

### EDITORIAL ECETOC ENGAGES IN EMERGING FIELD OF NANOMATERIALS TECHNOLOGY

Nanotechnology is an emerging science with the promise to generate new materials and products with many potential scientific and business applications. Large R&D budgets are being allocated to this area and a number of international research projects are ongoing. The expectation is that nanotechnology will offer an opportunity to improve the competitiveness of the chemical and related industries. Today, we are already encountering diverse applications of nanotechnology in industrial and downstream products and pharmaceuticals.

Member companies have posed the Scientific Committee with the request that ECETOC address the issue by focussing on health and environmental impacts of nanomaterials and related products on manufacturers and users. In response, ECETOC commissioned a review to evaluate the available data on nanoparticles with regard to occupational and consumer exposure, toxicological and environmental effects. An ECETOC task force provided input from the perspective of the industry developing nanomaterial products. The review is intended for publication in the online journal 'Particle Fibre and Technology' as the opinion of the external panel of commissioned experts in toxicology and ecotoxicology.

In order to hold a wider debate with organisations and experts outside the industry, (i.e. academia, regulators, non-governmental organisations) ECETOC held a workshop in November 2005 in Barcelona, Spain. Seventy-five experts came together for three days to discuss human and environmental safety testing aspects and the implications on society of this emerging technology.

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The evaluation of potential hazards of nanotechnology and its products is an emerging field of (eco)toxicology and risk assessment. The development of a safety database is evolving as new particles, materials and exposure assessment methodologies are being developed. Although similar in size, engineered nanoscale materials may have different health impacts when compared with combustion-generated and other ultrafine particles. Thus the question arises as to whether nanoparticle toxicity can be extrapolated from existing toxicology databases for macro- and micro-scale particle types and fibres.

Building on this, the first part of the workshop addressed testing strategies to establish the safety of nanomaterials. Three major issues were debated in plenary and in breakout groups:

- Nanomaterial characterisation;
- Exposure, both airborne and internal (particle deposition in lungs and on skin); and
- Assessment of hazard potential.

The participants agreed on elements of a minimum physico-chemical characterisation of nanomaterials for safety testing. Various exposure assessment methods and exposure routes were reviewed.

A general tiered testing approach was proposed. It should begin with screening tests for prioritisation that include an *in vitro* screening about reactivity (markers of inflammation) and testing of cellular uptake. Two tiers of *in vivo* type studies were proposed for hazard identification in case of pulmonary exposure. These involve short- and long-term inhalation studies.

For dermal exposure several skin exposure tests were reviewed, but their application will depend on the material in question and its potential application.

An increase in the use of nanotechnology has also brought about an enhanced societal awareness. The second part of the workshop, sponsored by the Cefic\*-funded Long-range Research Initiative (LRI) Programme, focused on this and on key societal factors that were likely to affect the future acceptance and commercialisation of nanomaterials. Conditions of opposition to or rejection by society of technological innovations were compared to conditions of acceptance and legitimisation.

(continued on page 2...)

### SG CORNER



#### WHO-ECETOC

##### Strategic Partnership

ECETOC has had an official relationship with the World Health Organisation (WHO) since 1996 in the capacity of a recognised NGO (Non-Governmental Organisation).

In April 2005, we were requested to provide a dossier on the activities of ECETOC during the period since the last review in early 2003 at which our extension of NGO status had been confirmed. A substantial dossier documenting collaborative interactions between the two organisations, particularly with the International Programme on Chemical Safety (IPCS) and the International Agency for Cancer Research (IARC), was compiled within the Secretariat with particular assistance from Chris Money of ExxonMobil. The contributions of the many other industry scientists who were involved over that time period is much appreciated.

This dossier was reviewed by the Standing Committee on Non-Governmental Organisations and their recommendations were presented to the 117th WHO Executive Board of WHO on 27th January 2006. I accepted WHO's invitation to attend the meeting at which I had the pleasure to introduce ECETOC to the Director General of WHO, Dr. Lee Jong-wook in person and to learn first-hand that our official relationship had been confirmed and extended.

#### Tom Feijtel Memorial Fund

Following a recommendation from the Scientific Committee to our Board, I am pleased to inform you that ECETOC will make a donation to the Tom Feijtel Memorial Fund.

Tom was an integral and dedicated member of the ECETOC Scientific Committee until his unfortunate death last September. The Memorial Fund will invest in the two ideas that Tom believed in most, the value of science to society and the importance of education. The donation will be an initial amount in 2006 followed by further annual contributions for the period from 2007 until at least 2011.

#### A Goodbye

And finally, for those of our readers who are not aware, I will retire from Dow Europe on 31st May and will therefore also conclude my secondment as Secretary General to ECETOC. It has been a very enjoyable 3 years. I thank the ECETOC Members and the many scientific experts who have contributed during this period. I wish the organisation continued success in the future.

Dr. Michael Y. Gribble  
ECETOC Secretary General

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The use of an ECETOC forum to address societal issues related to the safety of a new technology was a first.

The lively discussions that followed a series of plenary presentations by social scientists confirmed that this issue was timely, topical and contributed to the success of the whole workshop.

The outcome of the discussions indicated the relevance of risk perception, risk communication and risk management to the future of nanomaterials. It is important to maintain an ongoing dialogue with the public on nanotechnology in order to gauge their opinion and, in turn, to keep them informed of the main science issues.

## ECETOC and EEMS to co-organise two Symposia

ECETOC and EEMS, the European Environmental Mutagen Society are co-organising two Symposia to be held during the 2006 EEMS Annual Meeting on Monday 3rd July in Prague.

The Symposia are entitled:

- Molecular epidemiology: New knowledge from biomarkers of effects, and
- Biomarkers for the evaluation of children's health.

A detailed programme, including topics and names of invited speakers is available from the ECETOC Secretariat. It can also be viewed at the website [www.eems2006.org](http://www.eems2006.org), which contains updated information about the whole conference. Subsequent papers from the two Symposia will be published in Mutation Research.

## ECETOC sponsors Young Scientist Best Platform Award at SETAC

As part of its commitment to encourage promising scientists, ECETOC is proud to support the Young Scientist Awards and in particular, the Best Platform Award within the framework of the 2006 SETAC (Society of Environmental Toxicology and Chemistry) Europe Annual Meeting, this 7-11th May in The Hague, The Netherlands. The other Young Scientist Award will be for the Best Poster and will be sponsored by the Procter & Gamble Tom Feijtel Memorial Fund.

The Young Scientist Awards are intended to honour individual prominent performance in the scientific work of an early career scientist. The winners will be announced in the ECETOC and SETAC newsletters and websites, and will receive a free registration to the next SETAC Europe Annual meeting and travel and accommodation.

For more information, please visit:

[www.setacmeeting.org/thehague/Programme/Scientific\\_Programme/Awards/Young\\_Scientist\\_Award.htm](http://www.setacmeeting.org/thehague/Programme/Scientific_Programme/Awards/Young_Scientist_Award.htm)

## ECETOC In Brief

**ECETOC**, European Centre for Ecotoxicology and Toxicology of Chemicals, was established in 1978 as a scientific, non-profit, non-commercial association, financed by 48 of the leading companies with interests in the manufacture and use of chemicals. A stand-alone organisation, it was established to provide a scientific forum through which the extensive specialist expertise in the European chemical industry could be harnessed to research, review, assess and publish studies on the ecotoxicology and toxicology of chemicals.

### Website

Be sure to visit our website via [www.ecetoc.org](http://www.ecetoc.org) regularly for the most up-to-date information on all our activities and for a complete list of our [Publications](#) which can be ordered online.

### New Cramer Classification Tool

The Cramer decision tree is a well-known approach for assigning chemicals to one of three classes *inter alia* to estimate a Threshold of Toxicological Concern (TTC).

The European Chemicals Bureau (ECB) have recently commissioned the development of a computer software programme to encode the Cramer classification scheme: toxTree (Version 1.00). It is a standalone software application by [ambit.acad.bg](http://ambit.acad.bg). The software tool is available as a free download upon registration from the ECB website. For more details, please look for toxTree at [ecb.jrc.it/QSAR](http://ecb.jrc.it/QSAR)

References:

Cramer et al, 1978. *Fd. Cosm. Tox.* 16:255-276

Kroes et al, 2004. *Fd. Chem. Tox.* 45:65-83

## RECENTLY PUBLISHED Reports

### JACC Report

No. 50 1,1,1,2-Tetrafluoroethane (HFC-134a) (CAS No. 811-97-2) (Second Edition)

### Technical Report

No. 98 Risk Assessment of PBT Chemicals

### Workshop Report

No. 6 Workshop on Chemical Pollution, Respiratory Allergy and Asthma 16-17th June 2005, Leuven

See 'publications' at [www.ecetoc.org](http://www.ecetoc.org) for executive summaries!

## ANNUAL TECHNICAL MEETING

Brussels, Belgium

24th May 2006

ECETOC will hold its Annual Technical Meeting on 24th May on the day after the Annual General Meeting. The 2006 gathering will offer a look into future scientific developments and will draw upon global trends to help us understand how these forces may affect companies who manufacture and use chemicals.

Interactive by nature, this event will draw upon the experience of visionary speakers and will offer participants the opportunity to ask questions and debate alongside people from both member and non-member companies, academics and regulators.

On the evening of 23rd May, participants of the Annual General Meeting and Annual Technical Meeting will be invited to a 'cocktail dinatoire' at the Brussels Tram Museum

Visit [www.ecetoc.org](http://www.ecetoc.org) for more information.

## FORTHCOMING Meetings

### April

25-26 PBT Case Studies Task Force, Brussels, Belgium

27 Biodegradation Kinetics Task Force, Brussels, Belgium

### May

4 Scientific Committee, Brussels, Belgium

7-11 SETAC Europe Annual Meeting, The Hague, The Netherlands

11 RIP 3.3-2 End Working Group 6 RDT Brussels, Belgium

23 Annual General Meeting, Degussa, Brussels, Belgium

23 Annual Meetings Social Event Tram Museum, Brussels, Belgium

24 Annual Technical Meeting, Sodehotel, Brussels, Belgium

### July

3 ECETOC-EEMS Symposia Prague, Czech Republic

6 Long-range Research Initiative (LRI) Health Effects Monitoring Team Brussels, Belgium

### Next Edition ...

We report on the 2006 Annual General and Technical Meetings... (23rd-24th May 2006)

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