Abstract Number	**S-2-37-03**
Presenter	John Kissel*
Exposure	organic compounds
Health domains	no health domain
Type of research	exposure measurement

Dermal uptake of chemicals

Biomonitoring has revealed the signatures of hundreds of chemicals in human blood and excreta. Prevention of exposures, which is central to environmental health policy and practice, requires that relevant routes and pathways be understood. Some existing studies that encompass both environmental and biological monitoring provide the opportunity to test aggregate exposure models. A frequent outcome is a shortfall between predicted dose based on environmental measurements and apparent dose estimated from biomarker data. One possible explanation for under-prediction of dermal dose is direct use of results of batch absorption experiments expressed as fractional availability. Because fractional availabilities obtained in this manner are routinely less than those observed via inhalation or ingestion, dermal exposure has often been discounted. However, low apparent availabilities may be an artifact of poorly designed or interpreted experiments. Even low rates of chemical uptake via the skin can account for a non-negligible fraction of a biomonitoring–based dose estimate if exposure is chronic and involves substantial skin area. Regulatory initiatives such as REACH have fostered demand for methods for systematic evaluation of human exposures to commercial chemicals, including many found in consumer products applied directly to the skin. Given prior experience, reconsideration of traditional approaches to assessment of dermal exposure is necessary. Dermal absorption is described as gradient driven transport through a membrane. Observed shortfalls in specific aggregate exposure case studies provide a basis for evaluating physical constants needed to characterize dermal dose. Overall mass transfer coefficients reflecting total resistance to transport from the environment to clothing, from clothing to skin, and from the skin surface to systemic circulation can be generated from these studies and compared to estimates derived from understanding of component processes. Once adequate cases have been developed, chemical screening capability will be improved.

Abstract Number	**S-2-37-04**
Presenter	Jacqueline Biesterbos, Gwendolyn Beckmann, Paul T.J. Scheepers*
Exposure	others
Health domains	other
Type of research	others

Method development and validation of breath analysis of cyclosiloxanes as a contribution to improvement of risk assessment strategies in the safety of personal care products

Background: Uptake of cyclosiloxanes from dermal use of personal care products (PCPs) can be estimated by analysis of exhaled air as a non-invasive approach in human biological monitoring. This method can be used to collect data to parameterize computer models and study aggregate exposures. Aim: Determination of the cyclosiloxanes octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in end-exhaled air to study skin absorption of PCPs. Methods:Four male and four female volunteers received an amount of 3.5 mg/cm2 (D5) or 3.2 mg/cm2 (crème or deodorant) applied to the forearm (700 cm2) for 60 minutes. Following exposure ten end-exhaled air samples were collected using a Bio-VOC breath sampler, transferred to carbograph multi-bed ATD tubes and analyzed by thermal desorption gas chromatography mass spectrometry (TD-GC-MS) using 13C-labelled D4 and D5 internal standards. The instrument is no source of siloxanes but the adsorbent tubes require pre-cleaning by high temperature purging prior to use. Reproducibility of the method is satisfactory with a variation coefficient of < 13% and a sensitivity of 0.7 ng/L for both substances. Inhalation uptake was minimized by keeping the forearm in a fume hood during exposure and by supplying fresh air to the breathing zone of the volunteer during the post-exposure period. Results: Preliminary results showed a fivefold increase of the baseline excretion of D5 when applying the neat substance and a twofold increase following application of the crème. Absorption from the crème appears to slow down elimination by a factor two. The contribution of inhaled D5 was monitored and gave a minor contribution to the total uptake. Conclusion: A sensitive method for the quantitative determination of D4 and D5 from exhaled air was developed. First results for D5 indicate slower kinetics, comparing the results from topically applied neat substance with those from D5 in a product matrix.

Environment and Health – Bridging South, North, East and West

Conference of ISEE, ISES and ISIAQ
Basel, Switzerland 19 – 23 August 2013

Green Conference

Side meetings

Contact

Program Overview

Online Searchable Program

Click here to access the online searchable program, which contains information on all scientific events of the conference including authors, rooms and full abstract information. Furthermore you have the possibility to create your own personal program for the conference here.
Also read the Conference editorials in **EHP (Künzli et al)** and Alan **Lopez Editorial** for Global Burden.

Program - pdf

Monday, 19.08.2013

09:00 – 12:00	Pre-conference workshops Side meetings
13:00 – 16:00	Pre-conference workshops Side meetings
17:30 – 19.00	Opening Event **"Airing Sounds - Wasting Rhythm"**

Tuesday, 20.08.2013

07:45 – 08:30	**Early Morning Tutorials**
08:45 – 10:00	**Opening Plenary Session**
10:00 – 10:30	*Coffee break*
10:30 – 12:00	Oral & Symposia Sessions
12:00 – 13:00	*Lunch*
13:00 – 14:00	Poster Viewing
14:00 – 15:30	Oral & Symposia Sessions
15:30 – 16:00	*Coffee break*
16:00 – 17:30	Oral & Symposia Sessions
18:00 – 19:30	Special meetings
18:30	**Students and New Researchers Network (SNRN) Social Event » further information**

Wednesday, 21.08.2013

07:45 – 08:30	**Early Morning Tutorials**
08:45 – 10:00	**Plenary Session**
10:00 – 10:30	*Coffee break*
10:30 – 12:00	Oral & Symposia Sessions
12:00 – 13:00	*Lunch*
12:30 – 13:30	ISIAQ General Membership Meeting

13:00 – 14:00	Poster Viewing
14:00 – 15:30	Oral & Symposia Sessions
15:30 – 16:00	*Coffee break*
16:00 – 17:30	Oral & Symposia Sessions
17:30 – 18:30	ISES General Membership Meeting
19:00 – open end	Social Event

Thursday, 22.08.2013

07:45 – 08:30	**Early Morning Tutorials**
08:45 – 10:00	**Plenary Session**
10.00 – 10.30	*Coffee break*
10:30 – 12:00	Oral & Symposia Sessions
12:00 – 13:00	*Lunch*
13:00 – 14:00	Poster Viewing
14:00 – 15:30	Oral & Symposia Sessions
15:30 – 16:00	*Coffee break*
16:00 – 17:15	Oral & Symposia Sessions
17:30 – 18:30	ISEE General Membership Meeting
19:00	Special Meetings

Friday, 23.08.2013

07:45 – 08:30	**Early Morning Tutorials**
08:45 – 10:30	**Plenary Session (including award presentation)**
10:30 – 11:00	*Coffee break*
11:00 – 12:30	Oral & Symposia Sessions
12:30 – 13:30	*Lunch*
13:30 – 15:00	Oral & Symposia Sessions
15:15 – 15:45	Closing Session

Key topics

The **ISEE** (**International Society for Environmental Epidemiology**), **ISES** (**International Society of Exposure Science**), and the **ISIAQ** (**International Society of Indoor Air Quality and Climate**) invite you to the 2013 conference in Basel, **hosted by the Swiss Tropical and Public Health Institute** (**SwissTPH**). The conference aims at presenting recent scientific achievements in the field of exposure science and environmental health from all relevant disciplines and covering a broad range of topics.

Basel – a city at the tri-national angle of Switzerland, France, and Germany, with its five bridges over the Rhine – highlights the BRIDGING: bridging research from geographic regions all around the world, bridging scientific disciplines as the key strategy to resolve public health challenges in a changing environment, and bridging three societies working on partly related issues but never had a joint conference before.

The conference will feature – among other issues – the following **key topics**:

- Assessing exposure to indoor and ambient air pollution, noise, chemicals, toxic waste and electromagnetic fields and evaluating long term health impact
- Methodological challenges for global environmental epidemiology
- Environmental risks in the context of rapid urbanization in resource-poor settings
- Environmental susceptibility and resilience due to genes, co-morbidities, and socio-cultural and socio-economic factors
- Life course environmental epidemiology

- Linking science and policy through impact assessment
- Indoor and outdoor environmental interventions to improve health
- Water, sanitation and health linkages
- Linkages between agriculture, environment and diseases of poverty
- Identifying and modeling the impacts of and options for managing the environment and health risks of climate variability and change
- Health impacts of natural resources development and management (e.g. extractive industry, water-resource developments)