



## The 6th International Conference on Swimming Pool and Spa

### Information & Programme

The Royal Tropical Institute

Amsterdam, 17 - 20 March 2015



**HELLEBREKERS**  
TECHNIEKEN



**TU Delft**

Delft University of Technology



National Institute for Public Health  
and the Environment  
Ministry of Health, Welfare and Sport





**Conference location:**

Royal Tropical Institute (KIT)  
Mauritskade 63  
1092 AD Amsterdam  
The Netherlands

**Drinking Water excursion Tuesday March 17<sup>th</sup>**

If you register yourself for the excursion on the registration form please read this info. From 13.00 – 16.00 hrs the excursion to the Jan Lagrand Plant Heemskerk will take place. The bus for the excursion will leave at 12.15 hrs from the entrance of the KIT. Please be in time we can't wait for you. The bus will leave at 16.00 hrs from the Jan Lagrand Plant back to the KIT for the welcome reception.

**Information on the Welcome reception on Tuesday March 17<sup>th</sup>**

The welcome reception will take place on Tuesday March 17<sup>th</sup> from 16.30 – 18.00 hrs at the KIT. There will be served drinks and snacks. The Welcome reception is together with the Dutch participants of the “Startschot Bhvzbz” Conference who will take place in the KIT on 17 March. You have the possibility to pre-register yourself during the meet and greet.

**Information about the conference dinner on Thursday March 19<sup>th</sup>**

We will transfer by boat from KIT to the conference dinner. The boat will departure at 17.15 hrs for a boat trip through the canals and historic Amsterdam. During the boat trip we will serve drinks and finger food.

The conference dinner will take place from 18.30 – 22.00 hrs at “De Sint Olofs Kapel”. The dinner is an informal walking dinner. The Olafs Chapel is a 3 minute walk from Amsterdam Central Station. After the dinner you can go your own way to your hotel. If you click on the follow link you can plan your trip <http://9292.nl/en>.

**Transport from Amsterdam Schiphol Airport to KIT:**

by train directly from the airport to Amsterdam Central Station; every 15 minutes (transfer time 10 minutes). From Amsterdam Central Station take tram 9 which stops in front of KIT.

Taxis are also available at Amsterdam Central Station. For public transport in the Netherlands the OV-chipkaart is the ticket for public transport [click here](#). If you carry an OV-chipkaart with you, you will no longer need to think about strip tickets or metro and train tickets. You can travel on trains, trams, buses and metros with a single ticket. Available at NS ticket machines or NS information desk in the arrival hall.



## Outline programme “ Pool and Spa Conference ” 17 – 20 March 2015 the Netherlands

<b>Tuesday</b>	<b>17-03-2015</b>
12.15 – 16.00	Excursion Drinking water production plant; PWN Jan Lagrand Plant Heemskerk
16.30 – 18.00	Welcome reception KIT in Amsterdam ( pre-registration possible )
<b>Wednesday</b>	<b>18-03-2015</b>
08.00 – 09.00	<b>Registration</b>
09.00 – 09.20	Key note presentation and opening of the conference by L.C. Rietveld
09.20 – 10.20	<b>session 01: Microbiological health</b>
10.20 – 11.00	Coffee break ( poster session )
11.00 – 12.20	<b>session 02: Disinfection by-products</b>
12.20 – 13.20	Lunch
13.20 – 14.00	Flash presentations 1
14.00 – 15.20	<b>session 03: Biofilms</b>
15.20 – 15.40	Tea break
15.40 – 16.20	<b>session 04: Monitoring and surveillance</b>
16.20 – 16.50	Keynote presentation by R. van der Vliet
<b>Thursday</b>	<b>19-03-2015</b>
08.00 – 09.00	<b>Registration for one day attendants</b>
09.00 – 10.20	<b>session 05: Chemical health</b>
10.20 – 10.40	Coffee break ( poster session )
10.40 – 12.00	<b>session 06: Swimming ponds</b>
12.00 – 13.00	Lunch
13.00 – 13.40	Flash presentations 2
13.40 – 14.40	<b>session 07: Guidelines and regulations</b>
14.40 – 15.00	Tea break
15.00 – 16.00	<b>Session 08: New analytical methods</b>
16.00 – 17.15	<b>Session 09: Education and behaviour</b>
17.15 – 18.30	Transport to conference dinner
18.30 – 22.00	Conference dinner, with presentations and selection of next ICSPS
<b>Friday</b>	<b>20-03-2015</b>
08.30 – 09.00	<b>Registration for one day attendants</b>
09.00 – 09.30	Key note presentation “WASUP”
09.30 – 10.50	<b>session 10: Safety and Emerging topics</b>
10.50 – 11.10	Coffee break ( poster session )
11.10 – 12.30	<b>session 11: Hygienic aspects</b>
12.30 – 13.40	Closing of the conference and lunch

## **Conference programme**

**Wednesday**                      **18-03-2015**

08.00 – 09.00                      **Registration**

09.00 – 09.20                      **Key note presentation: Holland Waterland by L.C. Rietveld**

**Session 01**                      **Microbiological health**

**Chair**                              **A. Mavridou**

09.20 – 09.40                      ***Systematic review of outbreaks associated with hot tubs and spas - United States, 1978–2010***

M.C. Hlavsa, K. Schnell, M.J. Beach, USA

09.40 – 10.00                      ***Resistance profiles of *P. aeruginosa* isolates deriving from various water environments including swimming pools***

O. Pappa, A. Vantarakis, A.M. Kefala, A. Mavridou, A. Galanis, Greece

10.00 – 10.20                      ***The microbiological quality of water in fish spas and the associated health risk***

F.M. Schets, H.H.J.L. van den Berg, R. de Zwaan, D. van Soelingen, A.M. de Roda Husman, the Netherlands

10.20 – 10.40                      ***Fast set pools – are they a hygienic risk?***

T. Holtmeier, C. Höller, Germany

10.40 – 11.00                      **Coffee break**

**Session 02**                      **Disinfection by-products**

**Chair**                              **L.C. Rietveld**

11.00 – 11.20                      ***Impact of different treatment processes on concentrations of DBPs and DBP precursors in swimming pools***

I. Slavik, B. Skibinski, W. Uhl, Germany

11.20 – 11.40                      ***Elimination of trihalogenmethanes versus microbial contamination***

W. Mascher, F.F. Reinthaler, A. Grisold, F. Mascher, Austria

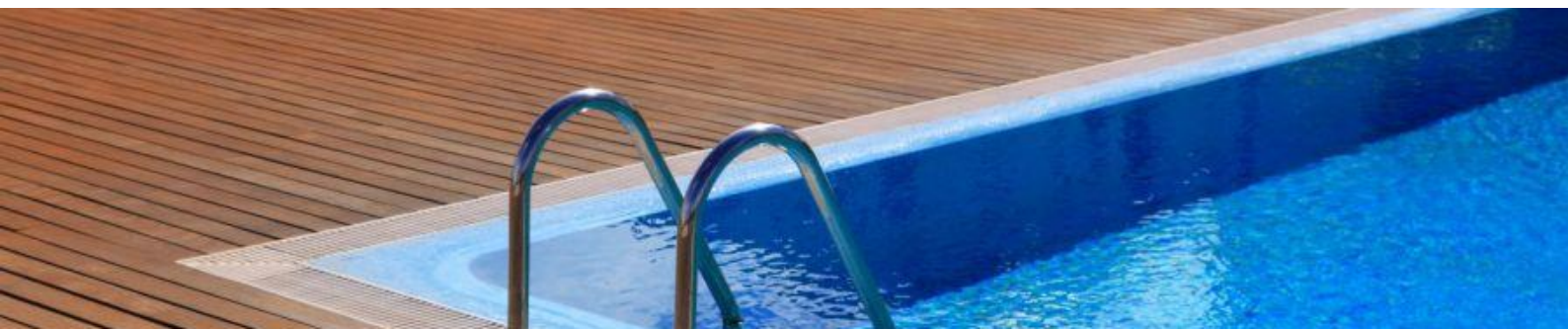
11.40 – 12.00                      ***Laboratory studies on the effect of ozonation on THM formation in swimming pool water***

K.M.S. Hansen, A. Spiliotopoulou, W.A. Cheema, H.R. Andersen, Denmark

12.00 – 12.20                      ***Inorganic disinfection by-products: Chlorate and Nitrate and their impact on UV treatment***

L. Erdinger, T. Schlosser, Germany

12.20 – 13.20                      **Lunch**



**13.20 – 14.00**  
**Chair**

**Flash session: 5 minutes poster presentations**  
**H.R. Andersen**

***Efficacy evaluation of footbath in reducing surface contamination***  
M. Mata, J.R. Nogueira , A.M. Heitor, Portugal

***Disinfection of water and asthma***  
D. Francioso, S. Ribiscini, G. Pocetta, Italy

***Electrochemical and copper disinfection with minimal chlorination: a two-year case study in an intense bather loaded public training pool***  
P. Lievens, R. Calders, R. Vanlangendonck, J. Van den Bulcke, A. Jobse, Belgium

***Disinfection of swimming pool water with Chlorine gas, generated in situ by salt electrolysis***  
A. Reuß, Germany

***Cryptosporidium oocyst and Cryptosporidium-sized microsphere removals from swimming pools through filtration***  
P. Lu, J.E. Amburgey, J.L. Murphy, V.R. Hill, C. Schneeberger, M.J. Arrowood, USA

**Session 03**  
**Chair**

**Biofilms**  
**R. Sommer ( to be confirmed )**

14.00 – 14.20 ***Biofilm formation potential of chlorinated and non-chlorinated swimming pool water***  
M.G.A. Keuten, M.C.F.M. Peters, J.C. van Dijk, M.C.M. van Loosdrecht, the Netherlands

14.20 – 14.40 ***Biofilm in swimming pool filters: Blessing in disguise?***  
G.J.M. Hulshof, L.P.M. van Leengoed, B. Lans, E. Hilbrink, the Netherlands

14.40 – 15.00 ***Biofilm growth on swimming pool material***  
M.C.F.M. Peters, M.G.A. Keuten, M. de Kreuk, M.C.M. van Loosdrecht, L.C. Rietveld, the Netherlands

15.00 – 15.20 ***Pseudomonas aeruginosa on vinyl-canvas inflatables and foam teaching aids in swimming pools***  
F.M. Schets, H.H.J.L. van den Berg, R. Baan, G. Lynch, A.M. de Roda Husman, the Netherlands

15.20 – 15.40 **Tea break**

**Session 04**  
**Chair**

**Monitoring and surveillance**  
**V. Romano Spica**

15.40 – 16.00 ***Strategies for benchmarking and coping with oocyst-enriched faecal incidents in recreation water***  
G. Weiss, D. Weiss, Austria

16.00 – 16.20 ***Evaluation of an MPN test for the rapid enumeration of Pseudomonas aeruginosa in swimming pool and spa pool waters***  
D.P. Sartory, M. Brewer, A. Beswick, D. Steggles, United Kingdom

16.20 – 16.50 Keynote presentation by R. van der Vliet: ***Innovation in swimming***

<b>Thursday</b>	<b>19-03-2015</b>
08.00 – 09.00	<b>Registration for one day attendants</b>
<b>Session 05 Chair</b>	<b><u>Chemical health</u> C. Höller</b>
09.00 – 09.20	<b><i>Pool chemical–associated injuries in public and residential settings — United States, 2003–2012</i></b> M.C. Hlavsa, S.A. Collier, M.J. Beach, USA
09.20 – 09.40	<b><i>Indoor swimming pool attendance and respiratory and dermal health in schoolchildren - HITEA Catalonia</i></b> L. Font-Ribera, C.M. Villanueva, E. Gràcia-Lavedan, A. Borràs-Santos, M. Kogevinas, J.P. Zock, Spain
09.40 – 10.00	<b><i>Disinfection byproducts in swimming pool: exposure and risk assessment</i></b> S. Chowdhury, Saudi Arabia
10.00 – 10.20	<b><i>A comparison between freshwater and seawater swimming pools: From disinfection by-products profile to genotoxicity</i></b> T. Manasfi, M. De Méo, B. Coulomb, C. Di Giorgio, J.L. Boudenne, France
10.20 – 10.40	<b>Coffee break</b>
<b>Session 06 Chair</b>	<b><u>Swimming ponds</u> M. Weilandt</b>
10.40 – 11.00	<b><i>Introduction into the topic, definitions, requirements</i></b> M. Weilandt, Germany
11.00 – 11.20	<b><i>FLL- Recommendations for planning, construction, servicing and operation of outdoor swimming pools with biological water purification (Swimming and Bathing ponds)</i></b> S. Bruns, Germany
11.20 – 11.40	<b><i>Limnological Aspects and Mechanisms of in situ Disinfection in Natural Swimming Ponds</i></b> J. Spieker, Germany
11.40 – 12.00	<b><i>Hygienic Situation in Natural Swimming Ponds over the Course of a Decade</i></b> A. Cordes, Germany
12.00 – 13.00	<b>Lunch</b>
<b>13.00 – 13.40 Chair</b>	<b>Flash session: 5 minutes poster presentations D. Heederik ( to be confirmed )</b>
	<b><i>Disinfection by-products formation of UV treated swimming pool water</i></b> A. Spiliotopoulou, K.M.S. Hansen, H.R. Andersen, Denmark
	<b><i>Kinetics of chlorine consumption and DBP-formation with BFA-components</i></b> P. Hua, X. Chen, E. Vasyukova, W. Uhl, Germany

***DBP exposure in an indoor chlorinated swimming pool and short term effects in biomarkers of genotoxicity and lung permeability:***

***The pescina2 study***

L. Font-Ribera, C.M. Villanueva, E. Marco, J.O. Grimalt, C. Zwiener, X. Zhang, B. Mitch, D. Heederik, J. Spithoven, L. Arjona, J. de Bont, L. Tarès, E. Barreiro, S. Pastor, R. Marco, L. Abramsson-Zetterberg, T. Grummt, M. Kogevinas, Spain

***New approaches to evaluate legionella exposure and disease risk in persons attending spa***

P. Borella, G. Ferranti, A. Mansi, D. Minuto, A. Bargellini, I. Marchesi, Italy

***Chlorite, chlorate and bromate in pool water***

C. Vogel, P. Fecher, W. Dicke, C. Höller, U. Lessig, Germany

**Session 07  
Chair**

**Guidelines and regulations**

**J. Bakker ( to be confirmed )**

13.40 – 14.00

***Developing a long-term strategy for improving health and safety at public swimming facilities in the United States***

M.J. Beach, USA

14.00 – 14.20

***A new bathing water regulation in the Netherlands – fit for the future!***

W. Reinhold, the Netherlands

14.20 – 14.40

***Swimming pool guidelines in the northern region of Portugal***

M. Mata, J. Rocha Nogueira, Portugal

14.40 – 15.00

**Tea break**

**Session 08  
Chair**

**New analytical methods**

**L. Erdinger**

15.00 – 15.20

***A novel trichloramine analysis method, factors influencing trichloramine concentration in pool water and the effect of Uv treatment***

F. Soltermann, T. Widler, S. Canonica, G. Donzé, U. von Gunten, Switzerland

15.20 – 15.40

***Analysis of chlorinated by-products in swimming pool water by membrane introduction mass spectrometry – Influence of water physicochemical parameters***

N. Cimetière, N. Garandel, P. Humeau, France

15.40 – 16.00

***Indication of anthropogenic pollutants in swimming pool water via potassium***

T. Schlosser, Germany

**Session 09  
Chair**

**Education and behaviour**

**P. Appel ( to be confirmed )**

16.00 – 16.20

***Swimming lessons and quality assurance of output***

M. Hol, the Netherlands

16.20 – 16.40

***Abstract Dutch Don't Drown Foundation***

J. Rijpstra, the Netherlands

16.40 – 17.00

***Sign, shower, swim***

N.G.A. Zwilling, M.G.A. Keuten, P. Wilhelm, M.H.A. van Vuuren, the Netherlands

17.00 – 17.15	<b><i>Information video for pool visitors on personal hygiene and tri chloramine</i></b> T. Grummt, R. Junek, C. Schmalz, C. Zwiener, Germany
17.15 – 18.30	Transport to conference dinner
18.30 – 22.00	Conference dinner with presentations and selection of next ICSPS
<b>Friday</b>	<b>20-03-2015</b>
08.30 – 09.00	<b>Registration for one day attendants</b>
09.00 – 09.30	<b>Presentation WASUB5 team</b>
<b>Session 10</b>	<b><u>Safety and Emerging topics</u></b>
<b>Chair</b>	<b>J. Bierens</b>
09.30 – 09.50	<b><i>Entrapment accidents caused by drainage systems in swimming pools: A statistical study of accident victims and unsafe environments found in field research</i></b> J.P. Avezaat, A. Göb, Germany
09.50 – 10.10	<b><i>Measurement of entrapment hazards caused by drainage systems in swimming pools</i></b> J.P. Avezaat, the Netherlands
10.10 – 10.30	<b><i>Improving air quality of indoor swimming pools</i></b> J.G. Middendorf, the Netherlands
10.30 – 10.50	<b><i>Influence of hydrodynamic parameters on transfer of Disinfection By-Products in ambient air of indoor swimming Pool: use of Residence Time Distribution approaches on a reference basin</i></b> P. Humeau, N. Garandel, J. Guilhot, M. Masri Idlibi, N. Cimetière, France
10.50 – 11.10	<b>Coffee break</b>
<b>Session 11</b>	<b><u>Hygienic aspects</u></b>
<b>Chair</b>	<b>M.J. Beach</b>
11.10 – 11.30	<b><i>Biological removal of urea in chlorinated and non-chlorinated pool water treatment</i></b> M.G.A. Keuten, M.C.F.M. Peters, L.C. Rietveld, J.C. van Dijk, M.C.M. van Loosdrecht, the Netherlands
11.30 – 11.50	<b><i>Microflora and SPA</i></b> V.R. Spica, S. Giampaoli, F. Valeriani, Italy
11.50 – 12.10	<b><i>Repair of a shower population versus indicator organisms after chlorination</i></b> M.C.F.M. Peters, M.G.A. Keuten, M. de Kreuk, M.C.M. van Loosdrecht, L.C. Rietveld, the Netherlands
12.10 – 12.30	<b><i>Does the addition of salt affects the disinfection capacity of pool water?</i></b> R. Sommer, S. Cervero-Arago, E. Holzhammer, Austria
12.30 – 13.40	<b>Closing of the Conference and lunch</b>



## **Posters**

### ***Electrochemical and copper disinfection with minimal chlorination: a two-year case study in an intense bather loaded public training pool***

P. Lievens, R. Calders, R. Vanlangendonck, J. Van den Bulcke, A. Jobse, Belgium

### ***Quality control of water in public swimming pools***

Y.A. Sánchez, Colombia

### ***Volatile DBPs in indoor swimming pools facilities***

G. Fantuzzi, E. Righi, G. Predieri, G. Aggazzotti, Italy

### ***Chlorite, chlorate and bromate in pool water***

C. Vogel, P. Fecher, W. Dicke, C. Höller, U. Lessig, Germany

### ***Ozone/Bromine as an alternative water disinfection system to chlorine in the German Standard DIN 19643 „Treatment of the Water of Swimming Pools and Baths“?***

E. Stottmeister, M. Hoffmann, Germany

### ***Transformation mechanisms of oxybenzone into bromoform in seawater swimming pools***

T. Manasfi, S. Ravier, B. Temime-Roussel, B. Coulomba, J.L. Boudennea, France

### ***Disinfection of swimming pool water with Chlorine gas, generated insitu by salt electrolysis***

A. Reuß, Germany

### ***New approaches to evaluate legionella exposure and disease risk in persons attending spa***

P. Borella, G. Ferranti, A. Mansi, D. Minuto, A. Bargellini, I. Marchesi, Italy

### ***Cryptosporidium oocyst and Cryptosporidium-sized microsphere removals from swimming pools through filtration***

P. Lu, J.E. Amburgey, J.L. Murphy, V.R. Hill, C. Schneeberger, M.J. Arrowood, USA

### ***Organic Micro Pollutants ( OMPs ) in swimming pool water***

A. Fischer, M.C.F.M. Peters, M.G.A. Keuten, J.P. van der Hoek, the Netherlands

### ***Disinfection of water and asthma***

D. Francioso, S. Ribiscini, G. Pocetta, Italy

### ***Occupational health in swimming pools: The case of Portugal***

J. Rocha Nogueira, Portugal

### ***Health symptoms in indoor swimming pool workers and airborne volatile chlorine compounds***

G. Aggazzotti, E. Righi, G. Predieri, G. Fantuzzi, Italy

### ***Epidemiological observatory on swimming pools, Spa and similar recreational water environments***

F. Valeriani, V. Di Onofrio, E. Tarquini, G. Gianfranceschi, R. Gesuele, F. Gallè, M. Guida, V. Romano Spica, G. Liguori, Italy

### ***Pseudomonas aeruginosa in swimming pool water: evidences and perspectives for new control strategies***

M. Guida, F. Gallè, F. Valeriani, V. Di Onofrio, R. Gesuele, V. Romano Spica, G. Liguori, Italy

***Decontamination of outdoor school swimming pools in Fukushima after the nuclear accident in march 2011***

J. Saegusa, Japan

***Kinetics of chlorine consumption and DBP-formation with BFA-components***

P. Hua, X. Chen, E. Vasyukova, W. Uhl, Germany

***DBP exposure in an indoor chlorinated swimming pool and short term effects in biomarkers of genotoxicity and lung permeability***

L. Font-Ribera, C.M. Villanueva, E. Marco, J.O. Grimalt, C. Zwiener, X. Zhang, B. Mitch, D. Heederik, J. Spithoven, L. Arjona, J. de Bont, L. Tarès, E. Barreiro, S. Pastor, R. Marco, L. Abramsson-Zetterberg, T. Grummt, M. Kogevinas, Spain

***Characteristics of energy-efficient swimming facilities – A case study***

W. Kampel, B. Aas, A. Bruland, Norway

***Efficacy evaluation of footbath in reducing surface contamination***

M. Mata, J. Rocha Nogueira, N. Ferreira, Portugal

***Variations in nitrogen trichloride concentration over time in swimming pool water - Experimental and modeling study***

L. Bonadonna, R. Briancesco, S. Della Libera, M. Iaconelli, G. La Rosa, R. Paradiso, S. Petricca, M. Semproni, Italy

***Private Pool Safety Bylaw Regulation and Compliance in Ottawa***

K. Valentino, E. O'Connor, Canada

***Prevalence of Simkania negevensis in swimming pool environment***

E. Leoni, E. Cremonini, L. Dallolio, R. Biondi, A. Di Francesco, M. Donati, Italy

***Variations in nitrogen trichloride concentration over time in swimming pool water - Experimental and modeling study***

F. Gérardin, A. Cloteaux, N. Midoux, France

***Disinfection by-products formation of UV treated swimming pool water***

A. Spiliotopoulou, K.M.S. Hansen, H.R. Andersen, Denmark

***Analysis of drowning and near-drowning in swimming pools: websites as a primary resource for injury surveillance in Italy, 2008-2014***

E. Ferretti, S. De Angelis, M. Torre, Italy



Download the conference in the **Google, Apple and Windows Phone** stores! You will find an overview of the programme, speakers, and other information about the event. Use the keywords – **POOL and SPA** – and download the App !