

## Curriculum vitae



### Dr. Joop L.M. Hermens

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Place and date of birth: Roosendaal, January 11, 1951

### Academic training

1976

MSc in chemistry.

1983

PhD in toxicology

Thesis on: Quantitative Structure-Activity Relationships and Mixture Toxicity Studies of Aquatic Pollutants (Promotor: Prof.dr. H. van Genderen).

### Professional experience

1977-1979

Chemistry teacher at a Polytechnic School for Chemistry, Amersfoort.

1979-1983

PhD candidate at the Department of Veterinary Pharmacology, Pharmacy and Toxicology, Utrecht University.

1983-1990

Assistant professor at the Research Institute of Toxicology (RITOX), Utrecht University.

1987

Visiting scientist (post doc) at the EPA Environmental Research Laboratory, Duluth, MN, USA.

1990-present

Associate professor and head of the Environmental Toxicology and Chemistry Division within RITOX (presently Institute for Risk Assessment Sciences), Utrecht University.

### Former position

Associate professor and head of the Environmental Toxicology and Chemistry Section of the Institute for Risk Assessment, Utrecht University.

### Research interests

The research was directed towards a better understanding of the exposure of contaminants in the environment in relation to effects on ecosystems and on human health. Within this line of research, new technologies have been developed for the estimation of the bioavailable and internal concentrations of organic contaminants in both aquatic and terrestrial organisms and compartments (soil and sediment). In a broader perspective, the group is interested in dynamic aspects of exchange processes at a micro scale (from cells to clay minerals).

**Professional activities**

- Associate editor of the journal Environmental Science and Technology (Am. Chem. Soc.), (2007-2013).
- Editorial board member of:
  - Environmental Science and Technology (2001-2007).
  - Environmental Science and Pollution Research.
  - Environmental Toxicology and Chemistry (until 2002).

Guest editor (jointly with John Sumpter and Gary Ankley) of a special issue on Ecotoxicology of the journal Environmental Science and Technology, issue Dec. 1, 2004.

Since January 1, 2012: Honorary professor at the University of Queensland, Brisbane, Australia.

Member Science Advisory Board of The Helmholtz Centre for Environmental Research (UFZ), Leipzig, Germany.

**Prizes/Awards**

Environmental Education Award, Soc. of Environmental Toxicology and Chemistry (SETAC), April 2004. This award is presented annually by SETAC Europe to a scientist or organization to honour activities in the dissemination of knowledge of the environmental sciences.

**Research grants**

27 research grants in the period 1995-present.

**First supervisor (and co-promotor) of PhD theses**

First supervisor and co-promotor of 25 PhD students.

**Publications**

Author or co-author of ~200 publications in peer reviewed journals and 3 edited books (see appendix 1).

## Appendix 1: Edited books and publications in peer reviewed journals

### Edited Books

- Hermens, J.L.M. and A. Opperhuizen (Eds.) (1991). QSAR in Environmental Toxicology – IV. Elsevier Science Publishers, Amsterdam, The Netherlands. 705 pp.
- van Leeuwen, C.J. and J.L.M. Hermens (Eds.) (1995). Risk Assessment of Chemicals: An Introduction. Kluwer Academic Publishers, Dordrecht, The Netherlands. 374 pp.
- Lipnick, R.L., J.L.M. Hermens, K.C. Jones and D.G. Muir (Eds.) (2000). Persistent Bioaccumulative Toxic Chemicals: Fate and Exposure. ACS symposium series, vol. 772. American Chemical Society, Washington, DC. 308 pp.

### Publications

1. Peltenburg, H.; Timmer, N.; Bosman, I.J.; Hermens, J.L.M.; Droge, S.T.J. Sorption of structurally different ionized pharmaceutical and illicit drugs to a mixed-mode coated micro-sampler. *J. Chromatogr. A* **2016**, *1447*, 1-8.
2. Haftka, J.J.H.; Scherpenisse, P.; Oetter, G.; Hodges, G.; Eadsforth, C.V.; Kothhoff, M.; Hermens, J.L.M. Critical micelle concentration values for different surfactants measured with solid-phase microextraction fibers. *Environ. Toxicol. Chem.* **2016**, *35*, 2173-2181.
3. Droge, S.T.J.; Hermens, J.L.M.; Rabone, J.; Gutsell, S.; Hodges, G. Phospholipophilicity of CxHyN+ amines: chromatographic descriptors and molecular simulations for understanding partitioning into membranes. *Environmental Science-Processes & Impacts* **2016**, *18*, 1011-1023.
4. van der Heijden, S.A.; Hermens, J.L.M.; Sinnige, T.L.; Mayer, P.; Gilbert, D.; Jonker, M.T.O. Determining High-Quality Critical Body Residues for Multiple Species and Chemicals by Applying Improved Experimental Design and Data Interpretation Concepts. *Environ. Sci. Technol.* **2015**, *49*, 1879-1887.
5. Peltenburg, H.; Droge, S.T.J.; Hermens, J.L.M.; Bosman, I.J. Sorption of amitriptyline and amphetamine to mixed-mode solid-phase microextraction in different test conditions. *J. Chromatogr. A* **2015**, *1390*, 28-38.
6. Peltenburg, H.; Bosman, I.J.; Hermens, J.L.M. Sensitive determination of plasma protein binding of cationic drugs using mixed-mode solid-phase microextraction. *J. Pharm. Biomed. Anal.* **2015**, *115*, 534-542.
7. Haftka, J.J.H.; Hammer, J.; Hermens, J.L.M. Mechanisms of Neutral and Anionic Surfactant Sorption to Solid-Phase Microextraction Fibers. *Environ. Sci. Technol.* **2015**, *49*, 11053-11061.
8. Groothuis, F.A.; Heringa, M.B.; Nicol, B.; Hermens, J.L.M.; Blaauboer, B.J.; Kramer, N.I. Dose metric considerations in vitro assays to improve quantitative in vitro-in vivo dose extrapolations. *Toxicology* **2015**, *332*, 30-40.
9. Broeders, J.J.W.; Parmentier, C.; Truissi, G.L.; Josse, R.; Alexandre, E.; Savary, C.C.; Hewitt, P.G.; Mueller, S.O.; Guillouzo, A.; Richert, L.; van Eijkeren, J.C.H.; Hermens, J.L.M.; Blaauboer, B.J. Biokinetics of chlorpromazine in primary rat and human hepatocytes and human HepaRG cells after repeated exposure. *Toxicol. In Vitro* **2015**, *30*, 52-61.
10. Broeders, J.J.W.; Hermens, J.L.M.; Blaauboer, B.J.; Zurich, M.-G. The in vitro biokinetics of chlorpromazine and diazepam in aggregating rat brain cell cultures after repeated exposure. *Toxicol. In Vitro* **2015**, *30*, 185-191.
11. Wang, F.; Haftka, J.J.H.; Sinnige, T.L.; Hermens, J.L.M.; Chen, W. Adsorption of polar, nonpolar, and substituted aromatics to colloidal graphene oxide nanoparticles. *Environ. Pollut.* **2014**, *186*, 226-233.
12. Delpla, I.; Monteith, D.T.; Freeman, C.; Haftka, J.; Hermens, J.; Jones, T.G.; Baures, E.; Jung, A.-V.; Thomas, O. A Decision Support System for Drinking Water Production Integrating Health Risks Assessment. *Int. J. Env. Res. Public Health* **2014**, *11*, 7354-7375.
13. Chen, Y.; Geurts, M.; Sjollem, S.B.; Kramer, N.I.; Hermens, J.L.M.; Droge, S.T.J. Acute toxicity of the cationic surfactant C12-benzalkonium in different bioassays: How test design affects bioavailability and effect concentrations. *Environ. Toxicol. Chem.* **2014**, *33*, 606-615.
14. Wang, F.; Chen, Y.; Hermens, J.L.M.; Droge, S.T.J. Evaluation of passive samplers with neutral or ion-exchange polymer coatings to determine freely dissolved concentrations of the basic surfactant lauryl diethanolamine: Measurements of acid dissociation constant and organic carbon-water sorption coefficient. *J. Chromatogr. A* **2013**, *1315*, 8-14.
15. Tanneberger, K.; Knoebel, M.; Busser, F.J.M.; Sinnige, T.L.; Hermens, J.L.M.; Schirmer, K. Predicting fish acute toxicity using a fish gill cell line-based toxicity assay. *Environ. Sci. Technol.* **2013**, *47*, 1110-1119.
16. Peltenburg, H.; Groothuis, F.A.; Droge, S.T.J.; Bosman, I.J.; Hermens, J.L.M. Elucidating the sorption mechanism of "mixed-mode" SPME using the basic drug amphetamine as a model compound. *Anal. Chim. Acta* **2013**, *782*, 21-27.
17. Hermens, J.L.M.; de Bruijn, J.H.M.; Brooke, D.N. The octanol-water partition coefficient: Strengths and limitations. *Environ. Toxicol. Chem.* **2013**, *32*, 732-733.
18. Haftka, J.J.H.; Scherpenisse, P.; Jonker, M.T.O.; Hermens, J.L.M. Using Polyacrylate-Coated SPME Fibers To Quantify Sorption of Polar and Ionic Organic Contaminants to Dissolved Organic Carbon. *Environ. Sci. Technol.* **2013**, *47*, 4455-4462.

19. Di Guardo, A.; Hermens, J.L.M. Challenges for exposure prediction in ecological risk assessment. *Integr. Environ. Assess. Manage.* **2013**, *9*, E4-E14.
20. Chen, Y.; Hermens, J.L.M.; Droge, S.T.J. Influence of organic matter type and medium composition on the sorption affinity of C12-benzalkonium cation. *Environ. Pollut.* **2013**, *179*, 153-159.
21. Broeders, J.J.W.; Blaauboer, B.J.; Hermens, J.L.M. In vitro biokinetics of chlorpromazine and the influence of different dose metrics on effect concentrations for cytotoxicity in Balb/c 3T3, Caco-2 and HepaRG cell cultures. *Toxicol. In Vitro* **2013**, *27*, 1057-1064.
22. Kramer, N.I.; Krismartina, M.; Rico-Rico, A.; Blaauboer, B.J.; Hermens, J.L.M. Quantifying Processes Determining the Free Concentration of Phenanthrene in Basal Cytotoxicity Assays. *Chem. Res. Toxicol.* **2012**, *25*, 436-445.
23. Knoebel, M.; Busser, F.J.M.; Rico-Rico, A.; Kramer, N.I.; Hermens, J.L.M.; Hafner, C.; Tanneberger, K.; Schirmer, K.; Scholz, S. Predicting Adult Fish Acute Lethality with the Zebrafish Embryo: Relevance of Test Duration, Endpoints, Compound Properties, and Exposure Concentration Analysis. *Environ. Sci. Technol.* **2012**, *46*, 9690-9700.
24. Chen, Y.; Droge, S.T.J.; Hermens, J.L.M. Analyzing freely dissolved concentrations of cationic surfactant utilizing ion-exchange capability of polyacrylate coated solid-phase microextraction fibers. *J. Chromatogr. A* **2012**, *1252*, 15-22.
25. Broeders, J.J.W.; van Eijkeren, J.C.H.; Blaauboer, B.J.; Hermens, J.L.M. Transport of chlorpromazine in the caco-2 cell permeability assay: A kinetic study. *Chem. Res. Toxicol.* **2012**, *25*, 1442-1451.
26. Kramer, N.I.; Hermens, J.; Blaauboer, B.J. Biokinetics in vitro. *Toxicol. Lett.* **2011**, *205*, S16-S16.
27. Escher, B.I.; Ashauer, R.; Dyer, S.; Hermens, J.L.M.; Lee, J.-H.; Leslie, H.A.; Mayer, P.; Meador, J.P.; Warne, M.S.J. Crucial role of mechanisms and modes of toxic action for understanding tissue residue toxicity and internal effect concentrations of organic chemicals. *Integr. Environ. Assess. Manage.* **2011**, *7*, 28-49.
28. Broeders, J.J.W.; Blaauboer, B.J.; Hermens, J.L.M. Development of a negligible depletion-solid phase microextraction method to determine the free concentration of chlorpromazine in aqueous samples containing albumin. *J. Chromatogr. A* **2011**, *1218*, 8529-8535.
29. Tanneberger, K.; Rico-Rico, A.; Kramer, N.I.; Busser, F.J.M.; Hermens, J.L.M.; Schirmer, K. Effects of Solvents and Dosing Procedure on Chemical Toxicity in Cell-Based in Vitro Assays. *Environ. Sci. Technol.* **2010**, *44*, 4775-4781.
30. Rico-Rico, A.; Droge, S.T.J.; Hermens, J.L.M. Predicting Sediment Sorption Coefficients for Linear Alkylbenzenesulfonate Congeners from Polyacrylate-Water Partition Coefficients at Different Salinities. *Environ. Sci. Technol.* **2010**, *44*, 941-947.
31. Kramer, N.I.; Busser, F.J.M.; Oosterwijk, M.T.T.; Schirmer, K.; Escher, B.I.; Hermens, J.L.M. Development of a partition-controlled dosing system for cell assays. *Chem. Res. Toxicol.* **2010**, *23*, 1806-1814.
32. Droge, S.T.J.; Hermens, J.L.M. Alcohol ethoxylate mixtures in marine sediment: Competition for adsorption sites affects the sorption behaviour of individual homologues. *Environ. Pollut.* **2010**, *158*, 3116-3122.
33. ter Laak, T.L.; van Eijkeren, J.C.H.; Busser, F.J.M.; van Leeuwen, H.P.; Hermens, J.L.M. Facilitated transport of polychlorinated biphenyls and polybrominated diphenyl ethers by dissolved organic matter. *Environ. Sci. Technol.* **2009**, *43*, 1379-1385.
34. ter Laak, T.L.; ter Bekke, M.A.; Hermens, J.L.M. Dissolved organic matter enhances transport of pahs to aquatic organisms. *Environ. Sci. Technol.* **2009**, *43*, 7212-7217.
35. ter Laak, T.L.; ter Bekke, M.A.; Hermens, J.L.M. Dissolved Organic Matter Enhances Transport of PAHs to Aquatic Organisms (vol 43, pg 7212, 2009). *Environ. Sci. Technol.* **2009**, *43*, 9044-9044.
36. Scholz, S.; Knoebel, M.; Ortman, J.; Busser, F.; Kramer, N.; Hermens, J.; Tanneberger, K.; Schirmer, K. The fish embryo test as an alternative to acute fish toxicity testing: Optimisation for difficult compounds and role of metabolic activation. *Toxicol. Lett.* **2009**, *189*, S205-S205.
37. Schirmer, K.; Tanneberger, K.; Kramer, N.I.; Busser, F.J.M.; Hermens, J.L.M.; Wong, J.T.J.; Elswesi, W.; Bols, N.C. Exploring the role of dosing procedure and chemical properties in in vitro assays using a fish gill cell line. *Comparative Biochemistry and Physiology a-Molecular & Integrative Physiology* **2009**, *153A*, S89-S89.
38. Rico-Rico, A.; Temara, A.; Hermens, J.L.M. Equilibrium partitioning theory to predict the sediment toxicity of the anionic surfactant C-12-2-LAS to Corophium volutator. *Environ. Pollut.* **2009**, *157*, 575-581.
39. Rico-Rico, A.; Temara, A.; Behrends, T.; Hermens, J.L.M. Effect of sediment properties on the sorption of C-12-2-LAS in marine and estuarine sediments. *Environ. Pollut.* **2009**, *157*, 377-383.
40. Rico-Rico, A.; Droge, S.T.J.; Widmer, D.; Hermens, J.L.M. Freely dissolved concentrations of anionic surfactants in seawater solutions: Optimization of the non-depletive solid-phase microextraction method and application to linear alkylbenzene sulfonates. *J. Chromatogr. A* **2009**, *1216*, 2996-3002.
41. Kramer, N.I.; Hermens, J.L.M.; Schirmer, K. The influence of modes of action and physicochemical properties of chemicals on the correlation between in vitro and acute fish toxicity data. *Toxicol. In Vitro* **2009**, *23*, 1372-1379.
42. Droge, S.T.J.; Yarla-Irusta, L.; Hermens, J.L.M. Modeling Nonlinear Sorption of Alcohol Ethoxylates to Sediment: The Influence of Molecular Structure and Sediment Properties. *Environ. Sci. Technol.* **2009**, *43*, 5712-5718.
43. Bayen, S.; Ter Laak, T.L.; Buffle, J.; Hermens, J.L.M. Dynamic Exposure of Organisms and Passive Samplers to Hydrophobic Chemicals. *Environ. Sci. Technol.* **2009**, *43*, 2206-2215.
44. ter Laak, T.L.; Busser, F.J.M.; Hermens, J.L.M. Poly(dimethylsiloxane) as passive sampler material for hydrophobic chemicals: Effect of chemical properties and sampler characteristics on partitioning and equilibration times. *Anal. Chem.* **2008**, *80*, 3859-3866.

45. Schirmer, K.; Tanneberger, K.; Kramer, N.I.; Voelker, D.; Scholz, S.; Hafner, C.; Lee, L.E.J.; Bols, N.C.; Hermens, J.L.M. Developing a list of reference chemicals for testing alternatives to whole fish toxicity tests. *Aquat. Toxicol.* **2008**, *90*, 128-137.
46. Hartnik, T.; Jensen, J.; Hermens, J.L.M. Nonexhaustive beta-Cyclodextrin Extraction as a Chemical Tool To Estimate Bioavailability of Hydrophobic Pesticides for Earthworms. *Environ. Sci. Technol.* **2008**, *42*, 8419-8425.
47. Droge, S.T.J.; Postma, J.F.; Hermens, J.L.M. Sediment toxicity of a rapidly biodegrading nonionic surfactant: Comparing the equilibrium partitioning approach with measurements in pore water. *Environ. Sci. Technol.* **2008**, *42*, 4215-4221.
48. ter Laak, T.L.; Mayer, P.; Klamer, H.J.C.; Hermens, J.L.M. Effects of dilution on the exposure in sediment toxicity tests buffering of freely dissolved concentrations and changes in mixture composition. *Environ. Toxicol. Chem.* **2007**, *26*, 2187-2191.
49. ter Laak, T.L.; Barendregt, A.; Hermens, J.L.M. Grinding and sieving soil affects the availability of organic contaminants: A kinetic analysis. *Chemosphere* **2007**, *69*, 613-620.
50. Kramer, N.I.; van Eijkeren, J.C.H.; Hermens, J.L.M. Influence of albumin on sorption kinetics in solid-phase microextraction: Consequences for chemical analyses and uptake processes. *Anal. Chem.* **2007**, *79*, 6941-6948.
51. Hermens, J.L.M.; Heringa, M.B.; ter Laak, T.L. Bioavailability in dose and exposure assessment of organic contaminants in (Eco)toxicology. *Journal of Toxicology and Environmental Health-Part a-Current Issues* **2007**, *70*, 727-730.
52. Durjava, M.K.; ter Laak, T.L.; Hermens, J.L.M.; Struijs, J. Distribution of PAHs and PCBs to dissolved organic matter: High distribution coefficients with consequences for environmental fate modeling. *Chemosphere* **2007**, *67*, 990-997.
53. Droge, S.T.J.; Sinnige, T.L.; Hermens, J.L.M. Analysis of freely dissolved alcohol ethoxylate homologues in various seawater matrixes using solid-phase microextraction. *Anal. Chem.* **2007**, *79*, 2885-2891.
54. Droge, S.T.J.; Hermens, J.L.M. Nonlinear sorption of three alcohol ethoxylates to marine sediment: A combined langmuir and linear sorption process? *Environ. Sci. Technol.* **2007**, *41*, 3192-3198.
55. ter Laak, T.L.; Barendregt, A.; Hermens, J.L.M. Freely dissolved pore water concentrations and sorption coefficients of PAHs in spiked aged, and field-contaminated soils. *Environ. Sci. Technol.* **2006**, *40*, 2184-2190.
56. ter Laak, T.L.; Agbo, S.O.; Barendregt, A.; Hermens, J.L.M. Freely dissolved concentrations of PAHs in soil pore water: Measurements via solid-phase extraction and consequences for soil tests. *Environ. Sci. Technol.* **2006**, *40*, 1307-1313.
57. Schultz, T.W.; Carlson, R.E.; Cronin, M.T.D.; Hermens, J.L.M.; Johnson, R.; O'Brien, P.J.; Roberts, D.W.; Siraki, A.; Wallace, K.B.; Veith, G.D. A conceptual framework for predicting the toxicity of reactive chemicals: modeling soft electrophilicity. *SAR QSAR Environ. Res.* **2006**, *17*, 413-428.
58. Heringa, M.B.; Hogevoender, C.; Busser, F.; Hermens, J.L.M. Measurement of the free concentration of octylphenol in biological samples with negligible depletion-solid phase microextraction (nd-SPME): Analysis of matrix effects. *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences* **2006**, *834*, 35-41.
59. ter Laak, T.L.; Mayer, P.; Busser, F.J.M.; Klamer, H.J.C.; Hermens, J.L.M. Sediment dilution method to determine sorption coefficients of hydrophobic organic chemicals. *Environ. Sci. Technol.* **2005**, *39*, 4220-4225.
60. ter Laak, T.L.; Durjava, M.; Struijs, J.; Hermens, J.L.M. Solid phase dosing and sampling technique to determine partition coefficients of hydrophobic chemicals in complex matrixes. *Environ. Sci. Technol.* **2005**, *39*, 3736-3742.
61. Jager, T.; van der Wal, L.; Fleuren, R.; Barendregt, A.; Hermens, J.L.M. Bioaccumulation of organic chemicals in contaminated soils: Evaluation of bioassays with earthworms. *Environ. Sci. Technol.* **2005**, *39*, 293-298.
62. van Eijkeren, J.C.H.; Heringa, M.B.; Hermens, J.L.M. Modelling SPME data from kinetic measurements in complex samples. *Analyst* **2004**, *129*, 1137-1142.
63. van der Wal, L.; van Gestel, C.A.M.; Hermens, J.L.M. Solid phase microextraction as a tool to predict internal concentrations of soil contaminants in terrestrial organisms after exposure to a laboratory standard soil. *Chemosphere* **2004**, *54*, 561-568.
64. van der Wal, L.; Jager, T.; Fleuren, R.; Barendregt, A.; Sinnige, T.L.; van Gestel, C.A.M.; Hermens, J.L.M. Solid-phase microextraction to predict bioavailability and accumulation of organic micropollutants in terrestrial organisms after exposure to a field-contaminated soil. *Environ. Sci. Technol.* **2004**, *38*, 4842-4848.
65. Traas, T.P.; van Wezel, A.P.; Hermens, J.L.M.; Zorn, M.; van Hattum, A.G.M.; van Leeuwen, C.J. Environmental quality criteria for organic chemicals predicted from internal effect concentrations and a food web model. *Environ. Toxicol. Chem.* **2004**, *23*, 2518-2527.
66. Leslie, H.A.; Kraak, M.H.S.; Hermens, J.L.M. Chronic toxicity and body residues of the nonpolar narcotic 1,2,3,4-tetrachlorobenzene in *Chironomus riparius*. *Environ. Toxicol. Chem.* **2004**, *23*, 2022-2028.
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70. Heringa, M.B.; Schreurs, R.H.M.M.; Busser, F.; van der Saag, P.T.; van der Burg, B.; Hermens, J.L.M. Toward more useful in vitro toxicity data with measured free concentrations. *Environ. Sci. Technol.* **2004**, *38*, 6263-6270.

71. Heringa, M.B.; Hermens, J.L.M. Measurement of free concentrations using negligible depletion-solid phase microextraction (nd-SPME). *Trac-Trends in Analytical Chemistry* **2003**, *22*, 575-587.
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