

Scientific evidence justifies the inclusion of endocrine disruptors, mixture effects and nanomaterials in EU legislation - we need action now

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Background

At present, the actual implementation of endocrine disrupting chemicals (EDC's), nanomaterials and cocktail effects into the various legislations in EU still remains. Unless action is taken, exposure to these groups of chemicals will continue to increase, with human exposure arising through a wide range of everyday products including cosmetics, food packaging, furniture, clothing, and electronic products. Moreover, chemicals accumulate in the environment and in humans – and we are just starting to see the consequences of this major contamination. There is a rise in many illnesses and the environment is suffering. The EU chemicals regulation REACH* was developed to reduce the chemical exposure in the EU. The use of chemicals in EU has become safer since the regulation entered into force, but there are still many gaps and shortfalls.

The Danish Ecological Council calls upon the EU to:

For EDC's

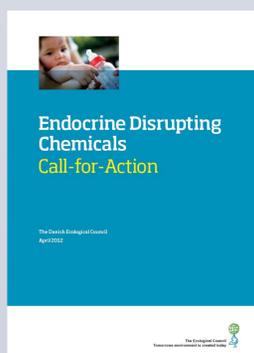
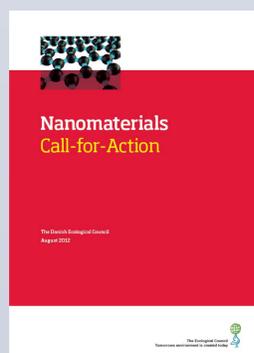
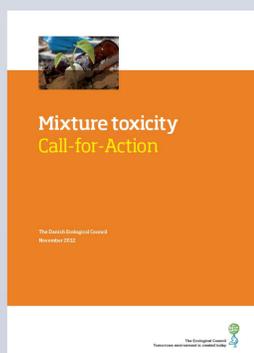
- Establish criteria for EDC's based on hazard and not potency
- Expedite controls on EDC's and eliminate/reduce exposures
- Implement elimination of exposure as a goal because of the likely mixture and low dose effects
- Ensure the use of the precautionary principle
- Support and expand existing substitution databases, or create an EU-funded and -based substitution database
- Increase transparency regarding chemical data provided by companies
- Use instruments like green taxes, green public procurements and eco-labeling

For cocktail effects

- Use the Concentration Addition method as the default mixture prediction model
- Ensure the use of the precautionary principle
- Agree on an approach for assessing mixtures in real life
- Explicitly implement demands for mixture toxicity assessment in REACH, the Water Framework Directive, the directive on pesticide residues in food and other relevant directives
- Initiate the construction of an addendum to the central EU chemicals database
- Not only focus on the endocrine disruptors

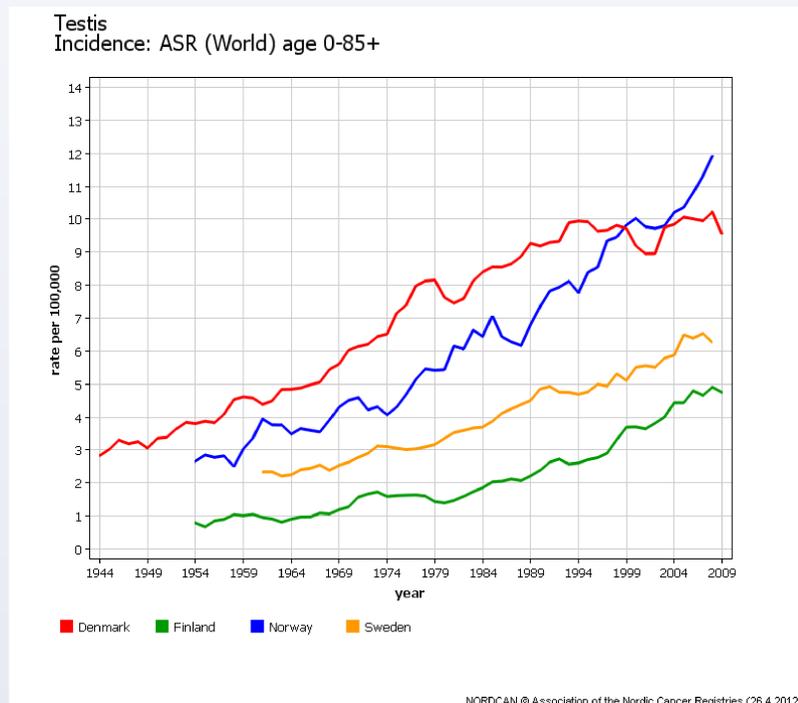
For nanomaterials

- Adopt the definition of a 'nanomaterial' proposed by the Scientific Committee on Emerging and Newly Identified Health Risks
- Register all nanomaterials commercialized in Europe
- Ensure thorough evaluation of all nanomaterial dossiers
- Implement authorisation of nanomaterials
- Establish an independent public nanomaterial and nanoproduct inventory
- Restrict dispersive uses of nanomaterials
- Product declaration
- Establish a Nano Agency



*Registration, Evaluation and Authorisation of Chemicals

Data example¹



There has been a rise in the incidence of testicular cancer in the nordic countries during the years 1944 - 2009. Chemicals are thought to play a considerable part in this increase.

Discussion

International efforts to develop a global plan for the safe management of chemicals are not on track and unlikely to meet the goal of minimising chemicals' adverse health and environmental impacts by 2020. This is mostly due to the fact that chemicals production and use are growing faster than our regulatory and enforcement efforts.

There are still significant knowledge gaps in relation to identifying the properties of nanomaterials, which is partly due to existing test guidelines in which the methodology is not necessarily suitable for the purpose of testing nanomaterials. Furthermore, there is a general lack of knowledge about who produces what, why and how much as well as specific characteristics of the nanoparticles available on the European market. Even though the European Commission in several reports has acknowledged that to properly protect human health and the environment, more specific requirements for nanomaterials within the framework is necessary, so far they have failed to live up to this responsibility.

The weight of scientific evidence, as outlined in the recent review by the WHO and UNEP², tells us that EDC's are linked to serious irreversible impacts on human health and wildlife.

Finally, it is important to bear in mind the mixture effects that have been found in scientific studies where chemicals at dose levels which individually show no effects, have been shown to have adverse health effects when they occur at the same levels in a mixture.

The overall scientific foundation for the toxicity assessment of EDC's and mixtures is in place and it is now vital that political actions ensure that both these areas of concern together with nanotechnology are properly accounted for.

A selection of references:

¹ Engholm G, Ferlay J, Christensen N, Johannesen TB, Klint Å, Köttem JE, Milter MC, Ólafsdóttir E, Pukkala E, Storm HH. NORDCAN: Cancer Incidence, Mortality, Prevalence and Survival in the Nordic Countries, Version 5.1 (March 2012). Association of the Nordic Cancer Registries. Danish Cancer Society. Available from <http://www.ancr.nu>

² State of the Science of Endocrine Disrupting Chemicals – 2012; Edited by Åke Bergman, Jerrold J. Heindel, Susan Jobling, Karen A. Kidd and R. Thomas Zoeller

EDC's:

- Jurewicz and Hanke, 2011, Exposure to phthalates: Reproductive outcome and children health. A review of epidemiological studies. International Journal of Occupational Medicine and Environmental Health, 24:115-141
- Male Reproductive Health Disorders and the Potential Role of Exposure to Environmental Chemicals (CHEM Trust). Professor Richard Sharpe

Mixture effects:

- Kortenkamp, A., Backhaus, T. & Faust, M (2009) State of the Art Report on Mixture Toxicity, European Commission, Brussels, Belgium
- Syberg, K. et al. (2008). Mixture Toxicity of Three Toxicants with Similar and Dissimilar Modes of Action to *Daphnia magna*. Ecotoxicology and Environmental Safety 68: 428-36

Nano:

- Mikkelsen, S.H., Hansen, E., Christensen, T.B., Baun, A., Hansen, S.F., Binderup, M.L. 2011. Survey on basic knowledge about exposure and potential environmental and health risks for selected nanomaterials. Environmental Project 1370. Danish Ministry of the Environment Danish Protection Agency