

ELEVATING EXPOSURE SCIENCE IN CHEMICAL SAFETY MANAGEMENT

DEVELOPING RECOMMENDATIONS FOR STAKEHOLDERS



Workshop background and objectives

The EU Green Deal brings a paradigm shift to European (chemical) legislation influencing the use of chemicals in many aspects. Relevant assessment of safety and sustainability of any type of product, in parallel to reduced reliance on animal testing and increased protection levels, can only be achieved by consideration of relevant and reliable use and exposure data, along with hazard information.

ECETOC is convening a workshop on regulatory and industry needs from (and contributions to) exposure science to enable the transition to more sustainable product uses. Representatives of the European chapter of the International Society for Exposure Science (ISES Europe) have recently published a series of papers¹ with ideas and suggestions on actions to strengthen exposure science in Europe, which will be used as a starting point for more specific discussions on the science at the regulatory/industry interface.

The workshop will take place over two days:

- On Day 1, stakeholders from European Institutions, research centres, sector associations and industry will highlight the **barriers and opportunities** to enhance the use of exposure information in chemical safety assessments within Europe.
- On Day 2, participants will discuss face-to-face in small groups to develop a set of **practical, actionable recommendations** for elevating the role of exposure science in chemical safety assessment within Europe, both in the present situation and under future chemical management schemes.

The workshop presentations and discussions will be based around four key actions areas concerning regulatory and industry needs: *improving access to relevant exposure information, enhancing exposure models, new needs for circularity and sustainability, and capacity building.*

The focus will be on human exposure in the broadest sense, though several aspects covered such as use definition may be equally applicable to environmental exposure science. Internal exposure is not in focus.

It is anticipated that the workshop outcome, setting out the practical recommendations developed, will be documented in an ECETOC workshop report or a peer reviewed publication.

¹ Peter Fantke, Yuri Bruinen de Bruin, Urs Schlüter, Alison Connolly, Jos Bessems, Stylianos Kephelopoulos, Maryam Zare Jeddi, An van Nieuwenhuysse, Tatsiana Dudzina, Paul T.J. Scheepers, Natalie von Goetz. The European exposure science strategy 2020–2030, Environment International, Volume 170, 2022, 107555, ISSN 0160-4120, <https://doi.org/10.1016/j.envint.2022.107555>.

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Workshop programme

Day 1: Exploring the challenges and opportunities - 25 October [F2F and online participants]		
09.00 – 09.30	Arrival and registration	
09.30 – 09.40	Welcome, introduction and workshop objectives	Blanca Serrano Ramon, ECETOC / Jan Urbanus, Shell
09.40 – 10.00	Keynote: European exposure science in a changing climate	Paul Scheepers, Radboud University
Key action area 1: New needs for circularity and sustainability		
10.00 – 10.20	Material flows to identify and address exposure throughout the supply chain	Violaine Verougstraete, Eurometaux
10.20 – 10.40	The Safe and Sustainable by Design framework and the opportunities to improve the exposure information	Irantzu Garmendia, European Commission - JRC REMOTELY
10.40 – 11.00	Safe and sustainable chemicals and materials - strategic R&I approaches	Christina Markouli, European Commission REMOTELY
11.00 – 11.20	Panel/Q&A with speakers	Speakers from session Moderator: An van Nieuwenhuysse, Laboratoire National de Santé (LU)
11.20 – 11.50	<i>Coffee break</i>	
Key action area 2: Enhancing exposure models		
11.50 – 12.10	Best practice in Exposure Modelling – Thoughts from the European Exposure Science Strategy 2020–2030	Urs Schlüter, BAuA
12.10 – 12.30	Reflections on a performance study of the TRA-Worker exposure prediction tool	Jan Urbanus, Shell
12.30 – 12.50	Consumer and general population exposure – challenges/opportunities	Astrid Heiland, German Federal Institute for Risk Assessment (BfR)
12.50 – 13.10	Panel/Q&A with speakers	Speakers from session Moderator: Wouter Fransman, TNO
13.10 – 14.10	<i>Lunch</i>	
Key action area 3: Improving access to relevant exposure information		
14.10 – 14.30	REACH registration dossiers as a source of exposure data	Celia Tanarro, ECHA
14.30 – 14.50	How to link biomonitoring data to sources of exposure to enable effective risk management	Tiina Santonen, FIOH

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14.50 – 15.10	Exposure modelling: generating robust exposure data to increase confidence in safety decision-making. Perspectives from the agrochemical sector	Alistair Morriss, Corteva REMOTELY
15.10 – 15.30	Development of a worker's exposure data collection tool and database tool for systematic exposure data gathering for metals and metalloids	Steven Verpaele, Nickel institute
15.30 – 15.50	Panel/Q&A with speakers	Speakers from session Moderator: Urs Schlüter, BAuA
15.50 – 16.10	<i>Coffee break</i>	
Key action area 4: Capacity building		
16.10 – 16.30	Capacity Building by Advancing Exposure Science Education and Training	Alison Connolly, University College Dublin
16.30 – 16.50	The Human Capital view on Exposure science – Insights from our 2023 Deloitte Human Capital trend report	Nathalie Dom, Deloitte
16.50 – 17.10	Supply Chain Communication of Exposure Information	Giulia Sebastio, Downstream Users of Chemicals Coordination Group (DUCC) REMOTELY
17.10 – 17.30	How SME companies use (or would wish to use) chemical exposure information for decision-making	Clemens Rosenmayr, SMEunited (WKÖ, member association of SMEunited)
17.30 – 17.50	Panel/Q&A with speakers	Speakers from session Moderator: Paul Scheepers, Radboud University
17.50 – 18.00	Information on dinner and Brief introduction to Day 2	Jan Urbanus, Shell

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Day 2: Developing practical, actionable recommendations for stakeholders - 26 October [F2F participants]

09.00 – 09.10	Welcome and Introduction to Day 2 – Refresh and more info on process	Jan Urbanus, Shell
09.10 – 11.00	Breakout group 1a: New needs for circularity and sustainability	Moderator: Violaine Verougstraete, Eurometaux Rapporteur: Wibke Lölsberg, BASF SE
	Breakout group 2a: Enhancing exposure models	Moderator: Celia Tanarro, ECHA Rapporteur: Benjamin Spielmann, BASF
	Breakout group 3a: Improving access to relevant exposure information	Moderator: Tiina Santonen, FIOH Rapporteur: Maryam Zare Jeddi, Shell
	Breakout group 4a: Capacity building	Moderator: Bob Barter, ExxonMobil Rapporteur: Alison Connolly, University College Dublin
11.00 – 11.15	Coffee	
11.15 – 13.00	Breakout group 1b: New needs for circularity and sustainability	Moderator: Violaine Verougstraete, Eurometaux Rapporteur: Wibke Lölsberg, BASF SE
	Breakout group 2b: Advancing the use of exposure models	Moderator: Celia Tanarro, ECHA Rapporteur: Benjamin Spielmann, BASF
	Breakout group 3b: Improving access to relevant exposure information	Moderator: Tiina Santonen, FIOH Rapporteur: Maryam Zare Jeddi, Shell
	Breakout group 4b: Capacity building	Moderator: Bob Barter, ExxonMobil Rapporteur: Alison Connolly, University College Dublin
13.00 – 14.15	Lunch	
14.15 – 15.15	Plenary feedback from breakout groups and share second opinions / Q&A	Rapporteurs per breakout group, All
15.15 – 15.30	Coffee break	
15.30 – 15.50	Priority setting and commitment conversation	Jan Urbanus, Shell
15.50 – 16.00	Summarise and close	Blanca Serrano Ramon, ECETOC

25-26 October 2023 | Alicante

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Organising Committee

Paolo	Boffetta	Università di Bologna, IT
Heli	Hollnagel	Dow, CH
Peter	Fantke	DTU, DK (<i>initial phase</i>)
Kevin	Pollard	ECHA, FI
Urs	Schlüter	BAuA, DE
Benjamin	Spielmann	BASF, DE
Celia	Tanarro	ECHA, FI
Jan	Urbanus	Shell, NL
An	van Nieuwenhuysse	Laboratoire National de Santé, LU
Andrea	Salvadori	ECETOC, BE
Anne	Vallès Meunier	ECETOC, BE
Blanca	Serrano Ramón	ECETOC, BE
Lucy	Wilmot	ECETOC, BE

Venue

[Hotel Alicante Gran Sol by Melia](#)

C/ Rambla de Mendez Nuñez 3
Alicante
Spain

(Careful! There is another hotel with a similar name, the Hotel Melia Alicante, which is located 550 meters away)

Contact

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Speakers' bios and abstracts

Keynote: European exposure science in a changing climate

Paul Scheepers, Radboud University

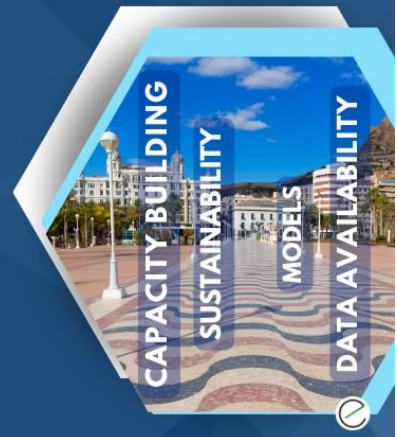
In this contribution some of the challenges for exposure science are discussed related to the changing climate and the need to adopt more sustainable solutions to our current ways of life. The changing climate itself cannot be undone or reversed but our footprints can be further reduced. Like many colleagues with other backgrounds, exposure scientists will try and contribute to resolve the many problems at hand. Exposure scientists' contributions can support safe and sustainable by design solutions and actions to strengthen prevention and increase resilience for human health and the environment. As laid out in the 'European Exposure Science Strategy 2020-2030' there is a role to play for exposure science, specifically in Europe. This strategy identifies priority areas where actions are needed. We would like to have an impact in the following areas: education, training and implementation, exposure models, exposure data repositories and analytics, human biomonitoring programmes, policy uptake, and funding and international cooperation. In this presentation the activities in each of the five priority areas will be discussed in to their scientific, societal and technological contexts.



Paul T.J. Scheepers obtained his MSc in environmental sciences at Wageningen University and his PhD in toxicology at Radboud University where he was appointed assistant professor in 1995 in toxicology. He founded Research Lab Molecular Epidemiology. In 2007 he obtained his associate professorship in risk assessment and molecular epidemiology. His teaching has a focus on exposure and health risk assessment. With his research group he develops human biological monitoring methods with applications in occupational and environmental health. He coordinated several EU projects in this field. Currently he contributes to scientific committees in the Netherlands (Health Council and the National Institute of Public Health and the Environment) and to committees and working groups of EUROTOX, WHO and ILO. He chairs the board of the Contact Group Chemistry and Health (CGC) and is president of the Europe Chapter of the International Society of Exposure Science (ISES Europe). Since 2022 his research group and laboratory became part of the Environmental Science cluster of the Radboud Institute for Biological and Environmental Sciences (RIBES) of the Radboud University, Nijmegen.

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Material flows to identify and address exposure throughout the supply chain

Violaine Verougstraete, Eurometaux

Achieving Europe's climate and digital transition objectives will require the use of hazardous substances for which there are no feasible alternatives to date. The shift towards more sustainable technologies may even increase volumes of such substances (e.g., metals and inorganics). There are valid concerns that the increased use of "(eco)toxic" metals as well as their circularity-linked to recycling- would increase releases and possible impacts on health and environment. To defend a management model based on the control of risks (rather than focused only on hazard), industry needs to demonstrate control of exposure and emissions, supported by high quality representative exposure assessments.

Exposure data need to show a good understanding of today's exposures, risks, and their control, complemented with a good knowledge and management of expected future emissions and/or trends ("today and tomorrow"), across the supply chain and covering the lifecycle.

Materials/mass flows can help in identifying volumes, use patterns and exposures/emissions that are to be expected, help focus on adapted risk management measures but also promote the relevance of exposure assessment/ exposure-control measures to reach the toxic-free environment status the EU aims at.



Violaine Verougstraete studied medicine and toxicology at the Catholic University of Louvain, did a DEA in Public Health and obtained her PhD in Public Health in 2005 from the Catholic University of Louvain (Belgium). She worked as a researcher at the Industrial Toxicology and Occupational Medicine Unit of the Catholic University of Louvain for 8 years. She joined Eurometaux in May 2005 and since January 1, 2012, she is Chemicals Management Director at Eurometaux, coordinating all chemicals management activities. She attends the ECHA Risk Assessment Committee meetings as a regular stakeholder. She is teaching Human Toxicology at the RUG (Universiteit Gent) and Regulatory Toxicology at the UCL (Catholic University of Louvain, Faculty of Medicine).

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The Safe and Sustainable by Design framework and the opportunities to improve the exposure information

Irantzu Garmendia, European Commission

The European Green Deal, is the climate neutrality, a circular economy and a zero pollution/toxic free ambition of the European Commission and it defines clear goals to put the European economy and society on this path towards a sustainable future.

Among the environmental strategies, contributing to its objectives the Chemical Strategy for Sustainability identifies a number of actions to better protect the human health and the environment. And identifies as key enabler to achieve its objective the development of a framework to ensure the placement on the market of chemicals, materials and products that are safe and sustainable by design (SSbD).



Irantzu is the Project Officer at the Joint Research Center leading the SSbD project in the Technologies for Health Unit and in charge of the safety aspects of the framework. She has more than 15 years of experience as a professional in the field of regulatory affairs and product stewardship. Irantzu is an Organic Chemist by training with postgraduates in Occupational Health and Safety, Chemical Engineering and Toxicology.

Safe and sustainable chemicals and materials - strategic R&I approaches

Christina Markouli, European Commission

The European Commission published in 2022 the Strategic Research and Innovation Plan (SRIP) for safe and sustainable chemicals and materials and the Recommendation on the assessment framework for 'safe and sustainable by design' chemicals and materials. During this presentation both actions will be introduced with an update on progress done since their publication and the next steps.



Christina Markouli is a Policy Officer at the Industrial Transformation unit at the European Commission- DG Research and Innovation and currently involved in the implementation of the framework for safe and sustainable materials and chemicals as well as the future criteria development. She also assists the management of the public-public partnership PARC on chemical risk assessment. She holds a PhD in Biomedicine from the Vrije Universiteit Brussel on genetics and developmental biology.

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Best practice in Exposure Modelling – Thoughts from the European Exposure Science Strategy 2020–2030

Urs Schlüter, Federal Institute for Occupational Safety and Health, BAuA, Dortmund Germany; International Society of Exposure Science – Europe Chapter

Exposure models are essential in almost all relevant contexts for exposure science. To address the numerous challenges and gaps that exist, exposure modelling is one of the priority areas of the European Exposure Science Strategy developed by the European Chapter of the International Society of Exposure Science (ISES Europe). A strategy was developed for the priority area of exposure modelling in Europe with four strategic objectives. These objectives are

- (1) improvement of models and tools,
- (2) development of new methodologies and support for understudied fields,
- (3) improvement of model use and
- (4) regulatory needs for modelling.

In a bottom-up approach, exposure modellers from different European countries and institutions who are active in the fields of occupational, population and environmental exposure science pooled their expertise under the umbrella of the ISES Europe Working Group on exposure models. This working group assessed the state-of-the-art of exposure modelling in Europe by developing an inventory of exposure models used in Europe and reviewing the existing literature on pitfalls for exposure modelling, in order to identify crucial modelling-related strategy elements.

Decisive actions were defined for ISES Europe stakeholders, including collecting available models and accompanying information in a living document curated and published by ISES Europe, as well as a long-term goal of developing a best practice in exposure modelling.

Alongside these actions, recommendations were developed and addressed to stakeholders outside of ISES Europe. Additionally to the four strategic objectives, the working group developed an action plan and roadmap for the implementation of the European Exposure Science Strategy for exposure modelling. This strategic plan will foster a common understanding of modelling-related methodology, terminology and future research in Europe, and have a broader impact on strategic considerations globally.



Urs Schlüter holds a degree in chemistry (Ph.D.) and studied at the universities of Dortmund, Münster and Raleigh (North Carolina), USA.

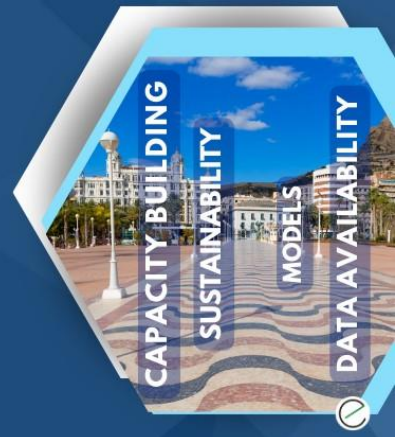
Urs Schlüter has been employed at the BAuA since 2002 and as a researcher has mainly dealt with protective measures for activities involving hazardous substances, with a focus on biocidal products, and the European procedure for the evaluation of biocides.

Since 2009, Urs Schlüter has headed the Group 4.1 "Exposure Scenarios" and 4.1.4 "Exposure Assessment, Exposure Science" at the BAuA, which deals with the assessment of exposure to hazardous substances at the workplace. The focus of this work is on the sovereign tasks of the BAuA in European chemical regulations (REACH).

Since 2011, Urs Schlüter is a member of ECHA's Risk Assessment Committee. He serves as Councillor on the board of ISES Europe.

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Reflections on a performance study of the TRA-Worker exposure prediction tool

Jan Urbanus, Shell

A task force of ECETOC conducted a study on the performance of Targeted Risk Assessment (TRA v3.1) tool for estimation of dermal and inhalation exposures of workers in chemical handling scenarios. The TRA is a, tier-1, screening model intended to provide conservative exposure estimates (at the 75th percentile) for use in initial chemical safety assessment. The study found that the TRA was conservative in 80-90% of workplace situations with publicly available measured data sets, by overestimating the measured exposure. Several tool settings associated with underestimations were identified using regression calculations and changed in an updated version v3.2 of the tool to further decrease the number of underestimations. The detailed results of the study have been published in ECETOC technical reports and a peer-reviewed scientific paper.

During the study, several challenges had to be navigated, notably:

- absence of a formal protocol for evaluation of occupational exposure models
- lack of a definition of the term 'conservatism' in the context of assessment of exposure and risk
- appropriate criteria for selection and curation of comparison material
- the choice of the analytical strategy including interpretation of results

The presentation will describe how these challenges were addressed as a contribution to potentially further improved guidance on (occupational) exposure model evaluation and acceptance testing.



Jan has been leading the exposure science section in Shell since 2012 and is a member of ECETOC's Scientific Committee and of the ECETOC TRA community where he is leading the Worker task force. Previous work experiences include industrial hygiene and environmental management in companies in Belgium, Italy, the Netherlands and Scotland and a spell as technical coordinator for health sciences in CONCAWE, Brussels. He has a degree in environmental sciences from Wageningen University, the Netherlands.

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Consumer and general population exposure – challenges/opportunities

Astrid Heiland, German Federal Institute for Risk Assessment (BfR)

Generic exposure scenarios are very common for covering many consumer products with a handful of data. However, the “one fits all”-principle has limits, especially if regulatory measures should be derived. In addition, new consumer products conquer the market, with new (advanced) materials or compositions. Consumers change their behaviour over time for various reasons.

In 2015, the Research and Advisory Institute for Hazardous Substances (FoBiG) conducted a project in cooperation and on behalf of the BfR [1] to establish an inventory of exposure parameters (frequency, duration, amount of products used, and product use location) for mixtures regulated under REACH. Overall, only 37 relevant consumer studies were identified that allowed extraction of parameter values, resulting in 822 datasets. Our findings strongly call for further surveys focusing on consumer behaviour, in particular for uses with non-intended but reasonably foreseeable contact. Therefore, a feasibility study of consumer behaviour was initiated in 2016 [2] to evaluate the usefulness of various survey methods depending on six sentinel consumer product types. By considering these results, the BfR regularly carried out studies on consumer behaviour patterns. These studies are complemented by market surveys and chemical analyses of selected consumer products.

The data make it possible to move on to more realistic exposure estimates by using refined models, standardisation of exposure scenarios for fact sheet development [3] embedded in exposure calculation tools (ConsExpo Web), the assessment of already implemented risk management measures, and tailored regulatory actions. Examples will be given in the presentation.

[1] Heiland A, Oltmanns J, Bohlen M.-L, Kaiser E, Klenow S, Schneider K: Consumer behaviour - compilation and evaluation of primary data. 26th Annual ISES Meeting, 498. International Society of Exposure Science Utrecht, NL, 2016-10-09/2016-10-13.

[2] Schneider K, Recke S, Kaiser E, Götte S, Berkefeld H, Lässig J, Rüdiger T, Lindtner O, Oltmanns J. 2019. Consumer behaviour survey for assessing exposure from consumer products: a feasibility study. *Journal of Exposure Science and Environmental Epidemiology*, 29 (1), 2019, 83-94.

[3] Cieszynski A, Jung C, Schendel T, ter Burg W. 2023. Do-It-Yourself Products Fact Sheet. Default parameters for estimating consumer exposure – Updated version 2022. RIVM report 2022-0208. Bilthoven, NL, National Institute for Public Health and the Environment.



Astrid Heiland is head of the unit “Chemical Exposure and Transport of Dangerous Goods” in the department “Exposure” of the German Federal Institute for Risk Assessment (BfR). She studied chemistry and biology at the Free University of Berlin with a PhD in surface chemistry.

Since 2005, she has been employed at the BfR and has worked on national and international projects with several partners (JRC, WHO, HPA, poison information centres in Europe) in the field of consumer exposure. Since 2010, her focus is on the exposure assessment under the chemical regulation REACH. Here, she is responsible for the assessments of consumer exposure in the corresponding regulatory processes and is active in associated panels and working groups of the ECHA (REEG, ENES). Within this framework, she and her team have been initiating and conducting projects to further develop the database and exposure modelling with the aim of standardisation and harmonisation for an efficient consumer protection.

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REACH registration dossiers as a source of exposure data

Celia Tanarro, ECHA

Registrants under REACH provide information regarding substances use and exposure as part of the registration dossier including the Chemical Safety Report (CSR) where relevant. The information provided in the dossier can be used by ECHA (and MS) to support a number of processes that require exposure information such as prioritisation, support of restriction proposals or OEL setting. Additionally, the dossier information can potentially be used for screening purposes, for instance to identify priority substances for other regulations or to estimate the impact of new or updated requirements under chemicals regulations.



Celia Tanarro studied Chemistry at the University Complutense in Madrid and specialised in environmental chemistry. She worked for 10 years at the Spanish Institute of Occupational Health and Safety where she worked in aerosol monitoring and later led the Workplace Atmospheres Unit. From 2011, she works at ECHA where she has coordinated or contributed to many activities related with exposure assessment including the development of exposure assessment guidance and tools and the derivation of Occupational Exposure Limits.

How to link biomonitoring data to sources of exposure to enable effective risk management

Tiina Santonen, Finnish Institute of Occupational Health (FIOH)

Biomonitoring (HBM) can be a powerful tool in quantifying the total exposure of different population groups, including workers, to chemicals. One of its benefits is that it considers all exposure routes and sources - including those which cannot be easily modelled. In case of cumulative substances like PFAS and lead its benefits are clearly demonstrated, too. However, the fact that it provides information only on total exposure may cause challenges for the identifying the most relevant exposure sources and selection of appropriate risk management measures. Therefore, to identify exposure routes, biomonitoring should not be done in isolation, but biomonitoring results need to be considered together with information on available external exposure measurements, modelling data and other contextual information. PBPK modelling might be needed to convert external levels as internal levels. Although quantitative estimates on the relative contribution of different exposure routes or sources might not always be possible to achieve based on HBM data, integrating HBM data to other information is often sufficient to give indication on the main exposure sources, allowing targeting of risk management measures. Biomonitoring can also serve as a kind of reality check for exposure estimates made based on modelling data. Examples from HBM4EU and PARC projects on the use of HBM for characterizing exposures and risks both in occupational and environmental context are given.

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Tiina Santonen (MD, PhD, MSc in Applied Toxicology) is working as a research professor at the Finnish Institute of Occupational Health. She is specialized in occupational toxicology, biomonitoring and chemical risk assessment. Many of her publications during the recent years have focused on biomonitoring and use of biomonitoring in the occupational exposure and risk assessment. She is also heavily involved in regulatory chemical risk assessment and management activities in Finland and EU. This involves the membership of ECHA's Risk Assessment Committee, RAC. Related to biomonitoring, she was leading occupational biomonitoring activities in large EU biomonitoring initiative, HBM4EU. She has been active also in recent OECD and ISES Europe activities related to the improving the use of biomonitoring in chemical risk assessment especially in occupational settings.

Exposure modelling: generating robust exposure data to increase confidence in safety decision-making. Perspectives from the agrochemical sector

Alistair Morriss, Corteva Agriscience

Key considerations when generating exposure data are; i). The exposure scenario being monitored is reflective of reality. ii). Studies using human volunteers are ethically sound. iii). The data is generated according to international quality criteria (GLP) and guidance on methodology (e.g. OECD) and, iv). The data will meet regulatory requirements for acceptability.

Over the last 10+ years the agrochemical industry has engaged with European regulators on a range of projects to review and model existing exposure data (operator exposure models for foliar, greenhouse and seed treatment uses) and to generate exposure data to be used for modelling purposes (re-entry worker exposure data in vineyards and resident exposure via drift). Other projects have relied on industry submitting published data to a regulator for review with minimal direct collaboration (dermal absorption data). The key objective of this work has been to develop robust regulatory tools and increase confidence in safety decision making. The presentation will briefly discuss the 'success' stories and when things haven't gone quite to plan (from an industry perspective) and will conclude by considering key learning points for future projects.



Currently a Global Human Health Risk Assessor working for Corteva Agriscience with more than 20 years experience in the agrochemical industry.

With a BSc (Hons) in Tropical Environmental Science, a MSc in Environmental Science and a Ph.D. in Environmental Science and Ecotoxicology together with experience of working in Contract Research Organisations (CROs), consultancies and multi-national companies, Alistair has a broad range of skills and experience.

Alistair has been a member of CropLife Europe working groups for over 10 years and is currently also a member of the CropLife Asia Product Safety team.

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Development of a worker's exposure data collection tool and database tool for systematic exposure data gathering for metals and metalloids

Steven Verpaele, Nickel institute

The Nickel Institute developed the hybrid data collection and database system to collect and store workplace exposure data for metals and metalloids. The system allows you to provide in the online part detailed information about your organization or company, sites, workplaces, control measures and sampling and analysis details combined with cost data. In the offline part, all measured data together with all contextual information required for performing workplace exposure assessment needs to be provided. The online part allows all users to predefine many obliged information that remains constant in time and is linked with the offline data collection sheet where further input of exposure data and information related to the specific time when the exposure data was collected. This approach reduces the burden for high quality data submission.

The benefits of an exposure database are many-fold. It enables the storage and selective retrieval of occupational exposure data which can be used to inform policymaking and standard-setting bodies and show trends in exposures categorized into the various industries, processes and jobs at which the exposures occur. The data can also be used in risk assessment and risk management activities. The presentation will provide information regarding data collection and the minimal required contextual information when measuring workers exposure to metals and metalloids.



Steven Verpaele, Master of science in environmental chemistry – Industrial Hygiene. He did a lot of research work on sampling and analysis for dust and elemental compositions in workplace atmospheres, especially silica. Working for 7 years as head of the environmental section at the University College of Ghent in the laboratory for occupational hygiene and 11 years as principal occupational hygienist for an External Company for Occupational Prevention and Protection. Currently he is the industrial hygiene manager at the Nickel Institute (global association of leading primary nickel producers). He is also founder and president of the Belgian Centre for Occupational Hygiene, a non-profit organization focused on research and laboratory services to industry regarding occupational hygiene exposure assessment. BeCOH has an MOU with Workplace Health Without Borders (WHWB) and provides free of charge analysis for OH projects. He has more than 20 years' experience as Industrial Hygienist and as an expert in different ISO and CEN workgroups mainly focused on workplace atmosphere. As board member of the Belgian Society for Occupational Hygiene he is responsible for all training programs organized by different parties regarding occupational hygiene, the link to the government as extraordinary member of the Belgian High Council for Prevention and Protection at Work and the Belgian representative for the EU-OH platform. He is also co-chair of the Occupational Hygiene Training Association (OHTA) and vice chair of the International Affairs Committee (IAC) of the American Industrial Hygiene Association (AIHA). Steven is the 2020 AIHA Yant Award recipient and received also the 2020 ASTM D22 Award of Appreciation for the work he did for organizing the conference on metals and metalloids."

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Capacity Building by Advancing Exposure Science Education and Training

Alison Connolly, University College Dublin

Advances in exposure science strongly rely on input from well-trained and experienced experts, but there is a lack of formal education and training programmes solely dedicated to exposure science in Europe. The ISES Europe Education, Training and Communication working group was established in 2018 with the goal of anchoring exposure science in academic research and education. To address this challenge, essential building blocks were identified, including developing a tiered education/training scheme with ECTS equivalent points/certificates. The groups' ambitions are to create purposely trained experts within the discipline. However, there is a need to develop a curriculum that yields credible, well-defined career pathways in exposure science. A framework has been outlined with harmonized learning outcomes, specified under eight different requirements and categorized based on knowledge, skill and competence.



Dr Alison Connolly is an Assistant Professor in the UCD School of Public Health, Physiotherapy and Sports Science as an Assistant Professor in the Centre for Safety and Health at Work. She is the Programme Director of the UCD Higher Diploma of the Safety, Health and Well-Being at Work. Alison is an exposure scientist whose research is motivated by the protection of human health by evaluating and understanding exposures to new and emerging pollutants. Alison is also an active member of the scientific community, including being on the executive board of the European Chapter of the International Society of Exposure Science (ISES Europe) as the Councillor for Exposure Science Capacity Building, Training and Education. She is also the Chair of the ISES Europe working group for education, training and communication.

Find out more: <https://people.ucd.ie/alison.connolly>

The Human Capital view on Exposure science – Insights from our 2023 Deloitte Human Capital trend report

Nathalie Dom, Deloitte

In our Deloitte Human Capital trends, we surveyed over 10,000 professionals across global business organizations from 105 countries to hear from real people about what's top of mind when it comes to work, the workplace, and the workforce. 23% of those surveyed were Board and C-Suite members. This survey data is complemented by interviews with leaders in various industries to provide a truly global, cross-industry representation of these trends.

So what did we find?

The greatest barrier to achieving organizational outcomes is being overwhelmed by too many changes at once... but the dissolution of the boundaries we once assumed to be fixed is creating new opportunities for organizations and employees who are prepared to show up in fundamentally different ways.

If the past century of work was based on the view that work was fixed and repeatable, the next century will be based on the view that work is fluid and agile. The boundaries that once dictated when, where and how work was completed are falling away, shaken up by advancing technologies, changing working needs and greater discontinuity and disruption.

In this presentation, we will zoom in on the most relevant insights of the Human Capital trends in the context of the ECETOC challenges on how to foster an increased level of focus, skills and competences, how to establish and identity for exposure scientist, and how to define and acknowledge exposure science as an independent and interconnected field that is key in protecting human and ecosystem health and creating a sustainable world.

ELEVATING EXPOSURE SCIENCE IN CHEMICAL SAFETY MANAGEMENT

DEVELOPING RECOMMENDATIONS FOR STAKEHOLDERS



Nathalie is a Senior Manager in the Organization Transformation team within Human Capital at Deloitte, where she leads the Human Capital Sustainability offering. She is an experienced multidisciplinary project manager, team lead and coach and with a PhD in biomedical and environmental sciences and +15 years of work experience in strategic and leadership positions in various sectors, she brings in some key expertise in the field of sustainability, project and change management and strategy. She is a change and communications enthusiast and she applies her unique set of competences and experiences to support organizations in their transformation journeys and more specifically focusing on the human aspect of it.

Supply Chain Communication of Exposure Information

Giulia Sebastio, Downstream Users of Chemicals Co-ordination Group (DUCC)

DUCC is a platform of 11 European associations which represent “downstream” industries ranging from cosmetics and detergents to aerosols, paints, inks, toners, pressroom chemicals, adhesives and sealants, construction chemicals, fragrances, lubricants, crop protection and chemical distributors industries. Since its creation in 2001, the group's main objective has been to contribute, with a common voice, to the successful implementation of the requirements of the REACH and CLP Regulations.

DUCC actively participated during the legal process for the adoption of REACH, making and advocating several concrete proposals, such as:

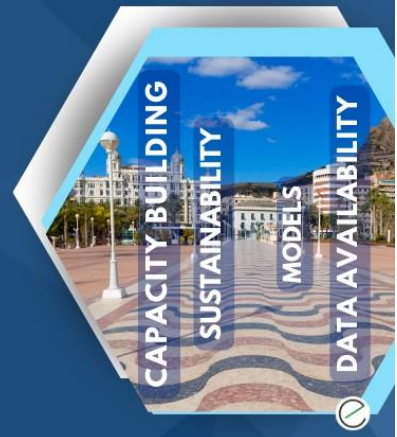
- Supporting exposure-driven, tiered risk assessment approach as promoted by ECETOC.
- Proposing mechanisms for involvement of Downstream Users in registration dossiers, particularly on exposure assessment.
- Was one of the founding members of the Exchange Network on Exposure Scenarios (ENES) and a main contributor to the Chemical Safety Report/Exposure Scenarios Roadmap (CSR/ES Roadmap) activities.

DUCC now continues to actively engage to the implementation activities organised by the European Commission and by ECHA, in the context of the ongoing REACH revision.

Given the longstanding experience of DUCC and its members in the topic of supply chain communication of exposure information, this presentation will expand on the ‘barriers’ that have been faced on improving the use of exposure information. DUCC will share its experience of building and better use the Use Maps, a cornerstone of the DUCC initiatives. The final reflection will be: how can communication of exposure information, support the future system?

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Giulia has an educational background in chemistry and toxicology. She has worked as a chemist and regulatory affairs professional across different fields including chemicals, food products and pharmaceuticals. As DUCC manger she aims to bring together the voices of all DUCC members towards cooperation and a unified voice.

How SME companies use (or would wish to use) chemical exposure information for decision-making

Clemens Rosenmayr, SMEunited (WKÖ, member association of SMEunited)

The needs for communication of exposure data along the value chain vary greatly for SMEs. It will depend on their position in the value chain and activity. This presentation will focus on joint challenges and differences between these companies. It will also reflect on the type of data these companies need and put up for discussion possible solutions.



Clemens Rosenmayr is based in Brussels and works in the policy area of sustainability since more than 5 years. After working as Head of Energy and Environment Policy at Eurochambres, the Association of European Chambers of Commerce and Industry, in early 2021 he joined the Industry Division of the Austrian Federal Economic Chamber. He deals with chemicals policy, occupational safety and health, ecodesign, industrial emissions as well as raw materials policy.