

### ECETOC LAUNCHES A NEW SCIENCE STRATEGY

The 2007 Annual General Meeting, this 9 May, saw the approval of a new and far-reaching science strategy for ECETOC.

Building on the feedback of 2006's Annual Technical Meeting: Futures Workshop, the Scientific Committee derived a scientific strategy and thirteen strategic science areas (SSAs) that ECETOC will pursue within its science programme during the coming five to ten years.

The starting premise of this strategy is that ECETOC will play an integral role in science in society. Its particular remit will be to contribute objective scientific evidence to the debate about the role of chemicals in the causality of disease and assure the process of risk assessment of these chemicals.

It will do so via the pursuit of the following five broad themes:

1. The presence of chemicals in humans
2. The presence of chemicals in the environment
3. Adverse effects
4. Methods
5. The science of risk assessment.

Its new science strategy will be used as a basis for working with other stakeholders, such as the academia, regulators, associations and international institutions to

ensure that objective scientific evidence is used to provide the highest quality risk assessment of chemical products that minimises wherever possible the use of animals in testing.

The aforementioned five subjects will be broken down into the following thirteen strategic science areas, the objectives of which are as follows:

#### 1. The presence of chemicals in humans

##### Presence of chemicals in human tissue

ECETOC will seek to ensure that the results of biomonitoring studies are placed into appropriate context in the human health risk assessment process.

##### Chemicals in indoor air

The overall aim of this SSA is to address approaches to assess the impact of chemicals found in indoor air on human health.

##### Mixtures

The objective here is for ECETOC to contribute to the development of a pragmatic, realistic, and science based framework for the risk assessment of chemical mixtures.

#### 2. The presence of chemicals in the environment

##### Exposure pathways

The presence of chemicals in the environment can be construed to represent a danger to the environment itself and accordingly to human health. This area requires the promotion of an approach which uses sound dose response principles in the evaluation of risk.

#### 3. Adverse effects

##### Sensitive sub-populations

Certain sub-populations, notably children, may be assumed to be more sensitive than healthy adults. This strategic area is intended to test and explore this hypothesis.

### SG CORNER

As spring turns to summer in Brussels (and then back to winter) there is change in the air. Many new activities have been started and many faces are changing. The REACH EWG's are now all but finished. Much effort has gone into these documents and it is a relief for all concerned to see them completed. There have been several "spin-off" projects generated in the process, especially in the environmental areas.

The Scientific Committee has strengthened its expertise in environmental science with the addition of Mike Comber from Exxon Mobil and Johannes Tolls from Henkel. This group held an 'in house' workshop before Christmas which has led to the launch of several initiatives. One of these is a workshop on biodegradation and persistence which will be held near Manchester at the end of June. The rapid and efficient organisation of this meeting is a credit to Martin Holt, who left ECETOC in February after 10 years, but who agreed to support some activities such as this for a while after his departure. His expertise will be difficult to replace, but I hope to be able to announce the recruitment of a new member of the Secretariat in the next newsletter.

Another ECETOC personality who is moving on is Professor Geoff Randall who has been associated with ECETOC for many years and has been chairman of the Scientific Committee for four years. Geoff's combination of knowledge and diplomacy will be hard to match. Luckily, the Scientific Committee was able to find a volunteer from within its own ranks: Dr John Doe of Syngenta will take over from Geoff after the June committee meeting. Dr David Owen of Shell will give support, in the role of Vice-Chair. Both John and David bring many years of experience in toxicology and risk assessment to these roles.

Following the successful launch of the new science strategy at the AGM, we are now moving into the implementation phase. Some of the areas have been ECETOC's 'bread and butter' for years; others are still in the conceptual stage. What we make of this strategy is in the hands of the Scientific Committee and its new chair and vice-chair. The staff of ECETOC are excited about the new approach and are looking forward to the challenge.

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### Reproductive health

The overall aim of this SSA is to ensure that the methods and the testing strategy to identify and characterise developmental and reproductive toxicants are appropriate and optimised.

### Biodiversity and ecosystems

ECETOC will seek to identify and react to key science issues relevant to global regulatory assessments of chemical impacts on biodiversity of aquatic and terrestrial ecosystems.

## 4. Methods

### Testing strategies/Intelligent testing strategies (ITS)

The overall aim of this SSA is to contribute to a more effective approach to hazard and risk assessment. This should also support the further development and application of alternative approaches to hazard assessment and thereby improve the workability of REACH. Good ITS approaches can reduce costs and the use of animals while providing best quality data for the risk assessment process.

### 'Omics' and related technologies

The emerging technologies of genomics,

proteomics and metabonomics are already available for hazard if not risk evaluation. This area requires industry involvement to ensure that these technologies are used in an appropriate manner.

### Risk assessment of innovation

The purpose of this activity is to develop a series of approaches for addressing the health and environmental risk assessment for innovative products.

## 5. Risk Assessment

### Role of chemicals in the causality of disease

This strategic area aims to put the presumed associations between chemicals in the environment and disease into its proper scientific perspective.

### Risk, hazard and precaution

The precautionary principle can lead to unrealistic worst case assumptions based on an evaluation of hazard. It is important to use all available scientific tools to adequately characterise the real risk. This implies increased emphasis on exposure and dose response information.

### Science in society

ECETOC will seek out activities to promote the use of science in EU decision making to enhance the acceptance of science by the general public. Specifically, ECETOC will promote the use of data-based risk assessment.

The strategy will provide the guiding principles of each year's science programme. The progress of each strategic science area will be monitored by the Board and the Scientific Committee. Specific new actions from each area will compliment ECETOC's current activities such as the development of reports and the organisation of workshops to form its science programme. The progress and content of this programme will be reviewed by the Scientific Committee on a regular basis. Members of the Scientific Committee have been assigned to each scientific area with an overall leader and support from the Secretariat.

Geoff Randall, Chairman of  
the Scientific Committee  
Neil Carmichael, Secretary General

## WHAT'S UNDERWAY WITH THE TRA?

### What has happened since 2004?

Since ECETOC made available a web-based version of the targeted risk assessment (TRA) approach in early 2004, over 600 users have registered for the tool. Users range from technical experts in industry through to regulatory agencies, academia, NGO's and consulting organisations and vary in size from large multinational firms to SME's. ECETOC has therefore taken the opportunity to consult users in terms of their perceptions of the strengths and weaknesses of the approach. Users have responded with suggestions for improving the scientific base, the tool's workability, together with ideas for improved functionality. At the same time, as the REACH legislation has developed, the nature of the accompanying discussions has moved to one where stakeholders are now seeking to evaluate which processes and tools are best suited to support REACH's objectives. In this latter respect, the TRA tool has been evaluated as part of the RIP 3.2 activities where it has been generally identified as the preferred tool for use at the screening (Tier 1) stage of risk assessment. In addition, the merits of the approach have received further endorsement in wider scientific discussions on how chemical risk assessment might be reliably and efficiently undertaken.

### Where are we now?

As a result of these developments, the ECETOC Scientific Committee agreed at its meeting in November 2006 to reconstitute its Task Force on Targeted Risk Assessment. The Task Force was charged to review the suggestions that had been made by various parties since 2004 and to make

recommendations concerning where and how the tool should be further improved (if at all). The Scientific Committee indicated that the Task Force should work in stages:

1. to undertake the review and document the basis for identified improvement (where the process would be expected to involve dialogue with key stakeholders, particularly the RIP 3.2 activities), and
2. following discussion at the scientific Committee, to subsequently develop a suitable technical specification by which the web tool could be suitably upgraded.

The Task Force completed its preliminary assessment in February and shared the findings with key European stakeholders (Member States, the Commission and its technical consultants) at a meeting at ECETOC in February. The meeting delivered a broad endorsement for the Task Force's preliminary recommendations on where and how the tool might be further improved. The meeting also identified that the planned Commission REACH information technology activities may also present as an opportunity for furthering the development of the tool.

### Plans for the future

Discussions are now underway regarding how best ECETOC should take the TRA forward. Although the Commission has indicated the possibility of incorporating the TRA into the REACH IT framework, this is unlikely to happen before 2009. But it is clear that large volume manufacturers and importers of REACH chemicals are likely to require access to a screening tool before then. So the Task Force is now discussing how best the tool could be

improved in the interim. The most likely solution will be to fund an upgrade, to be completed by the end of 2007, which addresses "easily achievable" improvements identified in the human health portion of the tool, together with ensuring that the tool aligns with REACH (e.g. as far as the language is concerned and the basis by which DNELs are calculated). As far as more ambitious goals such as extending the functionality to cover preparations and the identification of lead substances, together with the ability to run generic EUSES calculations based on local or site specific uses, then these developments will be scoped by the Task Force, but a decision will be deferred regarding how best they are taken forward; three options exists;

1. to continue with an ECETOC led activity;
2. for ECETOC work in partnership with the Commission and/or its contractors (recognising that this may not occur in a short term); or
3. to subcontract some of the activity to suitable commercial organisations.

Whatever the case, it is ECETOC's intention to continue to ensure that the tool maintains its current scientific integrity whilst adapting to the various developments that its application in the REACH setting result in. ECETOC will continue to ensure that the plans for a basis for the TRA remain accessible and transparent for users and stakeholders and remains receptive to further suggestions for improvement.

Chris Money  
ExxonMobil and Member of the ECETOC  
Scientific Committee

## ECETOC ANNUAL TECHNICAL MEETING 2007

This year's meeting was structured into two sessions: Part one looked at future perspectives in the safety assessment of industrial chemicals, which will come from the new omics technologies. Four speakers addressed this subject from their different angles and this science area will also be addressed in the form of an ECETOC workshop in the final quarter of this year.



ATM participants



Dr. David Rouquié, Bayer CropScience, speaking on the application of omics to male reproductive toxicity



Dr. Robert Landsiedel, BASF, speaking about inhalation studies with nanoscale materials: Distribution and effects in the lung

Part two looked at safety assessment and innovation with respect to nanoparticles. ECETOC has pursued continued initiatives with respect to the health and safety of nanomaterials since 2004 when it commissioned a review paper on the available nanomaterial toxicity, biological fate and exposure data. And subsequently, when it organised a workshop on testing strategies to establish the safety of nanomaterials in 2005. ECETOC will continue its activity in this science area and will be providing further input to the OECD working programme on manufactured nanomaterials.

Scientific Committee Members: Remi Bars and Hans-Juergen Wiegand kindly made the following reports:



'Omics' and related technologies

### Part I: Future perspectives for the new genomics and related technologies in safety assessment of industrial chemicals

At the ATM a keynote speech was given by Dr. T. Gant of Leicester University illustrating the application of omic tools (transcriptomics, proteomics and metabonomics) to the field of toxicology and ecotoxicology. This was followed by three industry scientists, each one choosing a different aspect of this discipline. The presentations

demonstrated that these tools are already contributing to (eco)toxicology in the areas of mechanistic and predictive toxicology. The need for appropriately designed studies and statistical analyses was a recurrent theme in all presentations. However, in no way can these tools be considered as "press button technology" since the data is not useable without detailed analysis and interpretation. Currently although the data is informative on mechanisms of toxicity, on its own it is unsuitable for use in risk assessment. This technological deadlock is presently being addressed by applying mathematical and computing models to overcome the complexity of the information generated. The overall impression left by this session on omics is that even if these tools show some limitations at the present time, there will be no turning back in the application of these tools to the field of (eco) toxicology.

Nanostructured materials, like TiO<sub>2</sub>, are in general highly aggregated and agglomerated when inhaled. There are discussions whether lung surfactant may promote the disaggregation of TiO<sub>2</sub> particles. Dr. Monika Maier of Degussa showed that the calculated energies needed to split TiO<sub>2</sub> aggregates are 20 times higher compared to those of lung surfactant ingredients indicating that lung surfactant does not promote the disaggregation of TiO<sub>2</sub> agglomerates and aggregates.

Distribution of TiO<sub>2</sub> and ZnO in organisms following inhalation and toxicological effects following sub-acute inhalation (5d, 6h/d) were addressed by Dr. Robert Landsiedel of BASF. A set of over seventy parameters were analysed in blood and lavage fluids. Major findings immediately after exposure (i.e. hyperplasia of terminal bronchioli) were regarded as adaptive changes and they correlated well with findings from published sub-chronic studies. The parameter with the highest potential for predicting long-term effects was found to be the count of white cells in lung lavage fluids. The study design presented shall allow the selection of the most sensitive early indicators of chronic toxicity in a standard short-term inhalation test for nanostructured materials and it may also assist in the development of meaningful in vitro test systems in the future.

Hans-Juergen Wiegand  
Degussa GmbH and Member of the ECETOC Scientific Committee



Risk assessment of innovation

### Part II: Safety assessment and innovation: Nanoparticles

Nanomaterials offer great opportunities for innovation in many technology areas by selective modifications of material properties. Depending on these modifications new material properties may result in toxicological effects different from those of bulk material. Therefore, nanomaterials need a careful hazard and risk assessment before their use and marketing.

In the first presentation of the Nanomaterials session at this year's ATM, Prof. Harald Krug of the EMPA in St. Gallen/Switzerland showed current market applications of nanotechnology. He presented the questions that are being asked about potential nanomaterial hazards in both the human body and the environment. Among the possible exposure routes into the human body, dermal exposure and inhalation of nanoparticles seem to be of highest importance. This view was mirrored by the presentations following Prof. Krug's keynote speech.

Today, many modern cosmetic or sunscreen products contain nanosized components, mainly insoluble titanium dioxide (TiO<sub>2</sub>) or zinc oxide (ZnO) which are colourless and filter UV more efficiently than larger particles. Dr. Eric Dufour of L'Oreal pointed out that both components do not penetrate into or through normal as well as compromised human skin. Therefore, current scientific evidence suggests that nanosized cosmetic or sunscreen ingredients pose no risk to human health.

(..continued from page 1)

Finally, a few words on our science strategy and communication: In the next few months we will be updating our website and the new icons of our strategy themes are already to be seen there. This will also be a place where ECETOC documents will be made freely available to anyone who is interested. We hope that through electronic files, available at no charge, the excellent reports produced by ECETOC will achieve greater visibility and have more impact.

Neil Carmichael  
Secretary General



Geoff Randall and John Doe, of Syngenta. Outgoing and incoming Scientific Committee Chairmen



David Owen, Shell Chemicals and New Vice Chair of the Scientific Committee

## ECETOC's OUTPUT TO BECOME MORE ACCESSIBLE



A key decision of the 2007 Annual General Meeting was to increase accessibility to ECETOC's publications for both employees of member companies and other interested parties. The majority of ECETOC's work programme is published, containing valuable scientific information that has been diligently gathered, assessed and presented with the objective to be shared, discussed and referenced by peers.

Until now, ECETOC publications have been freely available in print to employees of member companies and printed copies were sold at a cost of 300 euros per publication to people from non-member organisations.

### Downloadable PDF files

In the light of PDF versions of documents fast becoming the norm in terms of communication and with the objective to increase accessibility to this information, ECETOC publications will soon be free to download by member company employees from [www.ecetoc.org/members](http://www.ecetoc.org/members). Visitors to [www.ecetoc.org](http://www.ecetoc.org) will be invited to provide a few details and will then also be able to download individual PDF files.

### Printed versions

While PDF documents have many advantages, there are still those who prefer the printed version. With this in mind, employees of member companies will still be able to order printed publications on demand, but people from non-member organisations will be subject to the fee of 300 euros.

\* As soon as the technology is in place (estimated end June).

In the interim, please send an e-mail to [info@ecetoc.org](mailto:info@ecetoc.org) for your PDF requests.

Unfortunately demands for a full back catalogue cannot be fulfilled at this stage.

Givaudan<sup>®</sup>

## NEW ECETOC MEMBER COMPANY

ECETOC is pleased to announce that Givaudan has joined as a new full member, bringing ECETOC membership to a total of 52 companies, of which 47 are full members and 5 are associate members. Givaudan is a producer of flavours and fragrances, headquartered in Switzerland. The ECETOC delegate will be Graham Ellis.

For more information on Givaudan visit: [www.givaudan.com](http://www.givaudan.com)

## BOARD CHANGES

On the occasion of the 2007 Annual General Meeting, ECETOC was pleased to officially welcome Mireille Quirina as a new Board Member.

ECETOC was sad however, to say goodbye to Bart Sangster who is retiring from his post at Unilever and on the Board of ECETOC.



Mireille Quirina,  
DuPont de Nemours,  
new ECETOC Board member

## ouREACH France

ECETOC outREACH meetings serve as an opportunity for employees of member companies and interested non-member companies to get to know how ECETOC works, what ECETOC can do for them and to inform themselves about current industry ecotox and tox issues.

This 17 September, ECETOC will be kindly hosted by DuPont de Nemours for its 1st outREACH meeting in France. The one-day programme will touch on the new ECETOC science strategy, ECETOC's involvement in the REACH Implementation Programme and it will take a particular look at the issues faced by the pharmaceutical industry.

If you work in France and would like to secure a personal invite, please send your details to [info@ecetoc.org](mailto:info@ecetoc.org)

## 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 52 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 will soon be available to download online.

## FORTHCOMING Meetings

### June

27 Scientific Committee Meeting  
ECETOC Offices, Brussels

### August

30 Board Meeting  
ECETOC Offices, Brussels

### September

9-13 ECETOC Workshop:  
Nanomaterials toxicology/  
genotoxicity symposium at the  
European Environmental Mutagen  
Society (EEMS) Annual Meetings  
2007  
Basel, Switzerland

17 ECETOC outREACH France  
DuPont de Nemours, Paris

19 Scientific Committee Meeting  
ECETOC Offices, Brussels

### Next Edition ...

Look out for a report on ECETOC's  
mutagenicity/genotoxicity testing workshop  
in H2 2007

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