



Annual Report 2006

Success through scientific partnership





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## > Introducing ECETOC

**ECETOC was established in 1978 as a scientific, non-profit making, non-commercial association and counts 51\* of the leading companies with interests in the manufacture and use of chemicals as its members**

An independent organisation, it was established to provide a scientific forum through which the extensive specialist expertise of manufacturers and users of chemicals could be harnessed to research, review, assess and publish studies on the ecotoxicology and toxicology of chemicals.

The Association's main objective is to identify, evaluate and through such knowledge, help industry to minimise any potentially adverse effects on health and the environment that may arise from the

manufacture and use of chemicals. To achieve this, ECETOC facilitates the networking of suitably qualified scientists from its member companies and co-operates in a scientific context with intergovernmental agencies, health authorities and professional institutions.

ECETOC is governed by a Board of Administration comprising up to twelve senior executives from member companies. The Board is responsible for the overall policy and finance of the organisation

\*as of 1 January 2007

# Introducing ECETOC

and appoints the members of the Scientific Committee which defines, manages and peer reviews the ECETOC work programme.

ECETOC's work is manifested as published reports, papers and specialised workshops. Furthermore, it provides scientific representation of manufacturers and users of chemicals via presentations at specialist fora and takes a scientific role in the activities of European and international organisations.

During 2006, a period of introspection, including the review of ECETOC's science strategy, has resulted in a revised and more relevant Vision and Mission for the organisation.

They are as follows:

## **Vision**

To be the leading European health and environmental science organisation addressing the safe manufacture, supply and use of chemicals, biomaterials and pharmaceuticals.

## **Mission**

To use scientific evidence and expert judgement to ensure robust human and environmental risk assessment of chemicals, biomaterials and pharmaceuticals.



# Membership

## > ECETOC Member Companies

At the start of 2007, ECETOC membership comprised the following 51 companies





## > Membership benefits

Manufacturers and users of chemicals can become either a Full or Associate Member of ECETOC according to the proportion of their turnover derived from chemicals, (see [www.ecetoc.org/membership](http://www.ecetoc.org/membership))

Membership of ECETOC demonstrates the practical commitment of a company to the principles of Responsible Care® via their active scientific and technical contribution to initiatives supporting the safe manufacture and use of chemicals, pharmaceuticals and biomaterials through sound science.

The diversity and range of its members' expertise are key ingredients for ECETOC's achievements in the pursuit of this objective. ECETOC's success depends on member company employees being able to dedicate their time to furthering projects within the framework of an ECETOC task force.

In so doing, member company employees benefit from access to a high quality network of scientific expertise and ECETOC is able to leverage this pool of knowledge in order to represent and promote the European chemical industry's science in its relationships with European and international institutions.

ECETOC member companies benefit from being in a position to influence its scientific agenda. They can propose subjects to be tackled by task forces and by having a representative on its Scientific Committee, can also influence the full ECETOC work programme.

Any member company employee can request a login to the ECETOC members' site:

[www.ecetoc.org/members](http://www.ecetoc.org/members)

where they can keep track of discussions at Scientific Committee level and the scientific initiatives being progressed through ECETOC task forces.

All ECETOC member companies receive complimentary printed copies of each new ECETOC report and are entitled to request additional printed or PDF versions as and when needed.



## > Message from the Chairman

**Limited resources see ECETOC with a challenging, yet crucial role**



ECETOC was founded on the principle of pooling industry resources in health and environmental sciences. At one time, industry had a stronghold over expertise in the applied aspects of toxicology and ecotoxicology. The main chemical, petrochemical and consumer products companies had their own in-house laboratories. In those days, ECETOC member companies could choose from a wide range of 'in-house' expertise when a task force was established.

For many years now, the chemical industry and its associated industries have been consolidating and

reducing resources in toxicology and the related environmental sciences. It is not news that these resources are now more and more prioritised in terms of urgency. To live with this, however, is particularly difficult for organisations like ECETOC whose activities depend heavily on the availability of industry scientists for responses to questions which may not always be the priority issues for those member companies providing the resources.

2006 was a year which saw much of the resources normally available to ECETOC task forces being shifted to, and fully occupied in

# Message from the Chairman

activities related to REACH implementation projects, RIPs 3.2 and 3.3. Slower progress in some other areas of ECETOC activity can be directly attributed to this pressure. On the other hand, ECETOC's contributions to the setting up of the RIP 3.3 Endpoint Working Groups 'EWGs' have been successful and appreciated as have ECETOC's participation in the associated steering activities PMG (Project Management Group) and SEG (Stakeholder Expert Group). With the process drawing to an end, the importance of this participation becomes more obvious and we can be quietly satisfied with the outcome. These groups inevitably involved compromises to reach consensus, but involvement of ECETOC and member companies' scientists has led to a collection of guidance documents that are largely 'risk' based and scientifically sound.

During the year, one of our member companies announced the closure of its toxicology facilities in the UK along with a significant part of the environmental science laboratories. The demand for this expertise and the continued attrition of company expertise makes ECETOC's role simultaneously more difficult and more crucial. The ability to bring together skills and knowledge from many member companies to work on a common project is the unique strength of ECETOC. The scarcity of these resources makes a long-term strategy, fundamental to our activity. With that in mind, the Scientific Committee have been working on transforming the output of the futures workshop held last May into a new long and medium term

strategic plan.

## Strategic Science Areas (SSA)

The futures workshop was a fertile source of good ideas tackling subjects that were both scientifically important and relevant to the regulatory context. Since that time, the Scientific Committee has been working to organise these ideas into those which are urgent and feasible and those which are presently conceptual. A work plan is being developed to make sure that these longer term projects are adequately scoped and evaluated. This is particularly important to allow ECETOC to be pro-active in new and developing areas. The Strategic Science Areas therefore include highly specific science projects borne out of the REACH process and anticipated short term knowledge gaps. However, longer term projects which are still in an early phase are also included. These projects will allow ECETOC to pick up developments and to be involved at the ground floor. This is particularly important for the new technologies in our industry, to prevent undue restriction on innovation.

The Strategic Science Areas will need communication to our membership and our other partners in the stakeholder community. For this reason the communication tools at our disposal will be examined and improved. We will be looking again at our website and to our publications to make them more accessible and to ensure the widest possible dissemination of our work.

# Message from the Chairman

Many of the SSA's are ongoing topics for ECETOC: Children's health is a major part of the SSA on 'sensitive subpopulations' and was the subject of an ECETOC Symposium at the European Environmental Mutagens Society meeting in Prague in July. At the same meeting, another ECETOC symposium: 'Molecular Epidemiology: New knowledge from biomarkers of effects' has been considered part of the SSA about the 'presence of chemicals in human tissue.' This SSA would also include human biomonitoring which was the subject of an ECETOC Technical Document published in 2005. This Document (No. 44) formed the basis for ECETOC's participation in a stakeholder workshop in December 2006 jointly organised by ECETOC, the European Commission's DG Environment and the Health and Environment Alliance (HEAL).

## New and old faces

2006 was a year of transition for key people at ECETOC. At the level of the Board, both Thierry Vanlancker of DuPont and Lewis Smith of Syngenta stepped down with Lewis ending his role as Vice Chairman and Thierry moving to the USA. In turn, we were pleased to welcome Mireille Quirina also of DuPont as the first female member of our Board. At the end year, Michael Gribble retired and was replaced as Secretary General by Neil Carmichael who joined ECETOC from Bayer.

2007 will be a fascinating year and I extend my support to Neil Carmichael who, together with the Scientific Committee and the Secretariat, has the exciting role of launching ECETOC's strategic science areas.

Jochen Rudolph  
Chairman of the Board of Administration

# Board of Administration

## > Board of Administration

**The Board of Administration is empowered by the Annual General Meeting with the management and administration of ECETOC and delegates these tasks on a daily basis to its Secretary General**

The Board is composed of at least six member company representatives. Since the start of 2006, two further Board Members are entitled to represent the Associate Member A category and the Associate Member B category respectively.

Member companies may propose candidates for the Board; these candidates must have managerial duties within their company and possess scientific and technical experience.

On the occasion of the 2005 Annual General Meeting, ECETOC delegates approved the re-election of Bart Sangster of Unilever for a second term of two years.

Furthermore, the delegates accepted the resignations of Lewis Smith of Syngenta who had served on the ECETOC Board since 2002 and Thierry Vanlacker of DuPont de Nemours. Jochen Rudolph thanked them for their services and contributions to ECETOC during this time. In November 2006, the Board of Administration was re-enforced with the appointment of Mireille Quirina of DuPont de Nemours.



Jochen Rudolph  
Degussa - Chairman



Martin Kayser  
BASF - Treasurer



David Gartside  
AstraZeneca



Charles Murray  
Procter & Gamble



Mireille Quirina  
DuPont de Nemours



Bart Sangster  
Unilever



## > Report from the outgoing Secretary General



### Success through scientific partnerships

The year started off well when it was confirmed that official relationships between the World Health Organisation (WHO) and ECETOC had been formally extended for a further three years. Activities such as our involvement in specific REACH Implementation Projects (RIPs) expanded ECETOC's network of scientific contacts from member states as well as from the European Commission, namely DG Joint Research Centre (JRC), DG Environment, and DG Sanco.

### REACH Implementation Projects (RIPs)

A large amount of industry's efforts were consumed in delivering the best science available to the relevant RIPs.

Significant time was dedicated to representing industry in the RIP 3.3-2 Project Management Group (PMG) of the Cefic led consortium. Industry scientific experts participated in all of the eleven Endpoint Working Groups (EWGs), three of which

were chaired by ECETOC member company scientists and administered through the Secretariat. While much remains to be done before the Technical Guidance Documents are finalised, the importance of the contributions from member company experts cannot be stressed enough.

### ECETOC's future science strategy

The conceptualisation of ECETOC's future science strategy began at the 2006 Technical Meeting in the format of a futures workshop. The objective of this kick-off event was to identify issues that will impact the safe manufacture and use of chemicals in 5-10 years. A broad programme of invited speakers challenged the multi-stakeholder audience to think outside of their usual frame of reference and hypothesise about the potential impact of emerging issues. Breakout sessions delivered a wealth of feedback which was collated and has formed the basis for defining the strategy, as outlined later on in this report.

# Report from the outgoing Secretary General

## Task Forces and Workshops

Task force activity was subdued during 2006 as member company experts dedicated their valuable, but limited time to the REACH Implementation Project (RIP) activities. Nevertheless several task forces completed their remits and we published ten reports during the year. A key achievement was the publication of ECETOC's 100th Technical Report entitled 'Contribution to the Methodology for the Development of Acute Exposure Threshold Levels in Case of Accidental Chemical Release'.

In addition to the aforementioned Futures Workshop, ECETOC organised two symposia on biomarkers in association with the European Environmental Mutagen Society (EEMS) and a stakeholder workshop on human biomonitoring in association with the European Commission's DG Environment and the Health and Environment Alliance (HEAL).

## UK outREACH Event

One outREACH event was organised in 2006 and marked the 2nd visit of ECETOC to the UK. The programme included presentations on ECETOC activities with respect to the assessment of chemical allergy risks and the development of approaches to REACH and a report on ECETOC's newly published report providing guidance to setting OELs for data-poor substances. Such presentations represent an important means by which to increase awareness of ECETOC's outputs.

## Broadening its knowledge base

Two new member companies joined ECETOC during 2006, namely Nanogate and Total Petrochemicals, expanding the range of scientists in ECETOC's base. Six new experts were welcomed to the Scientific Committee. And a necessary milestone was reached with the welcome addition of women to the Scientific Committee and Board of Administration, namely Saskia van der Vies of the Free University Amsterdam and Mireille Quirina of DuPont de Nemours.

## Secretariat developments

In closing, it is gratifying to note that the finances of ECETOC for 2006 were very solid. Unfortunately Marie-Laurence Simon, our long serving Administrative Assistant and expert report manager left us during 2006 and her colleagues must be thanked for taking on the extra workload that followed. Appreciation and thanks go to all members of the Secretariat for all their hard work during the year.

Neil Carmichael assumed the role of Secretary General as the year came to a close and I believe that ECETOC will fare well under his professional leadership. I thank the Board, the Scientific Committee and especially the Scientific Committee Chairman, Geoff Randall for their support during my tenure and the friendship of all which made it a fantastic experience.

Michael Gribble  
Secretary General 2003-2006



## > Task Forces

**Four new task forces were established and five completed their remits during 2006.  
Details on the following pages...**

### New task forces

#### Environment

*Mode of action information to support efficient ecotoxicity testing of specifically active chemicals*



Scientific and regulatory activity in environmental (ecological) risk assessment continues to progress globally, as it seeks to address the diversity of issues associated with single chemicals and whole effluent assessment in different countries. In Europe, for instance, the REACH programme and new requirements for environmental assessment of human pharmaceuticals represent globally significant developments in regulatory environmental risk assessment procedures for industry. It is important that ecotoxicologists continue to actively pursue the principles of replacement, reduction and refinement in the context of regulatory environmental assessments. In terms of acute ecotoxicity testing with fish, there are a number of proposals now under consideration which could lead up to a 70% reduction in fish acute lethality testing if adopted by regulatory bodies. In the fish chronic testing arena, in the



future it may be possible to minimise the use of fish for bioconcentration testing through the use of structure-activity relationships, *in vitro* methods (e.g. fish hepatocyte assays) or smaller scale and more-efficient invertebrate tests. To maximise this potential, there is clearly a need to seek to develop a framework of understanding based on the 'mode of action' that can help decide if and when a chronic invertebrate test could be a protective surrogate for a fish chronic test and aquatic animals in general. This important theme will be addressed by the task force using a range of case studies, which seek to identify the scientific strengths and weaknesses of the mode of action (MOA) approach at the current time. Importantly, this task force will also seek to manage expectations about different MOA approaches to chemical assessment, based upon current scientific data but also some major knowledge gaps. In this sense, the primary goal will be to give guidance on the prudent application of MOA principles as applied to regulatory test species selection and efficient chronic test design. However, the task force will not advocate a rigid process that must be applied to all classes of synthetic chemicals, recognising the different regulatory risk assessment characteristics of different industrial sectors (e.g. agrochemicals, biocides, industrial chemicals or pharmaceuticals).

## Human Health

### *Interpretation framework for human data*

Since the ECETOC and IPCS workshops in Cardiff in February 2004 (see Workshop Report No. 3),

ECETOC has been engaged in activities surrounding the use of human data in risk assessment. This has included cooperation with WHO-IPCS, who have identified this area of work as a priority. The existing approach of related European regulation was considered inconsistent and thus justified the creation of a small task force to develop a framework for the evaluation of available human data in order to improve the basis for their use in risk assessment. The objective was to facilitate the development of a framework/approach which enables different types and qualities of existing human data to be integrated with animal or other data for use in different risk assessment and risk management applications, particularly in the context of current GHS and REACH proposals.

## Risk Assessment

### *Assessment and evaluation of dermal risks from industrial chemicals*

Until now, significant focus has been placed on the assessment and control of inhalation risks from industrial chemicals, but less on dermal exposure and skin penetration. ECETOC considers that the emphasis is changing as confirmed by feedback from a co-ordination team of DG Sanco's scientific committees, where it was noted that there was little knowledge available on skin exposure and penetration. In contrast, the aspect of dermal exposure has been well considered within the agrochemical industry. An ECETOC task force has been commissioned to develop a tired, practical strategy for the assessment and



evaluation of potential dermal risks from industrial chemicals. Such a strategy could also be a valuable input to chemical assessments for REACH in relation to exposure scenarios, and it could guide industry internal decision making when designing toxicological studies.

#### *Threshold of toxicological concern for industrial chemicals*

The threshold of toxicological concern (TTC) is a concept that refers to the establishment of a human exposure threshold value for all chemicals, below which there would be no appreciable risk to health. The TTC concept has evolved from a lengthy history of attempts to develop generic approaches to the safety assessment of large groups of chemicals or of individual chemicals of unknown toxicity. The concept is reflected in the US FDA's principle



of 'threshold of regulation'. The TTC concept can be applied in all cases where the effect of a chemical has a defined threshold. For potentially non-threshold effects, such as genotoxicity or genotoxic

carcinogenicity however, the TTC concept is debatable. An analysis by Gold and colleagues of nearly 500 chemical carcinogens demonstrated a TTC value of 0.5 µg/kg diet (based on a virtually safe dose of 1:106). Thus, the current TTC concept is holistic in the sense that it covers all end-points and is therefore likely to be very conservative.

An ECETOC task force has been initiated with the remit to evaluate how this concept could be applied to specific toxicological end-points and, in particular, for industrial chemicals. Initially, existing databases will be analysed to assess whether they allow the extension of the TTC concept beyond carcinogenicity to non-carcinogenicity end-points, i.e. specifically to repeat-dose toxicity; and whether the supporting data are sufficiently diverse, i.e. with respect to chemical structure diversity and quality, and to determine whether additional groups of classes are needed to develop a TTC concept for industrial chemicals. It is also foreseen to evaluate the feasibility of extending the TTC concept to specific ecotoxicological end-points or modes of action.

#### **Recently completed task forces**

##### **Human Health**

##### *Acute Exposure Threshold Levels-AETLs (Acutex)*

The Acutex task force was set up in 2003 to provide scientific input to the three-year EU research project, ACUTEX, funded under its 5th Framework Programme for Research and Technology

Development. ECETOC was one of eight partners of a consortium that included government institutes, competent authorities, academia and industry. This group was charged to develop the methodology, the software tools and a technical guidance document (TGD) for establishing European acute exposure threshold levels (AETLs) in case of an accidental chemical release. AETLs will support the harmonised implementation of the Council Directive 96/82/EC, known as the Seveso II Directive, on the control of major-accident hazards involving dangerous substances. The AETL methodology is proposed for use by EU competent authorities and other risk managers of industrial installations for planning and response in case of emergencies and for land-use planning.

The ECETOC Acutex task force comprised experts from both member companies and the Catholic University of Louvain in Belgium. Within the consortium, the task force was charged to lead the work on 'threshold and human health endpoint definitions' and delivered the following specific contributions, that were published as Technical Report No. 100 in July 2006:

- Comparison of currently available methodologies in Europe and in the US;
- Definition of human health end-points for the target organs relevant for accidental chemical exposure;
- Definition of the different AETL levels;
- Methodological aspects for the use of assessment factors and time extrapolation to derive AETLs.

The task force undertook a comparison with the respective US EPA AEGL (acute exposure

guideline levels) concepts. And it also carried out five of the twenty-two case studies that were undertaken to gain experience with the methodology.

The TGD and other deliverables of the ACUTEX project can be found on a Commission website: <http://forum.europa.eu.int/Public/irc/jrc/acutex/home>

### *Derivation of Occupational Exposure Limits (OELs) from Available Effects Data*

In the absence of sound human exposure data, existing procedures for setting OELs for chemical substances are generally based on a no observed adverse effect level from repeated dose animal studies, with application of appropriate assessment factors to account for uncertainty and variability in the data set. These procedures are reviewed briefly in a report published in October 2006. Contrary to these 'data-rich' substances, for which adequate data are available, no clear procedures exist for the derivation of OELs of 'data-poor' substances. In the report, six methods for setting OELs for such substances were proposed and evaluated.

Worked examples have been provided and these methods are as follows:

- (i) hazard banding based on EC risk phrases,
- (ii) maximum tolerated dose in long-term studies (or predicted from acute oral toxicity and octanol-water partition coefficient),
- (iii) four-hour lethal concentrations from rat inhalation studies,
- (iv) read across of data for substances with similar



structures and known toxicity (current structure-activity relationships for predicting toxicity are insufficiently reliable),

- (v) 'respiratory dose' if an OEL is to be based on sensory irritation, and
- (vi) threshold of toxicological concern (normally for food contaminants).

For certain substances, none of the proposed methods will be applicable. For others, one or more of the methods might be appropriate, but could lead to different results. In conclusion, therefore, it is proposed that an integrated approach based on the six methods can be used to set a provisional OEL for the data-poor substance concerned. However, for the value to be reliable, experienced toxicological expertise is required in the interpretation of the results.

## Risk Assessment

### *Toxicological modes of action: Relevance for human risk assessment*

This task force was charged with examining the role and use of mode of action and mechanistic data in establishing the relevance of toxicological effects observed in experimental animals and to assess their meaning in the context of human risk assessment. It was also asked to illustrate with examples, modes of action that are only observed in an animal model but are not relevant or cannot be extrapolated to humans.

A scheme was developed to aid the interpretation

of toxicity data and their extrapolation to humans. Its applicability was shown with examples of chemicals that display toxicokinetic differences between animals and humans, such as coumarin and methylene chloride, and with four examples for toxicodynamic differences between animals and humans, such as  $\gamma$ -2u-globulin-mediated nephropathy in male rats and the occurrence of forestomach tumours in rodents. The resulting guidance is intended to help improving the quality of risk assessments and to avoid unnecessary animal studies.

### *Health and safety of nanomaterials*

This task force was established with the aim of developing guidance on the health and environmental safety assessment of nanomaterials. Initially, the task force undertook an extensive assessment of a review paper on the available nanomaterial toxicity, biological fate and exposure data that had been commissioned by ECETOC to a consortium of experts. This was finally published in Particle and Fibre Toxicology in August 2006. Based on the draft of this paper, the task force organised a workshop on 'testing strategies to establish the safety of nanomaterials' (see Workshop Report No. 7) immediately followed by a workshop on 'societal aspects of nanotechnology' (see Workshop Report No. 8). A paper on the conclusions from the first workshop has been accepted for publication in Toxicological Reviews in 2007. Further input to identifying research gaps in the safety assessment of nanomaterials is planned in connection with the OECD working programme on manufactured nanomaterials.

## Specific Substances Programme<sup>1</sup>

### *Synthetic Amorphous Silica*

Since a comprehensive review of all available data on synthetic amorphous silica was lacking, it was agreed to undertake a comprehensive review under ECETOC's Joint Assessment of Commodity Chemicals (JACC) programme. There was a particular need to review the criteria for an occupational exposure limit (OEL). In this respect amorphous silica is still regarded as 'nuisance dust'. The report, published in September 2006, contains a critical evaluation of the physico-chemical properties, toxicology, ecotoxicology and environmental fate and impact of (non-crystalline) synthetic amorphous silica.

### *Fluoroalkanes*

Also under the JACC programme, an update was made of an earlier ECETOC review of 1,1,1,2 tetrafluoroethane (HFC-134a). The new report presents a critical evaluation of the available data on the ecotoxicity, toxicity, environmental fate and impact of HFC-134a, including results of recent and unpublished studies conducted by the Programme for Alternative Fluorocarbon Toxicity Testing (PAFT). A similar new review was published on 1,1,1-trifluoroethane (HFC 143a). These ongoing reviews are meant to complete and/or

update the existing series of JACC reports on fluoroalkanes, and are highly valued as peer reviewed source documents by international organisations such as WHO-IPCS.

## Ongoing task forces

### Environment

- *Biodegradation*

### Human Health

- *Assessing mixtures in human health*
- *Nanomaterials toxicology/genotoxicity*

### Risk Assessment

- *PBT case studies*

## Specific Substances Programme

- *Cyanides*
- *Fluoroalkanes (see above for progress in 2006)*

Members can stay informed of the progress of ongoing task forces by visiting:

[www.ecetoc.org/members](http://www.ecetoc.org/members)

<sup>1</sup> This part of the ECETOC programme is devoted to the preparation of comprehensive, critical reviews of all available toxicological and ecotoxicological data on specific substances, predominantly those having widespread and multiple uses (Joint Assessment of Commodity Chemicals, JACC). The resulting hazard/risk assessments, including possible gaps in knowledge, are published in the ECETOC series of reports. In some cases, the format is further extended, e.g. in support of EU or other international risk assessment, or setting of an occupational exposure limit value.



## > Workshops

Three workshop-style events were organised, each with a distinct remit.  
Details on the following pages...

### Futures Workshop, Brussels, 24 May 2006



On 24 May 2006, industry representatives from member and non-member companies, representatives of the academia, of regulators and of other stakeholder organisations, were brought together by ECETOC to have their say about the future landscape

for the ecotoxicology and toxicology of chemicals. At the ECETOC Annual Technical Meeting that took the form of this 'Futures Workshop,' visionaries, strategists and innovators inspired an invited audience throughout one morning with their take on the future dynamics of the chemical industry.

Innovation and a growth in the complexity of chemicals, -of materials, -of consumer behaviour, -of markets and of the regulatory landscape were some of the challenges underlying the broad range perspectives.

The increasing demands for exposure/risk assessment; the need for intelligent testing strategies and the importance of industry's long term commitment to REACH implementation were highlighted as key

challenges. With this in mind it was underlined that there is a growing need for coordination in an environment with a scarcity of scientific resources. The increasing importance of social sciences came out of the proceedings as a further common denominator.

The new European maxim is that “technology will achieve its potential through social innovation,” said speaker Alfred Nordmann of University of Darmstadt. When looking into the future, we should all consider the idea of “the human at the centre of technology,” added speaker Raymond Oliver of Cenamps. “We’re in an age of perception rather than science,” said speaker Geoff Lye of Sustainability.

In such an age, then what is the role of ECETOC? This question was debated during afternoon breakout sessions so that the event could serve as a driver for the definition of the key scientific issues around which its future scientific programme was to be established.

The conclusions of each group were presented by the group chairs at the end of the afternoon and the Scientific Committee was tasked with drawing on these conclusions in order to define the framework of ECETOC’s future strategy. Details on this can be found in the chapter ‘Science programme’ on page 26.

## **Biomarkers in children and adults symposia, Prague 3 July 2006**

ECETOC and EEMS (European Environmental Mutagen Society), with the co-sponsorship of Cefic-LRI, organised two symposia at the 2006 annual meeting of EEMS in Prague on 3 July 2006.

The symposia, on ‘Molecular epidemiology: New knowledge from biomarkers of effects’ and on ‘Biomarkers for the evaluation of children’s health’, were well attended by some 150 and 100 participants, respectively, mostly from academia, government, contract research organisations and the pharmaceutical industry.

## **Molecular epidemiology: New knowledge from biomarkers of effects**

This symposium highlighted recent advances in the area of biomarkers of effect, confirming the potential of such biomarkers (chromosome aberrations and micronuclei in particular) to act as predictors of cancer risk at the group level. This is an important development for a number of reasons, not least because it opens the way to studies linking changes in risk to exposures measured directly or using corresponding biomarkers. Additionally, the progress achieved in the validation of biomarkers of effect holds useful lessons for efforts to validate and exploit biomarkers of exposure, underlining in particular the importance of exploiting large cohorts and the availability of well validated assay methods. Important challenges which still remain in the area of biomarkers of effect include achieving improved understanding of the



environmental and lifestyle factors contributing to the observed variation in biomarker levels. Also developing a better approach to the study of the impact of genetic variation on such biomarkers - perhaps by looking at variations in genes beyond those affecting genotoxicity (i.e. metabolism and DNA repair), such as genes related to cell cycle control and apoptosis.

#### **Biomarkers for the evaluation of children's health**

This symposium showed how studies of exposures and potential health impacts on children are developing. Results from the USA indicated effects in groups of children associated with exposures where the more precise nature of the exposures would be followed up with biomonitoring data to enable risk assessment and also, importantly, risk management. In Europe, several projects addressing children's susceptibility to environmental exposures have been ongoing. PINCHE focused on policy issues and CHILDRENGENONETWORK focused on genotoxic exposures along with a number of other projects with other focuses. Within CHILDRENGENONETWORK several field studies took place with national funding. Those include a Czech toxicogenomics study in children and mothers and Belgium mother-child susceptibility studies as well as telomeres studied in Barcelona. Exploitation and interpretation of existing data was discussed at the Symposium, presenting the baseline data which are crucial and needed for proper risk assessment in exposed groups. Health impacts and genotypes were further

explored in the impressive data material present in the Czech Republic.

Turning to the future of children studies, there was an evident need for more studies to answer our questions and such studies are planned in the USA as well as Europe. To optimise the benefit from these studies, researchers were encouraged to follow a number of quality criteria as suggested by ECETOC in its 'Guidance Document on Interpretation of Biomonitoring Data, Document 44', considering a sample's analytical integrity, the extent to which toxicokinetic information is taken into account, the relevance of the study for health effects, and how data align with other information already available within the study area.

The suite of papers based on the presentations made in Prague will be published as a special issue of Toxicology Letters (Elsevier Science) in 2007.

#### **Stakeholder workshop on human biomonitoring, Brussels, 6-7 December 2006**

A workshop on human biomonitoring was jointly organised by EU DG Environment, ECETOC and Health and Environment Alliance (HEAL) and hosted by the Flemish Minister of Environment on 6-7 December 2006. Participants included fifty stakeholders including policymakers from EU Member States, non-governmental organisations, representatives from the European chemical industry, and academia who are involved in studies measuring environmental pollutants accumulating in man.

The objectives of the meeting were to clarify the



framework for human biomonitoring in Europe, to help develop a coherent approach to human biomonitoring across Europe and to verify the preliminary results related to the EU coordination action ESBIO on human biomonitoring, funded by DG Research via the 6th Framework Programme of Research.

Day one of the workshop examined the use of Human Biomonitoring (HBM) data within various European environment and human health programmes, and how markers of exposure or effect may be used to monitor population exposure and be integrated into broader disease and health effects surveillance systems.

Breakout sessions made the following points:

- A harmonised European HBM programme is necessary and timely.
- Harmonised protocols for sample collection, storage, analysis and a standard strategy for the interpretation will lead to data comparability and significant saving in resources across the EU.
- One of the objectives is to build capacity across Europe and a functional network of laboratories and may lead to the development of centres of excellence.
- Any interpretation framework should be transparent, based upon available scientific data, understandable by stakeholders, deliver consistency across users and enable available HBM data to be placed in a risk based setting. More specifically, the ideas contained within the recent ECETOC Technical Document No. 44 were considered to currently represent the best basis by which any interpretation framework

might be based for biomonitoring activities forming part of the European Environment and Health Action Plan.

Ethical considerations of HBM studies were debated on the second day. The participants concluded that transparency in the aims and realistic outputs from such studies were key requirements especially at the planning stage. The meeting also concluded that despite differences in data protection and ethical approval legislation across the Member States, a level of harmonisation can be reached that allows a more coordinated approach to HBM in the EU.





## > Involvement in the EU REACH Implementation Project (RIP)

For ECETOC and its commitment to the REACH Implementation Projects (RIPs), 2006 started out where 2005 ended and increased as the year progressed. This significant support from ECETOC member companies at the request of both the Board of Administration and the Scientific Committee was unprecedented as the reality of the REACH chemical regulations progressed to approval by the European Parliament in December with first

legal implementation on 1 June 2007. The ECETOC contribution to the RIP process was targeted at RIP 3.2-2 (Chemical Safety Assessment and Chemical Safety Report – CSA/CSR) and RIP 3.3-2 (Information Requirements on intrinsic properties of substances).

Under the leadership of the European Chemicals Bureau (ECB) of the EC's DG Joint Research Centre

# EU REACH Implementation Project (RIP)

(DG JRC) for RIP 3.2-2, ECETOC member company science experts participated in working groups dedicated to 'development of guidance for carrying out a PBT assessment and risk characterisation of substances of very high concern (SVHC) in the environment' as well as 'the setting of derived no effect levels (DNELs) and assessment and risk characterisation of SVHCs for human health'. In addition, within RIP 3.2-2 there was a significant effort to define exposure scenarios and exposure assessment for which the ECETOC developed Targeted Risk Assessment (TRA) methodology and web tool was embraced as a scientific basis for screening and prioritisation, especially for human health risk assessment.

A consortium approach to RIP 3.3-2 under the leadership of Cefic, with representation from Member States, the European Commission and industry including ECETOC, addressed the development of a guidance document for industry on how they can fulfil the Information Requirements on intrinsic properties of substances. Through its membership of the Project Management Group (PMG), ECETOC coordinated organisation of the Endpoint Working Groups (EWGs) covering both environmental and human health endpoints. Specifically ECETOC member company experts led the 'Degradation,' 'Terrestrial Organisms' and 'Repeated Dose Toxicity' EWGs including providing Secretariat support. The EWGs have been well supported by groups which included member company experts developing guidance on toxicokinetics, cross-cutting issues, non

testing methods and non standard substances amongst others. The draft reports of the EWGs were reviewed with the Stakeholder Expert Group (SEG) in December and will be used to finalise the Technical Guidance Documents during the first half 2007.

Through member company employees and the archive of peer-reviewed reports representing a significant investment over many years, ECETOC, on behalf of industry has contributed a substantial scientific input to the RIP process to ensure chemical regulations that are based on robust science, a fundamental aspect of the organisation's charter.





## > Science Strategy

**On 24 May 2006 at the ECETOC Annual Technical Meeting (ATM), the Scientific Committee started the process of defining a new science strategy**

The 2006 Technical Meeting, organised as a 'futures workshop', sought to harness the views of a range of stakeholders, in addition to our member companies, about how they saw the future developing.

This was a very rewarding process from which, we have 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 its 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 subjects:

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.

### 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.

# Science Strategy

## 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 progress of these strategic science areas will be monitored by the Board and the Scientific Committee. Specific new actions from each area will compliment ECETOC's current activities 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.

The projects, work plan and progress reports will form a feature of ECETOC's website and other communications collateral from mid 2007.



Geoff Randall  
Chairman of the  
Scientific Committee



Neil Carmichael  
Secretary General

## > Science Awards

**With the objective to recognise young scientists, ECETOC has been active in the provision of an annual Science Award to outstanding works of science since 2003**

In 2006, ECETOC was pleased to be able to issue two types of Science Award for health sciences and environmental sciences related research.

### Health sciences related research

On the occasion of the 2006 EUROTOX (Federation of European Toxicologists and Societies of Toxicology) Annual Congress, 20-24 September in Croatia, ECETOC was pleased to present one of its Young Scientist Awards to Sabine Langie of the University of Maastricht, The Netherlands for her poster entitled: 'Redox-dependent regulation of nucleotide excision repair'. Sabine's research was a significant contribution to the understanding of the mechanisms of DNA repair which plays an important role in maintaining genomic integrity.

In addition, ECETOC was pleased to be able to recognise the work of Vlatka Filipovic Marijic of the Ruder Boskovic Institute, Zagreb, Croatia. Her poster, entitled 'Metal exposure assessment in native fish, *Mullus barbatus* L., from the Eastern Adriatic sea' was agreed by the judges to be 'Highly Commended'. In her research, Vlatka looked into age-related metallothioneins and metal fluctuation in liver, kidney and intestine tissue of *M. barbatus*, a

UNEP recommended bioindicator for the Mediterranean region.

### Environmental science related research

Within the framework of its commitment to encourage promising environmental scientists, ECETOC supported the Young Scientist Best Platform Award at the 2006 SETAC (Society of Environmental Toxicology and Chemistry) Europe Annual Meeting, 7-11 May in The Hague, The Netherlands.

ECETOC was pleased to present this award to Fabienne Moser, Centre for Expertise of Life Sciences, Waedenswil, Switzerland for her presentation: 'Amphibian metamorphosis assay for the detection of endocrine disruptors of the thyroid axis: Effects of perchlorate on *Xenopus laevis* tadpoles.'

Fabienne gave this presentation during the Congress session on 'Reproductive and developmental toxicology, often a matter of critical windows'.



## > Long-range Research Initiative

### Background

The American Chemistry Council (ACC) and the Chemical Industry Institute of Toxicology (CIIT) initiated a process in 1996 to define and mount a strategic research programme on the generic health and environmental issues that could evolve into major concerns or threats to the chemical industry. This initiative soon grew to incorporate participation of both the European and Japanese chemical industries under the respective auspices of the European Chemical Industry Council (Cefic) and the Japanese Chemical Industry Association (JCIA). At this time Cefic commissioned ECETOC to ensure appropriate and effective input to the programme by industry and academic scientists.

ECETOC organises, under the guidance of the Scientific Committee and the Secretariat, the Selection and Monitoring Teams composed of recognised scientific experts from member companies and academia. These teams (as shown in the diagram) are responsible for identifying new research to support needs impacting human health and environment issues related to chemicals. They also prepare appropriate Requests for Proposals (RfPs) for consideration by Cefic.<sup>1</sup>

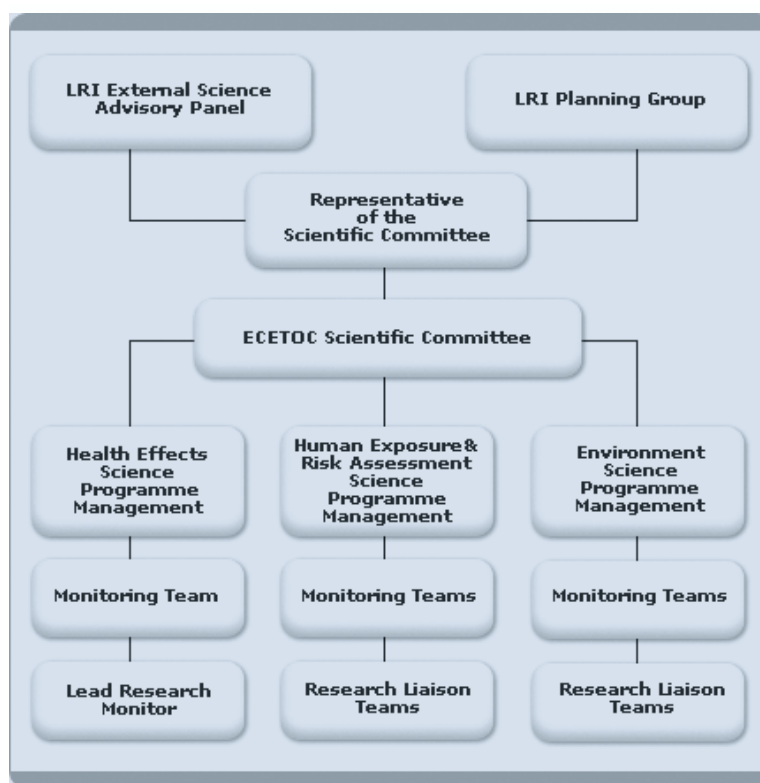
Following the publication of selected RfPs by Cefic, the ECETOC teams review the scientific merit of the proposals submitted by contract research groups (including universities, institutes etc.). They then recommend to Cefic which projects to fund.

After contractual closure, the ECETOC teams monitor the scientific progress achieved by the independent researchers up to and including publication of the peer-reviewed results in the open scientific literature.

<sup>1</sup> Please note that the LRI organisation is being modified during 2007



# Long-range Research Initiative



ECETOC's role in the Cefic-LRI programme

## Human Exposure and Tiered Risk Assessment (HETRA) Group

The HETRA team, managed by ECETOC, monitored several LRI projects over the year. Two of these were concluded in 2006:

- A chemical exposure management system and
- A study of chemical risk management in small and medium-sized enterprises

## Chemical exposure management system (CEMAS)

In 2006, a database for a chemical exposure management system (CEMAS) was developed to enable organisations, particularly small and medium-sized enterprises, to collect information that is relevant for the control of workplace risks. It is intended that CEMAS is used for the capture



and management of chemical exposure and risk assessment data along with associated contextual information. A standardised format will promote the sharing of (anonymous) data and associated information between interested parties. As a repository for such information it will have a role in meeting many of the regulatory requirements of chemical producers and users, including responsible care, product stewardship and REACH obligations in relation to the management of exposure scenarios.

#### **Chemical risk management in small and medium-sized enterprises**

A comparative European study investigated the effectiveness of different approaches to supporting chemical risk management in small and medium-sized enterprises. The study also described innovative tools under development in several EU countries to facilitate the management of chemical risks. New approaches to address chemical risk management in small firms – through non-regulatory guidance and support – began to emerge at the end of the 1990s. These approaches are underpinned by the ‘control banding’ concept and a generic approach to risk assessment, such as the Control of Substances Hazardous to Health (COSHH) regulations in the UK. As the study demonstrated, various parties involved in the business environment of small firms can support the success, sustainability and transferability of these approaches, and enhance the traditional roles of regulation, inspection and trade unions. This includes parties involved in the supply chain, and sectoral organisations, financial backers and advisers, education and training providers, and even public interest

groups. This is implicit in much of the thinking behind the proposed REACH regulations in relation to downstream users of chemical substances.

Continued in 2006 were studies on the normal background incidence, and individual variations, of key biomarkers of chemical exposure within the general population. Another project ongoing in 2006 was to describe the nature of the accidental misuse of chemicals and chemical products. Although some information is available, for example within national Poison Control Centres, a more complete picture across Europe is currently lacking. Furthermore, progress was made with an evaluation of the potential application of the intake fraction as a tool for targeting human risk assessments. The aim is to assess what chemical uses constitute the most significant routes of exposure for humans. Finally, a publication measured the initial success of the developing repeated dose database linking structure activity alerts of chemical substances to low no effect levels.

#### **Human Health Effects Programme (HEMT)**

In 2006, the Health Effects Monitoring Team continued to actively monitor progress on phase II projects in the current human health science areas of Immunotoxicology, Respiratory Toxicology and Allergy, and Chemical Carcinogenicity.

Two projects addressing the RfP entitled: ‘Hazard identification and characterisation of chemical respiratory allergens’ are still in progress and promise to yield valuable results and possible new approaches to safety assessment. Research on ‘the basis for

# Long-range Research Initiative

inter-individual differences in susceptibility to chemical allergy' successfully reached an agreed milestone and was endorsed for continuation.

Three research projects were commissioned to address 'the biological significance of chemically-induced DNA adducts, the investigation of the possible presence of thresholds, and the use of adducts in genotoxicity hazard and risk assessment', each approaching the subject from a somewhat different perspective and using different experimental strategies. The Monitoring Team held a successful and productive meeting with the individual contractors to discuss progress and further encourage exchange of ideas.

New activities were progressed in support of the development of alternative methods for toxicity testing as sponsored by the Cefic Alternatives Issue Management Team (AIMT). The process to select a research project to address the RfP entitled: 'Signal transduction pathways and the development of alternative approaches to reproductive toxicity testing' was completed successfully.

A Workshop, also commissioned by the AIMT during 2006 on the 'refinement of mutagenicity/genotoxicity testing' will be held in Malta in spring 2007.

## **Toxicogenomics and male reproductive development workshop**

This workshop was organised for the Cefic LRI endocrine disruptor research programme run by the EMSG (Endocrine Modulators Steering Group)

and was held 9 November 2006 at the Bayer CropScience facility in Sophia Antipolis, France. Its objective was to explore opportunities for research on toxicogenomics and male reproductive development.

Following some excellent presentations, the workshop participants discussed whether at this point, more studies should be conducted on trans-generational effects. It was decided that a better recommendation would be to rather carry out fundamental work on 'omics' in order to utilise existing available data and improve their interpretation. Two main areas worth pursuing were identified: 'biologically based dose response' and 'mechanistic modes of action'. The EMSG will further develop these two areas into more specific suggestions in the form of RfPs during 2007.





## > Communication

### **Publications**

ECETOC's primary outputs are its published state of the science reports. These take the form of both ECETOC's own publications and the publication of the conclusions of a task force or workshop in peer-reviewed journals.

In 2006 ECETOC's own publications comprise the following:

- JACC Reports (Joint Assessment of Commodity Chemicals) are comprehensive reviews of toxicological and ecotoxicological data on individual chemical substances.
- Documents are scientific briefing papers, addressing emerging issues.
- Monographs are comprehensive reviews of generic topics or issues fundamental to the application of sound science in evaluating the hazards and risks of chemicals to human health and the environment.
- Special Reports are compilations of data targeted to specific regulatory issues/demands.
- Technical Reports address specific applications of the science in evaluating the hazards and risks of chemicals to human health and the environment.
- Workshop Reports are summaries of the discussions and conclusions derived from ECETOC sponsored scientific workshops.

## Reports published by ECETOC

### *JACC Reports*

- No. 50** 1,1,1,2-Tetrafluoroethane (HFC-134a) (CAS No. 811-97-2) (Second Edition) (Published January 2006)
- No. 51** Synthetic Amorphous Silica (CAS No. 7631-86-9) (Published September 2006)
- No. 52** Trifluoroethane (HFC-143a) CAS No. 420-46-2 (Published November 2006)

### *Monographs*

- No. 35** Biomarkers and Molecular Epidemiology (Published as a special section of Mutation Research/Fundamental and Molecular Mechanisms of Mutagenesis, by Elsevier, August 2006)
- No. 36** Environmental Genotoxins in Children and Adults (Published as a special section of Mutation Research/Genetic Toxicology and Environmental Mutagenesis, by Elsevier, September 2006)

### *Technical Reports*

- No. 99** Toxicological Modes of Action: Relevance for Human Risk Assessment (Published July 2006)
- No. 100** Contribution to the Methodology for the Development of Acute Exposure Threshold Levels in Case of Accidental Chemical Release (Published July 2006)
- No. 101** Guidance for Setting Occupational Exposure Limits: Emphasis on Data-Poor Substances (Published October 2006)

### *Workshop Reports*

- No. 7** Workshop on Testing Strategies to Establish the Safety of Nanomaterials 7-8 November 2005, Barcelona (Published August 2006)
- No. 8** Workshop on Societal Aspects of Nanomaterials 9 November 2005, Barcelona (Published October 2006)

Complimentary ECETOC publications are provided on publication and by request to member companies, the academia, national and supra-national organisations, and a wide range of industry observers such as non-governmental organisations. In addition, ECETOC publications are requested by a range of commercial non-member organisations, who value their contents.

In full, a total of 10 publications were each disseminated to approximately 500 contacts during 2006.



### Articles published in peer-reviewed open literature

#### *The potential risks of nanomaterials: a review carried out for ECETOC*

Paul JA Borm, Centre of Expertise in Life Sciences, Zuyd University, Heerlen, The Netherlands; David Robbins Cenamps, Newcastle upon Tyne, UK; Stephan Haubold, Nanogate Coating Systems, Saarbrücken, Germany, Thomas Kuhlbusch IUTA, Duisburg, Germany; Heinz Fissan, IUTA, Duisburg, Germany; Ken Donaldson, ELEGI, University of Edinburgh, Scotland, UK; Roel Schins, IUF at the University of Düsseldorf, Düsseldorf, Germany; Vicki Stone, Dept of Biological Sciences, Napier University, Edinburgh, Scotland, UK; Wolfgang Kreyling, GSF-Research Centre for Environment & Health, Institute of Inhalation Biology, Neuherberg, Germany; Jürgen Lademann, Dermatology Clinic, Charité, Berlin, Germany; Jean Krutmann, IUF at the University of Düsseldorf, Germany; David Warheit, Haskell Labs, DuPont de Nemours, Wilmington, USA; and Eva Oberdörster, Department of Biology, Southern Methodist University, Dallas, USA

*Particle and Fibre Toxicology 3:11 (2006)*

### Online Communication



#### Public Website

Regular maintenance of the public site was undertaken to ensure that visitors can always access latest news and are greeted by an attractive home page. In addition new contacts were able to express their interest in scientific issues covered by ECETOC by subscribing for e-news updates and ECETOC's quarterly e-newsletter.

#### Members' Site

The Members' Site is a range of restricted web pages that are governed by logins granted to employees of member companies. Any member company employee can request a login or reminder of their login by e-mailing [info@ecetoc.org](mailto:info@ecetoc.org).

Measures were taken during 2006 to increase the value-added of the Members' Site. Members are now being offered privileged news about ECETOC invite-only workshops, about events organised by associated organisations and news of how to contribute to other ongoing peer-review procedures.

They can stay better informed of discussions within the scientific committee by downloading the meetings' minutes. And they can now verify the ongoing progress of ECETOC's task forces and search the full archives of ECETOC news items.

## Extranet

The Extranet, operated under the I.R.I.S. DocShare system serves as a closed space or electronic library where participants are able to consult and download privileged working documents. The majority of ECETOC's task forces set up a working folder for this purpose.

Any member company employee with a login can also access the Extranet pages through a link in the 'Quick Links' list within the Members' Site, where they will find archived copies of minutes of ECETOC Scientific Committee meetings, in addition to the task force folders to which they will have been granted privileged access, should they be a task force member. Visitors to the Extranet can also benefit from a 'What's new' page in which newly created documents are also listed.

The system was updated at the end of 2006 to enhance the way in which the ECETOC Secretariat manages its database of contacts and archives its documents.

## External Representation

[Review of the World Health Organisation's \(WHO\) relations with nongovernmental organisations \(NGOs\) at its 117th Executive Board Meeting 27 January 2006, Geneva](#)

Michael Gribble represented ECETOC at this meeting, where the WHO renewed ECETOC's status as an officially recognised NGO, a position it has held since 1996.

[1st Stakeholder Expert Group \(SEG\) Meeting organised by the European Centre for the Validation of Alternative Methods \(ECVAM\) 9 March 2006, Stresa](#)

Michael Gribble presented the status of the RIP 3.3-2 Endpoint Working Groups (Phase 2: Guidance Development).

['State of the Art on Human Biomonitoring in Europe' Symposium organised by the European Commission Expert Team to Support Biomonitoring \(ESBIO\)](#)

[19-21 March 2006, Lisbon](#)

Peter Boogaard of Shell Health Services spoke on human biomonitoring activities/programmes that are being undertaken by Industry.

[ECB TC Classification & Labelling - General Issues for Health and Environmental Effects](#)

[22 March and 3 October 2006, Arona](#)

ECETOC was represented by Christa Hennes of ECETOC.



European Commission Directorate General Health  
and Consumer Protection Scientific Expert Committee  
5 April 2006, Brussels

Michael Gribble and Geoff Randall of ECETOC participated in a meeting of this Committee to present the role of ECETOC in representing the chemical industry science.

Consultative Forum on Environment and Health  
organised by EU Commission

19 April and 30 November 2006, Luxembourg  
ECETOC was represented by Dirk Pallapies of BASF.

RIP 3.2-2 Workshop on Exposure Scenarios  
9 June 2006

Chris Money of ExxonMobil represented ECETOC at this workshop, where he presented the ECETOC approach to targeted risk assessment.

TC C&L Health Group – Expert group meeting on  
Reproductive Toxicity Potency

8 October 2006, Arona  
ECETOC was represented in this meeting by Steffen Schneider of BASF.

WHO/IPCS Workshop on Skin Sensitisation in  
Chemical Risk Assessment

17-18 October 2006, Berlin  
ECETOC was represented by David Basketter of Unilever.

BIAC Chemicals Committee  
14 November 2006, Berlin

Michael Gribble and Geoff Randall represented

ECETOC at this meeting.

Symposium on Human Biomonitoring organised  
by Environmental Cancer Risk, Nutrition and  
Individual Susceptibility (ECNIS)

29 November 2006, Luxembourg  
ECETOC was represented in this symposium by Dirk Pallapies of BASF.

ECVAM Scientific Advisory Committee  
On-going

ECETOC was represented by Julia Fentem of Unilever

OECD Working Party on Manufactured  
Nanomaterials

On-going  
ECETOC (through BIAC) was represented by Karin Wiench of BASF

**Posters and Presentations**

- International Conference on Environmental Epidemiology & Exposure 6-9 September 2006, Paris, France  
Chris Money of ExxonMobil presented a poster on the ECETOC approach to targeted risk assessment.
- SETAC European Annual Congress 2006 7-11 May 2006, The Hague, The Netherlands  
B. Hoeger, M. Halder, both of the European Commission DG Joint Research Centre; S. Jeram of the Institute of Public Health of the Republic of Slovenia; M. Holt of ECETOC and P. Douben of



Unilever, now Cefic, presented a poster on the reduction of animal use in acute aquatic toxicity testing: Further development of the threshold approach and its application to existing chemicals and plant protection products.

## Outreach

### OutREACH Events

outREACH events were established in 2003 with the primary aim to improve the dialogue between ECETOC as an organisation and employees of its member companies. Each outREACH meeting achieves this through the in-depth review of a topical issue. Registration is open and participants comprise environmental health & safety scientists and senior management of both member and potential member companies, trade association delegates, academics and most recently regulators.

During 2006, one such meeting was hosted by ECETOC member company, AstraZeneca. It took a human health angle and served to present an experience in developing an approach to REACH for the assessment of the hazards and risk of chemical allergy and to report on the findings of a recently concluded ECETOC task force on setting occupational exposure levels for data-poor substances.

### Exhibition

Within an objective to increase its outreach to a wider community, ECETOC undertook to host a stand

at the exhibition of the EUROTOX Annual Congress that took place 20-24 September 2006 in Dubrovnik, Croatia. The EUROTOX Annual Congress was selected to pilot this outreach approach due to its European nature and broad focus.

ECETOC's attendance served to increase awareness of the organisation and of its publications as well as to offer an opportunity for people to ask more about how ECETOC works and learn how it can assist them in their work.

ECETOC will consider exhibiting at targeted events in the future, appropriate to the outreach objectives of its work programme.





## > Scientific Networks

**ECETOC is respected by competent authorities, international organisations and fellow trade associations, with whom it partners and cooperates to share and develop its scientific approaches**

During 2006, ECETOC was able to further its success through scientific partnerships with a range of organisations.

ECETOC continued its collaboration with the World Health Organisation (WHO), with whom its official relationship as a recognised NGO was confirmed in early 2006. Its International Programme for Chemical Safety (IPCS) has a specific relationship with ECETOC and during the year, partners on both sides worked together to progress their collaboration in the areas of use of human data and the toxicology of cyanides.

ECETOC has a symbiotic relationship with the European Commission with whom it represents industry's scientific knowledge with respect to the health and safety of chemicals.

During the year, it was involved with several initiatives in several Directorate Generals (DGs), more specifically DG Joint Research Centre (JRC), DG Environment, DG Enterprise and DG Sanco.

To a significant extent, ECETOC was involved with DG JRC via its work on the REACH Implementation Projects 3.2-2 (Chemical Safety Assessment and Chemical Safety Report) and 3.3-2 (Information Requirements), where it had regular interaction with representatives of other consortium partners. In particular on RIP 3.3-2, ECETOC member company representatives were involved in every endpoint working group.

RIP 3.2-2, the second phase of RIP 3.2 Technical Guidance Document (TGD) was led by ECB and partially contracted to a Cefic led consortium.

RIP 3.3-2, the second phase of RIP 3.3 Technical Guidance Document was led by Cefic with the support of ECVAM (another operational arm of JRC) as external coordinator.

As participants of the REACH Stakeholder Expert Group (SEG), representatives of ECETOC member companies also collaborated with DG Environment, who together with DG JRC and DG Enterprise, liaised to ensure the scientific, political and legislative compatibility of the REACH tools and methodologies.

Under the auspices of the Major Accidents Hazards Bureau (MAHB) of the JRC, ECETOC contributed to the EU Acutex Project, led by INERIS and concluded in 2006.

2006 saw a step forward in the mutual awareness of ECETOC and the European Commission's Directorate General Health and Consumer Protection, also known as DG Sanco. Michael Gribble and Geoff Randall of ECETOC participated in a meeting of their Scientific Expert Committee to present the role of ECETOC in representing the chemical industry science. As a result, further involvement in this Committee is anticipated during 2007.

ECETOC furthered its relationship with members of EUROTOX, the Federation of European Toxicologists and Societies of Toxicology, by participating at its Annual Congress in September 2006 with an exhibition booth and repeating its support of its Young Scientist Award in the realm of human health sciences.

Similarly, ECETOC continued its role as a supporter of Society of Environmental Toxicology and Chemistry SETAC Europe, by sponsoring its Young Scientist Best Platform Presentation Award at its Annual Meeting in May 2006.

ECETOC continued its annual collaboration with the European Environmental Mutagen Society EEMS to organise two symposia at its Annual Meeting in Prague, Czech Republic in July, (for more information on these symposia, see Workshops on page 21). This successful partnership will continue in 2007 with ECETOC already committed to organise a symposium at their next Annual Meeting.



## > Modus Operandi

**Since ECETOC's inception in 1978, the original modus operandi has undergone considerable refinement, crucial to sustaining the organisation's effectiveness and reputation for scientific integrity in a changing world**

### **Board**

ECETOC operates under the general direction of a Board comprising up to twelve senior executives from member companies. The Board is responsible for the overall policy and finance of the association.

### **Scientific Committee**

Appointed by the Board, the Scientific Committee provides strategic leadership for the ECETOC science programme. The committee is crucial to the success of ECETOC, in establishing and maintaining its authority and reputation as a source of sound scientific information and judgement.

Since mid-2001, the competencies of senior scientists from member companies on this pivotal ECETOC committee, have been complemented by leading external experts in the fields of toxicology, environmental science and occupational epidemiology. Through these appointments, the Board has reinforced the range of expertise available to direct effectively, the ECETOC science programme, while increasing the transparency and independence of the committee's processes.

### **Programme Selection**

Fundamental generic issues continue to feature substantially in the ECETOC programme as the demand escalates for a greater understanding of the impact of chemicals on health and the environment.

In parallel with the workshops, suggestions for the ECETOC work programme continue to be invited directly from all members of ECETOC and from outside organisations, including academia and regulatory authorities.

For a proposal to be progressed, it must be supported by at least two member companies and judged to meet the scientific standards required by the Scientific Committee. Provided the above criteria are met, specific Terms of Reference are drawn up and endorsed by the Scientific Committee.

### **Task Forces**

When the Scientific Committee has agreed in principle a project, an initial 'scoping' meeting defines clearly the overall objectives, resources needed, deliverables and time plan. These project proposals form the basis for the Scientific Committee's decision

on how the initiative is progressed, the choice being essentially between the approach of task force members undertaking the work (conventional task force) or, to a lesser or greater extent, through the use of a contractor. Most of ECETOC's outputs continue to be generated and underpinned by task forces. A task force comprises appropriate experts, drawn from member companies.

The final composition is subject to the endorsement of the Scientific Committee, taking into account the range of skills required to address the selected topic.

## Workshops

The principal aim of an ECETOC organised workshop is to define the State of the Science on a given topic or issue. This is done by drawing together the world's leading experts on the subject. They debate the issue, draw conclusions and make recommendations. The outcome of the workshop is a summary document, white paper or report that defines the science gaps related to the issue. The recommendations catalyse active research programmes which address safety, human health and environmental concerns that have been raised.

## Publications

The main output of the ECETOC work programme is published in a range of reports:

Technical Reports address specific applications of the science in evaluating the hazards and risks of chemicals to human health and the environment; JACC Reports (Joint Assessment of Commodity Chemicals) are comprehensive reviews of

toxicological and ecotoxicological data on individual chemical substances;

Monographs are comprehensive reviews of generic topics or issues fundamental to the application of sound science in evaluating the hazards and risks of chemicals to human health and the environment; Special Reports are compilations of data targeted to specific regulatory issues/demands;

Workshop Reports are summaries of the discussions and conclusions derived from ECETOC sponsored workshops;

Technical Documents are scientific briefing papers, addressing emerging issues.

Reports (with the exception of Workshop Reports) continue to be published following peer-review by the Scientific Committee and external experts.

ECETOC publications are provided to all member companies and to other interested parties, such as various regulatory authorities, international organisations and academic groups.

## outREACH Events

outREACH events are organised by geographic regions throughout Europe with the primary objective of improving the dialogue between ECETOC as an organisation and employees of its member companies. The current scientific programme is reviewed with emphasis on a specific critical issue. A secondary objective is to raise the visibility of ECETOC with selected non-member companies which use and/or manufacture chemicals.

# Members of the Scientific Committee

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ECETOC Scientific Committee members as of end December 2006

Geoff Randall	Chairman*
Remi Bars	Bayer CropScience
Peter Calow	Roskilde University*
Watze de Wolf	DuPont
John Doe	Syngenta
David Farrar	Ineos Chlor
Andreas Flückiger	F. Hoffmann-La Roche
Helmut Greim	Technical University Munich*

Tom Hutchinson	AstraZeneca
Giuseppe Malinverno	Solvay
Stuart Marshall	Unilever Research
Chris Money	ExxonMobil
David Owen	Shell Chemicals
Mark Pemberton	Lucite International
Carlos Rodriguez	Procter & Gamble
Gerard Swaen	Dow
Saskia van der Vies	Vrije Universiteit Amsterdam*
Ben van Ravenzwaay	BASF
Eckhard von Keutz	Bayer HealthCare
Hans-Jürgen Wiegand	Degussa



From left to right: Helmut Greim, Saskia van der Vies, Peter Calow, Neil Carmichael, Geoff Randall and Stuart Marshall

The Scientific Committee met six times in 2006 and benefited from the dedicated contribution of the above members, including Peter Douben who left during the year to pursue a position at Cefic. During the year, the Committee was pleased to welcome David Farrar of Ineos Chlor, Giuseppe Malinverno of Solvay, Eckhard von Keutz of Bayer HealthCare, Mark Pemberton of Lucite and an additional external member in the form of Saskia van der Vies of the Vrije Universiteit Amsterdam.

\* External

## Members of the Secretariat

**At the end of 2006, ECETOC employed the following members of staff in order to assure the smooth management of daily activities**

Michael Gribble	Outgoing Secretary General
Neil Carmichael	Incoming Secretary General
Christa Hennes	Health Sciences Manager
Martin Holt	Environmental Sciences Manager
Henk Vrijhof	Chemicals Programme Manager
Charlotte Amiri	Web & Media Manager
Geneviève Gérits	Office Manager
Christine Yannakas	Secretary

The ECETOC Secretariat is responsible for the co-ordination and management of the scientific work programme ensuring that the tasks allocated by the Scientific Committee are accomplished in a timely fashion.

ECETOC's continued success relies greatly on its Secretariat. This team of dedicated professionals supports the scientists engaged in the work of the ECETOC programme in meeting the objectives set by the Scientific Committee.



From left to right: Genevieve Gerits, Martin Holt, Christine Yannakas, Henk Vrijhof, Charlotte Amiri, Neil Carmichael, Christa Hennes and Michael Gribble





## Finance

ECETOC's 2006 finances were very solid with a slight positive balance as budgeted  
(figures are actuals in euros)

### Income

Subscriptions:	
Full Members	1,354,500
New Members	68,000
Total subscription income	1,422,500

Bank interest	35,122
Document sales	13,056
Project-related	316,433
<u>Total Income</u>	<u>1,787,121</u>

### Balance Sheet and Reserves

Balance Sheet:	
Income	1,787,121
Expenditure	1,755,543
Operating margin	31,578

Reserves: <sup>1</sup>	
Opening	1,388,281
Operating margin	31,578
Closing reserve	1,419,858

### Expenditure

Salaries (and related expenses)	1,091,201
Office running expenses	245,947
Travel expenses	15,515
Meetings and consultants	322,005
Professional services	10,632
Bank charges	5,010
Capital expenditure	6,000
Publications	41,046
Miscellaneous	9,416
Website	8,771
<u>Total Expenses</u>	<u>1,755,543</u>

<sup>1</sup> Estimated reserves required: 700,000



# Glossary of Abbreviations

## Glossary of Abbreviations

ACC	American Chemistry Council
ACUTEX	An EU-funded research project aimed at furthering scientific exchange and collaboration in support of the development of acute exposure levels for toxic substances in Europe
AEGL	Acute Exposure Guideline Levels
AETL	Acute Exposure Threshold Levels
AIMT	CEFIC Alternatives Issue Management Team
ATM	Annual Technical Meeting
ACC	American Chemistry Council
BAuA	Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, Germany
BfR	Bundesinstitut für Risikobewertung, Germany
CAS	Chemical Abstracts Service
CEFIC	European Chemical Industry Council
CEMAS	Chemical Exposure Management System
CHILDRENGENONETWORK	European Network on Children's Susceptibility and Exposure to Environmental Genotoxics (EU)
COSHH	Control of Substances Hazardous to Health
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report
Danish EPA	Danish Environment Protection Agency
DG	Directorate General (department of the European Commission)
DG SANCO	Directorate General for Health and Consumer Protection
DNEL	Derived No Effect Levels
EA	Environment Agency, UK
ECB	European Chemicals Bureau
ECNIS	EU FP6 Project on Environmental Cancer, Nutrition and Individual Susceptibility
ECVAM	European Centre for the Validation of Alternative Methods
EEMS	European Environmental Mutagen Society



EMSG	Endocrine Modulators Steering Group
EPA	Environmental Protection Agency, USA
ESBIO	European Commission Expert Team to Support Biomonitoring
EUROTOX	Federation of European Toxicologists and Societies of Toxicology
EWG	Endpoint Working Group
FDA	Food and Drug Administration, USA
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (UN)
HBM	Human Biomonitoring
HEAL	Health and Environment Alliance
HMT	Human Health Effects Programme
HFC	Hydrofluorocarbon
ILSI	International Life Sciences Institute
INERIS	L'Institut National de l'Environnement Industriel et des Risques, France
IPCS	WHO's International Programme on Chemical Safety
ITS	Intelligent Testing Strategy
JACC	Joint Assessment of Commodity Chemicals
JCIA	Japanese Chemical Industry Association
JRC	Joint Research Centre
KEMI	Chemicals Inspectorate, Sweden
LRI	CEFIC Long-range Research Initiative
MAHB	Major Accidents Hazards Bureau
MOA	Mode of Action
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
Oekopol	Institut für Ökologie und Politik, Germany
OEL	Occupational Exposure Limit (value)
PAFT	Programme for Alternative Fluorocarbon Toxicity Testing
PBT	Persistent, Bioaccumulative and Toxic
PINCHE	(EU) Policy Interpretation Network on Children's Health and Environment
PMG	Project Management Group
REACH	EU regulatory framework for the Registration, Evaluation and Authorisation of Chemicals
RIP	Request for Proposals
RIP	REACH Implementation Project
RIVM	Rijksinstituut voor Volksgezondheid en Milieu, The Netherlands

# Glossary of Abbreviations

SETAC	Society of Environmental Toxicology and Chemistry
TC C&L	Technical Committee on Classification and Labelling of Dangerous Substances
TGD	Technical Guidance Document
TTC	Threshold of Toxicological Concern
UNEP	United Nations Environment Programme
WHO	World Health Organisation





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ECETOC, European Centre for Ecotoxicology and Toxicology of Chemicals, was established in 1978 as a scientific, non-profit making, non-commercial association, financed by 51 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.

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