nanoparticles in aquatic systems [1.4]
12.00	M. Balousha, A. L. Manciulea, and J. Lead (University of Birmingham) Interaction of engineered nanoparticles (iron hydroxide) with humic substances [1.5]
12.10	R.C. Thompson, M. A. Browne, E. Teuten, S. J. Rowland and T. S. Galloway (Plymouth University) From plastic bags to plastic nanoparticles? [1.6]
12.20	Lunch & Poster viewing
Session 2: Hazard: Effects of engineered nanoparticles on organisms in the environment (Chairs: Richard Handy & Richard Owen)	
13.45	Keynote speaker Dr Andrew Neal (University of Georgia) Bioavailability, toxicity and trophic transfer of manufactured ZnO nanoparticles [2.1]
14.15	R. F. Rasmussen, S. N. Sørensen, G. Petersen, and A. Baun (NanoDTU, Technical University of Denmark and DHI Water & Environment, Denmark) Toxicity and uptake of xenobiotic organic compounds in the presence of C ₆₀ nanoparticles [2.2]
14.35	M. N. Moore, J. A. J. Readman, J. W. Readman, D. M. Lowe, P. E. Frickers, and A. Beesley (Plymouth Marine Laboratory). Cytotoxicity of carbon nanoparticles in cells of the molluscan immune system [2.3]
14.55	W. Peijnenburg, I. Velzeboer, H. Van Leeuwen, and D. Van De Meent (National Institute of Public Health and the Environment, Bilthoven, and The University Nijmegen). Initial studies on the fate and effects of nanoparticles in the environment [2.4]
15.05	T. F. Fernandes, P. Rosenkranz, A. T. Ford, Q. Chaudhry, and V. Stone (Napier University, Edinburgh and CSL York). Assessing the uptake, fate and effects of nanoparticles in aquatic test organisms [2.5]
15.15	<i>Coffee break</i>
15.45	G. Federici, C. J. Smith, B. J. Shaw and R. D. Handy (Plymouth University)

	Toxic effects of titanium dioxide nanoparticles to rainbow trout. [2.6]
15.55	K-E, Tollefsen, I. K. Gregersen, and K. V. Thomas (NIVA, Norwegian Institute for Water Research, Oslo) Toxicity of engineered nanoparticles to a fish in vitro bioassay [2.7]
16.05	S. W. Feist, I. Katsiadaki, M. B. Sanders, M. Sebire, B. P. Lyons, D. A. Sheahan and P. Christian. (CEFAS & University of Manchester) Experimental exposure of sticklebacks (<i>Gasterosteus aculeatus</i>) to cadmium sulfide nanoparticles: exposure regime and initial findings [2.8]
16.15	Open Forum Discussion on Day 1: Facilitated by Lucy Parnall (UK Natural Environment Research Council). Priority Research needs for understanding exposure and hazard of engineered nanoparticles.
17.00	End of day 1 session
19.30	<i>for conference dinner (20.00 hrs) at Strand Palace Hotel (all delegates)</i>

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Tuesday 19th September 2006

9.45-10.30 Registration desk open/coffee/posters

Session 3: Research Programmes and Opportunities. Chair John Garrod (Defra)	
10.30	Keynote Speaker Dr Stephen Lingle (US EPA) Nanotechnology research at the US Environmental Protection Agency [3.1]
11.00	R. Owen (Environment Agency, UK) The UK Environmental Nanosciences Initiative [3.2]
11.15	J. Johnstone (National Physics Laboratory, UK) EU Framework Programme projects and potential opportunities [3.3]
11.30	Speaker from the EU Joint Research Centre to be confirmed [3.4]
Session 4: Risk Management and Risk Communication (Chairs: Richard Handy & Richard Owen)	
11.50	Keynote Speaker Dr Liz Surkovic (Head of Nanotechnologies - UK Government Department of Environment, Food and Rural Affairs). A UK approach to control of nanotechnologies [4.1]
12.10	Professor Greg Tegart (Victoria University, Melbourne) An Australian viewpoint on environmental issues in nanotechnologies [4.2]
12.30	Lunch and Posters
13.40	S. F. Hansen, A. Baun, E. Michelson, D. Rejeski (NanoDTU, Technical University of Denmark and Woodrow Wilson International Center for Scholars, Washington DC.)

	Categorizing commercially available nanoproducts in a risk management perspective [4.3]
14.00	A. Franco, S. F. Hansen, S. I. Olsen, A. Baun, and L. Butti (NanoDTU, Technical University of Denmark and Dipartimento IMAGE, University of Padua) Mapping the gaps in regulation of nanotechnology in a life cycle perspective [4.4]
14.20	Q. Chaudhry, A. Boxall and R. Aitken (CSL York, University of York, Institute of Occupational Medicine, Edinburgh) Developments in nanotechnologies and adequacy of current regulatory frameworks [4.5]
14.30	A. Alba Pérez and R. Landsiedel (BASF, Germany) Improving Ultradur® eco-efficiency using nanotechnology innovation [4.6]
14.40	Plenary Discussion: (Chairs Professor Mike Depledge, Plymouth Marine Laboratory, UK, Richard Handy and Richard Owen) open forum discussion, results from discussions on Day 1 & 2, and gap analysis.
15.30	Closing Remarks, coffee and posters
16.00	END
	<i>(Conference team to pack up and clear venue by 5pm)</i>

Posters

P1- Imaging and sizing of engineered nanoparticles by Atomic Force Microscopy.

Tiede, K., Boxall, A. B. A., Tear, S., and David, H. (CSL/University of York and Unilever Colworth).

P2- Imaging and characterising of engineered nanoparticles in environmental matrices by WetSEMTM/EDS.

Tiede, K., Boxall, A. B. A., Tear, S., and David, H. (CSL/University of York and Unilever Colworth).

P3- SANS studies of natural aquatic colloids.

King, S. M., and Jarvie, H. P. (Rutherford Appleton Laboratory, Chilton, and Centre for Ecology & Hydrology, Wallingford)

P4- Biototoxicity of zinc oxide nanoparticles on *Escherichia coli*

Siron, V., Ferrari-Iliou, R., Brayner, R., Menguy, N., Fiévet, F., and Benedetti, M. F. (Université Denis Diderot Paris 7 & Institut de Physique du Globe de Paris, Institut de Minéralogie et de Physique de la Matière Condensée & Institut de Physique du Globe de Paris).

P5- Toxicity of nanoparticles to *Daphnia magna*: The importance of choosing and preparing the test medium.

Wiench, K., Jatzek, J., Landsiedel, R., Ma-Hock, L., Radke, K. and Zok, S. (BASF, Ludwigshafen, Germany).

P6- Human exposure to engineered nanoparticles: a conceptual model.

Zuin, S., Micheletti, C., Pizzol, L., Lojana, G., Tran, L., Marcomini, A. (Venice Research Consortium, University Ca' Foscari of Venice, and Institute of Occupational Medicine, Edinburgh).

P7- Toxic metal ion absorption using thiol & amine functionalised mesoporous silica.

Burke, A. M., Hanrahan, J. P., Holmes, J. D. and Morris, M. A. (University College Cork).

P8- Nanopollution: How to gain knowledge on behaviour and pathways of engineered nanoparticles in the aquatic environment?

Kammer, F.V.D., and Hassellöv, M. (Vienna University and Göteborg University)

P9- The toxicological effects of single walled carbon nanotubes in rainbow trout (*Oncorhynchus mykiss*).

Smith, C. J., Federici, G., Shaw, B. J., and Handy, R. D. (University of Plymouth).

P10- Nanoparticles – a new challenge in aquatic ecotoxicology

Scown, T., van Aerle, R., and Tyler, C.R. (University of Exeter)

P11- Toxicity of nanoparticles to earthworms.

Scott-Fordsmand, J. J., Krogh, P.H., Johansen, A., Schaefer, M. (National Environmental Research Institute, Vejlsøvej, and UFT, University of Bremen)

P12- Modern Methods and Model Systems for Nanotoxicology

Dozier, S. K. (People for the Ethical Treatment of Animals, Norfolk, VA, USA)