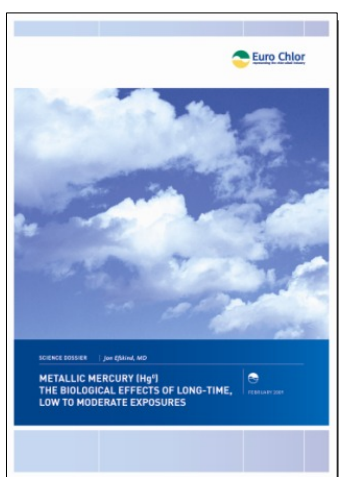


## OVERVIEW OF 2008 SCIENCE COMMUNICATIONS

Here is a review of science publications from Euro Chlor during the past year. There are links to download them directly from [Chlorine Online](#). If, however, you wish to receive hard copies, please e-mail your request to [eurochlor@cefic.be](mailto:eurochlor@cefic.be).

- [Science Dossiers](#) :

**Metallic mercury – The biological effects of long-time, low to moderate exposures** appeared early 2009. This [publication](#) by Jon Efskind MD, a certified specialist in occupational medicine in Norway, presents an analysis and synthesis of the most relevant scientific literature on human health effects of exposure to low and moderate



levels of metallic mercury vapour. The aim of the dossier is to present current knowledge of the effects of exposure to low levels of metallic mercury vapour and to define gaps in knowledge.

The new Science Dossier collates the findings of more than 120 recent scientific studies on health effects of mercury, which makes it very complete. Areas such as neurotoxicity, renal effects, immunotoxicity, cardio-vascular and cerebro-vascular toxicity, mutagenicity and carcinogenicity, reproduction toxicity and finally endocrine toxicity are dealt with.

Another Science Dossier on mercury appeared early 2009, called **The origin and fate of mercury species in the environment**. This comprehensive [dossier](#) is written by a team under the direction of Dr. John Munthe of the IVL Swedish Environmental Research Institute, a recognized expert in the field of mercury. Based on nearly 100 recent scientific studies, the dossier provides an overview on how the different mercury species are distributed globally in the atmosphere, in terrestrial and in aquatic ecosystems. The speciation of mercury is a key to understand the environmental fate and effects of mercury from both natural and anthropogenic emissions.

**Note:** *Some electrolysis plants are using mercury technology for their electrolysis, as explained on our website (see <http://www.eurochlor.org/makingchlorine>). Mercury-based electrolysis in Europe is gradually phasing out with a commitment for completion by 2020. In the beginning of 2008, 38% was produced with mercury-based technology, 45% is using membrane technology.*

*Current mercury emissions from the chlor-alkali industry are strictly controlled, emissions have decreased from 1995 until today by 75%. By sharing best practices the emissions are constantly reduced, relevant emissions are reported to OSPAR on an annual basis and are published on our website as part of [Euro Chlor's Sustainability Programme](#).*

*From all natural and man-made sources, mercury-based chlor-alkali electrolysis accounts for less than one percent of the total global emissions of mercury.*

- [FOCS](#) (Focus on Chlorine Science):

This series of easily understandable science publications was initiated in 2005 to succeed Key Science Information Sheets ( [KSIS](#) ). FOCS publications cover science issues aiming to clarify and consolidate in a relatively simple way research in the field of chlorine chemistry. During the past year two FOCS publications appeared in a new styling.

**Electromagnetic fields in chlor-alkali production: health effects and regulation** provides [an overview of today's knowledge](#) about the potential health effects of the electromagnetic fields used in chlor-alkali production. You will also read more about the European regulation on EMF, including exposure limits, assessment of exposure, worker information and on Euro Chlor initiatives to facilitate the application of the European Directive. From 1999 on, Euro Chlor has been organising focused literature reviews of electromagnetic fields in the chlor-alkali industry. Euro Chlor members have also performed measurements in several electrolysis units. Technical information and recommendations have been published in the Euro Chlor "Health" technical publications ([Health3: www.eurochlor.org/Projet/Projet2/IsMembreRech.asp](http://www.eurochlor.org/Projet/Projet2/IsMembreRech.asp)). Adverse effects of electromagnetic fields on human health have not been observed in chlor-alkali industry.



### Chlorinated swimming pools and respiratory health:

Euro Chlor organised a meeting in Leuven, Belgium, in August 2007 of scientists and medical specialists who discussed and reviewed the scientific literature of possible links between chlorinated indoor swimming pools and childhood asthma or similar respiratory conditions. The objective was to develop a consensus on current knowledge and which studies should be conducted to provide definitive evidence of any negative health effects resulting from exposure to chloramines. [This FOCS](#) presents the key findings of the workshop.

This topic occasionally attracts media attention, in particular when new studies are published. It is known that the 'active chlorine' in pool water can react with organic matter introduced to the pool by

swimmers in the form of sweat, natural body oils or urine to form volatile chloramines. These compounds make the eyes sting and at high levels irritate the respiratory tract. [The FOCS](#) summarizes topics such as the kinds of respiratory health which is being investigated, if competitive swimmers are more at risk of asthma, whether indoor pools are a greater risk than outdoor pools, and the view of international bodies on the use of chlorine in swimming pools.

The analysis of numerous scientific studies in this field shows no conclusive answers to support that swimming in chlorinated water and asthma(-like) conditions are linked. Importantly, the swimming is not linked to the rise in allergies generally.

- Risk assessment of POPs

Researchers under the leadership of Dr. Pim Leonards of the Free University of Amsterdam (Institute of Environmental Studies) were sponsored by Euro Chlor to review the scientific literature to collate and critically evaluate published methodologies to assess the risks of POPs. The resulting paper, 'Assessing the Risks of Persistent Organic Pollutants to Top Predators: A Review of Approaches' was published in the peer-reviewed Journal: Integrated Environmental Assessment and Management (Vol. 4, 4, pp. 386–398, 2008).

An electronic reprint of the paper can be made available upon request.

- SETAC Pellston workshop

In close cooperation with the World Chlorine Council (WCC), Euro Chlor also supported and co-sponsored a workshop organised by SETAC on 'Science Based Guidance and Framework for the Evaluation and Identification of PBTs and POPs: Summary of a SETAC Pellston Workshop'. This workshop was held early 2008 and the [executive summary](#) in October 2008. The aim was to foster the advancement of a sound scientific foundation for identifying and evaluating PBTs and POPs. The workshop brought together experts from academia, industry and government to reach consensus on where we stand today and what we can accomplish with the current scientific understanding, as well as what should be done in the future.

- University Outreach Programme

In the context of Euro Chlor's 'University Outreach Programme Dr. Dolf van Wijk gave a presentation at the Free University of Amsterdam on 29 September 2008 hosted by Prof. Jacob de Boer (Institute of Environmental Studies) on 'REACH, an industry view'. During the same session Dr. T. Traas from RIVM presented 'REACH, a regulators view'.

Euro Chlor's Outreach Programme aims to inform advanced students and University staff on Euro Chlor science activities in general and on a specific chlorine-related science topic. For further information on this programme please contact D van Wijk at [dvw@cefic.be](mailto:dvw@cefic.be).

- SETAC Europe Congress Göteborg - May 2008

Euro Chlor supports SETAC Europe as a sustaining member and will have a booth at the Annual Congress in Göteborg, Sweden, from 31 May until 4 June 2009. If you happen to be there, feel free to pay us a visit for information on 'chlorine chemistry' or to pick up some of our science material.

For further Euro Chlor science publications, please consult [www.eurochlor.org/science](http://www.eurochlor.org/science).