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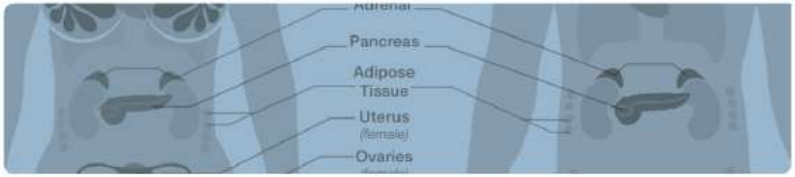

INTRODUCTION TO ENDOCRINE DISRUPTING CHEMICALS (EDCs)

A GUIDE FOR PUBLIC INTEREST ORGANIZATIONS AND POLICY-MAKERS

Andrea C. Gore, PhD
David Crews, PhD
Loretta L. Doan, PhD
Michele La Merrill, PhD, MPH
Heather Patisaul, PhD
Ami Zota, ScD, MS

December 2014

ENDOCRINE SOCIETY
Hormone Science to Health

IPEN
a toxics-free future

https://www.endocrine.org/-/media/endosociety/files/advocacy-and-outreach/important-documents/introduction-to-endocrine-disrupting-chemicals.pdf?la=en

Measures against endocrine disrupting chemicals

The example of Denmark, Sweden and France

wemos

WECF

Pesticide Action Network Europe

Contents

http://www.wecf.eu/download/2017/01-January/Measures_against_endocrine_disrupting_chemicals_June2016.pdf

Invited Review

Dose-Response:
An International Journal
July-September 2015:1-29

DOI: 10.1177/1559325815598308
dos.sagepub.com
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Global Assessment of Bisphenol A in the Environment: Review and Analysis of Its Occurrence and Bioaccumulation

Jone Corrales[1], Lauren A. Kristofco[1], W. Baylor Steele[1,2], Brian S. Yates[1], Christopher S. Breed[1], E. Spencer Williams[1], and Bryan W. Brooks[1,2]

Abstract

Because bisphenol A (BPA) is a high production volume chemical, we examined over 500 peer-reviewed studies to understand its global distribution in effluent discharges, surface waters, sewage sludge, biosolids, sediments, soils, air, wildlife, and humans. Bisphenol A was largely reported from urban ecosystems in Asia, Europe, and North America; unfortunately, information was lacking from large geographic areas, megacities, and developing countries. When sufficient data were available, probabilistic hazard assessments were performed to understand global environmental quality concerns. Exceedances of Canadian Predicted No Effect Concentrations for aquatic life were >50% for effluents in Asia, Europe, and North America but as high as 80% for surface water reports from Asia. Similarly, maximum concentrations of BPA in sediments from Asia were higher than Europe. Concentrations of BPA in wildlife, mostly for fish, ranged from 0.2 to 13 000 ng/g. We observed 60% and 40% exceedences of median levels by the US Centers for Disease Control and Prevention's National Health and Nutrition Examination Survey in Europe and Asia, respectively. These findings highlight the utility of coordinating global sensing of environmental contaminants efforts through integration of environmental monitoring and specimen banking to identify regions for implementation of more robust environmental assessment and management programs.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4674187/

frontiers in NEUROSCIENCE

REVIEW ARTICLE
published: 03 March 2015
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Bisphenol A and phthalate endocrine disruption of parental and social behaviors

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Perinatal exposure to endocrine disrupting chemicals (EDCs) can induce promiscuous neurobehavioral disturbances. Bisphenol A and phthalates are two widely prevalent and persistent EDCs reported to lead to such effects. Parental and social behaviors are especially vulnerable to endocrine disruption, as these traits are programmed by the organizational-activational effects of testosterone and estrogen. Exposure to BPA and other EDCs disrupts normal maternal care provided by rodents and non-human primates, such as nursing, time she spends hunched over and in the nest, and grooming her pups. Paternal care may also be affected by BPA. No long-term study has linked perinatal exposure to BPA or other EDC and later parental behavioral deficits in humans. The fact that the same brain regions and neural hormone substrates govern parental behaviors in animal models and humans suggests that this suite of behaviors may also be vulnerable in the latter. Social behaviors, such as communication, mate choice, pair bonding, social inquisitiveness and recognition, play behavior, social grooming, copulation, and aggression, are compromised in animal models exposed to BPA, phthalates, and other EDCs. Early contact to these chemicals is also correlated with maladaptive social behaviors in children. These behavioral disturbances may originate by altering the fetal or adult gonadal production of testosterone or estrogen, expression of ESR1, ESR2, and AR in the brain regions governing these behaviors, neuropeptide/protein hormone (oxytocin, vasopressin, and prolactin) and their cognate neural receptors, and/or through epimutations. Robust evidence exists for all of these EDC-induced changes. Concern also exists for transgenerational persistence of such neurobehavioral disruptions. In sum, evidence for social and parental deficits induced by BPA, phthalates, and related chemicals is strongly mounting, and such effects may ultimately compromise the overall social fitness of populations to come.

Keywords: EDC, bisphenol A, phthalate, xenoestrogen, rodent models, brain development, epigenetics, neuropeptides

https://www-ncbi-nlm-nih-gov.proxy.helsebiblioteket.no/pmc/articles/PMC4347611/pdf/fnins-09-00057.pdf

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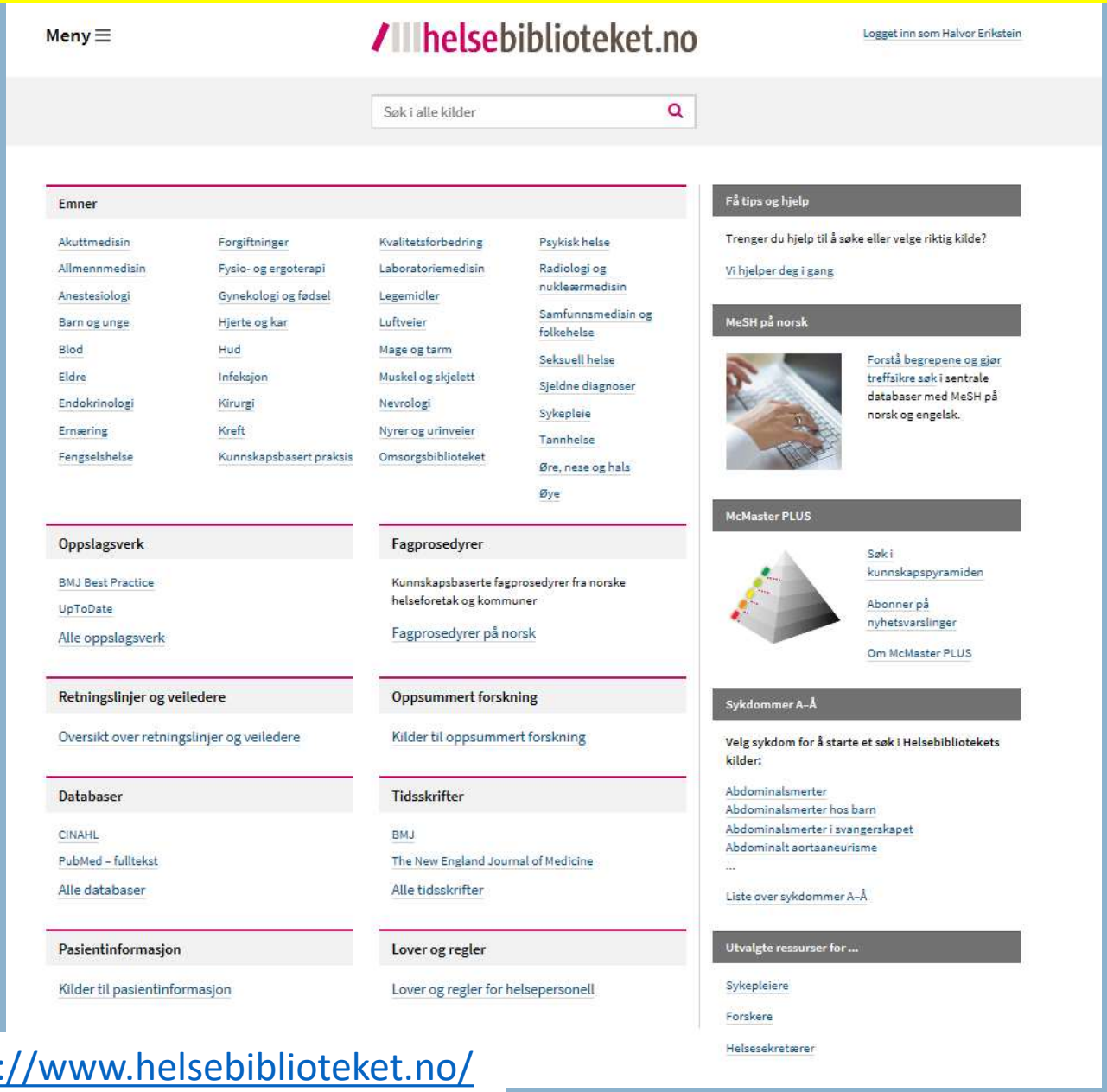
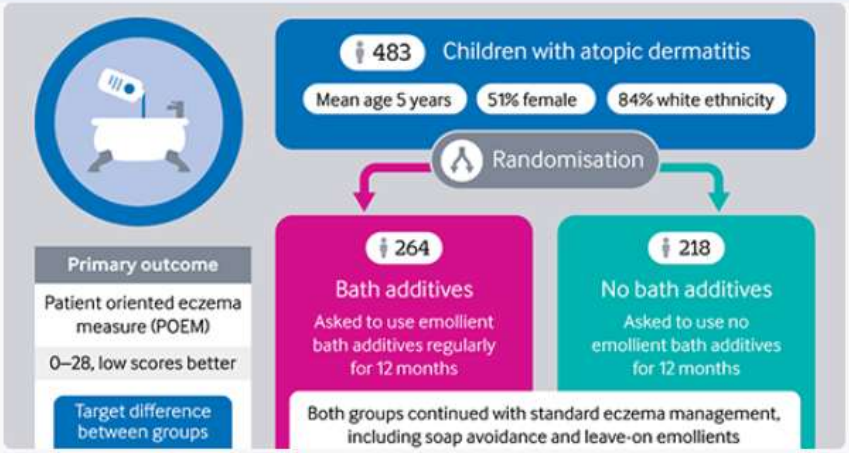


«Mistanke om yrkessykdom» må få en egen knapp!

http://www.helsebiblioteket.no/



Research paper

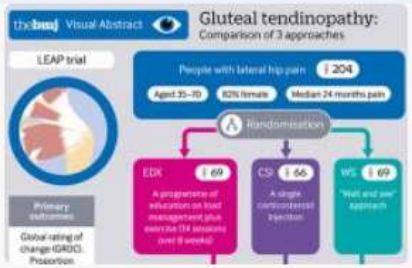
Emollient bath additives for the treatment of childhood eczema

This trial found no evidence of clinical benefit from including emollient bath additives in the standard management of eczema in children. Further research is needed into optimal regimens for leave-on emollient and soap substitutes.

> Editorial: New evidence challenges use of bath emollients for children with eczema
> BMJ opinion: Patient and carer choice for eczema treatment is crucial
> Editor's choice: Bathing in good evidence

Research paper

Effect of public reporting of surgeons' outcomes in colorectal cancer surgery



Research paper

Comparing three approaches to managing gluteal tendinopathy

> BMJ opinion: The ongoing reduction in pain became the inspiration to never go back to "ground zero"

Research paper

Biases in electronic health record data due to processes within the healthcare system

Feature

Rocketing smoking rates across Africa stoke TB and HIV fears

Hormone disrupting chemicals: slow progress to regulation

BMJ 2018 ; 361 doi: https://doi.org/10.1136/bmj.k1876 (Published 30 April 2018)
Cite this as: *BMJ* 2018;361:k1876

Barbara Casassus, freelance journalist

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Chemicals such as phthalates may harm humans but remain ubiquitous in manufactured goods. **Barbara Casassus** reports on what is happening in the EU

What are endocrine disruptors?

Some 800 chemicals are known or suspected to interfere with hormone receptors, synthesis, or conversion at some dose.[1] These endocrine disrupting chemicals—for example, phthalates and parabens—are present in small quantities in scores of industrial and consumer goods, including children's toys, food, pesticides, personal care products, and almost all plastics. Only a fraction have been investigated for evidence of harm to human and animal health. A few have been banned: bisphenol A in products for infants in Europe, the US, and Canada; and some parabens in cosmetics in those countries and Japan. France bans bisphenol A in materials that come into contact with food.

Who is worried?

Union of Concerned Scientists
Science for a Healthy Planet and Safer World

en español | Q

Our Work | About | Take Action

bpa

Practical Solutions

Our scientists and engineers develop and implement innovative, practical solutions to some of our planet's most pressing problems—from combating global warming and developing sustainable ways to feed, power, and transport ourselves, to fighting misinformation, advancing racial equity, and reducing the threat of nuclear war.

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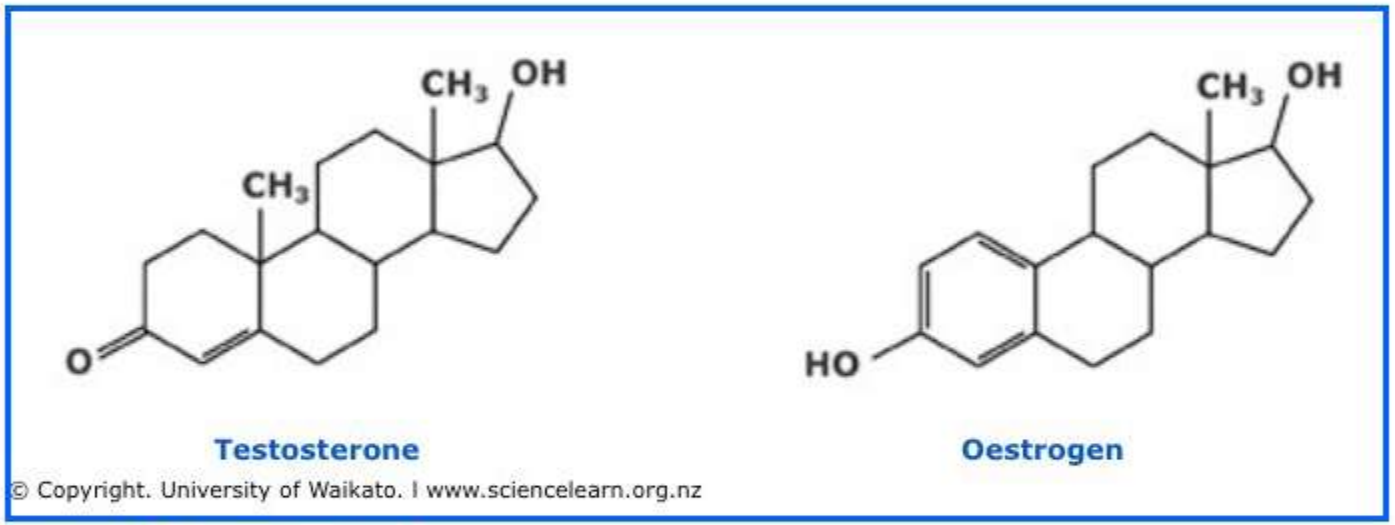
IMAGE

Complex molecules: Testosterone and oestrogen



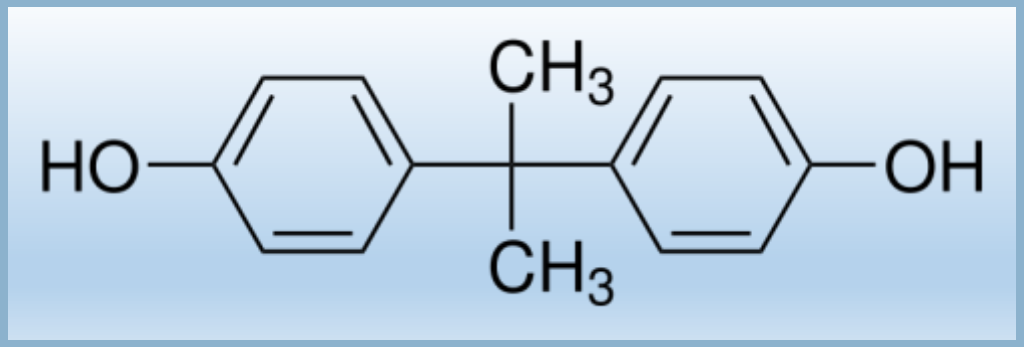
Rights: University of Waikato | Published 25 September 2017 | Size: 37 KB

The small difference in the structure of the sex hormones testosterone and oestrogen has a huge effect on the way these hormones function in the body

https://www.sciencelearn.org.nz/images/3206-complex-molecules-testosterone-and-oestrogen

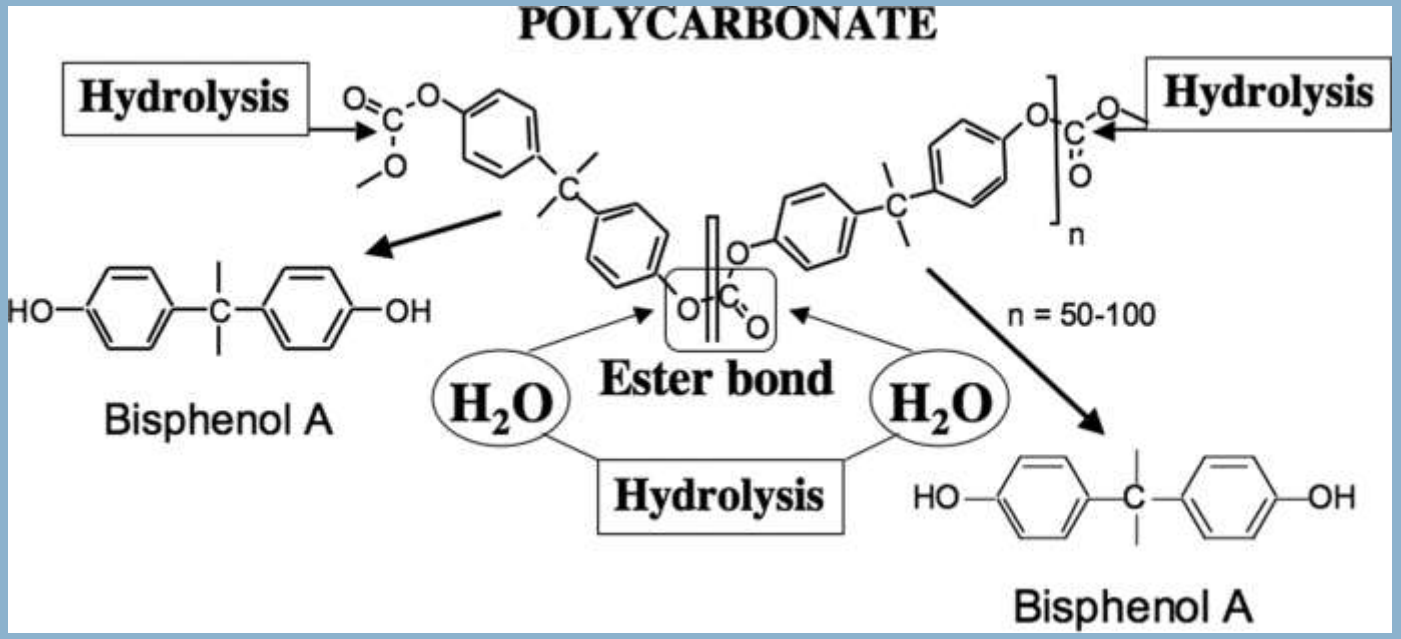
BPA lekker ut fra plast

Bisfenol A (BPA)



Battles Over Bisphenol A
http://www.defendingscience.org/case_studies/Battles-Over-Bisphenol-A.cfm

FIG. 1. Schematic diagram depicting hydrolysis of the ester bond linking BPA molecules to form polycarbonate plastic



Welshons, W. V. et al. Endocrinology 2006;147:s56-s69

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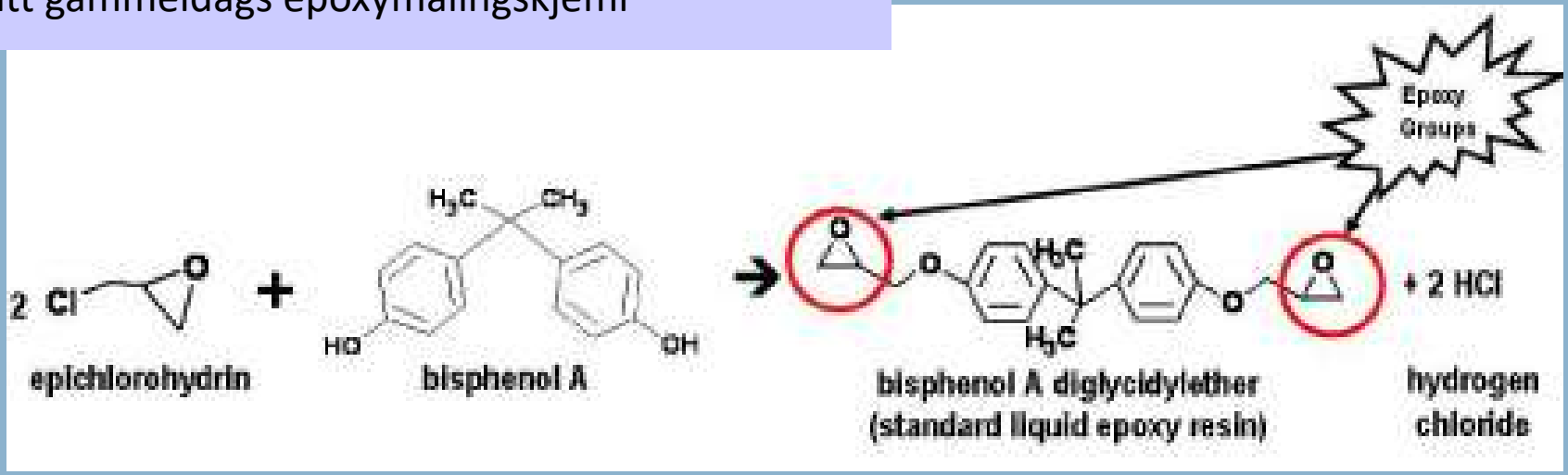
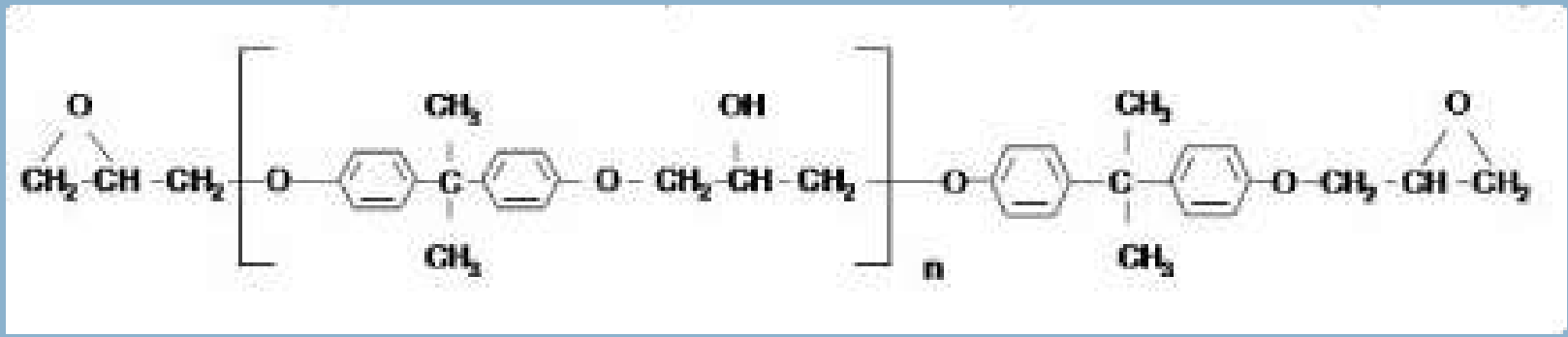
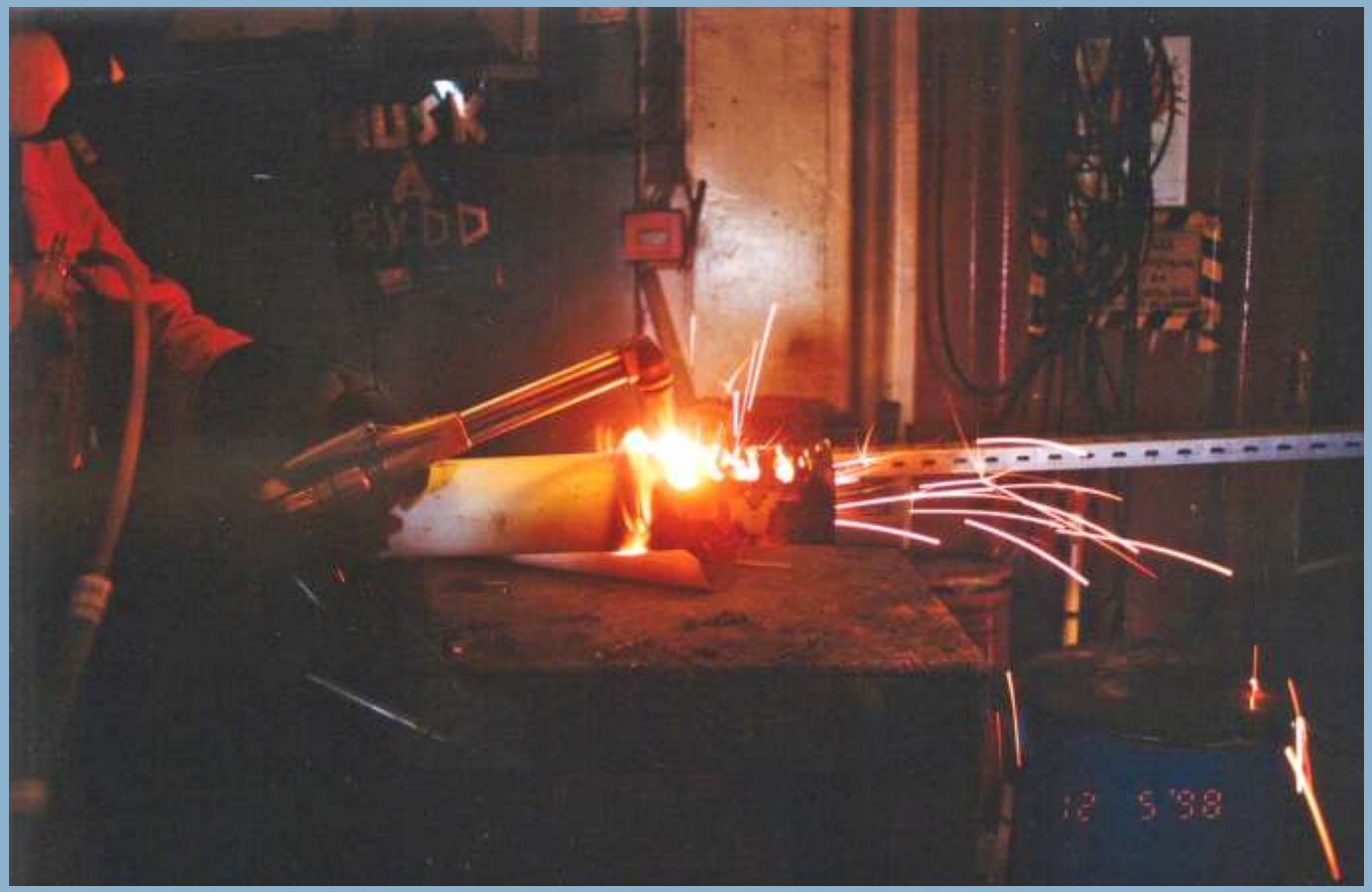




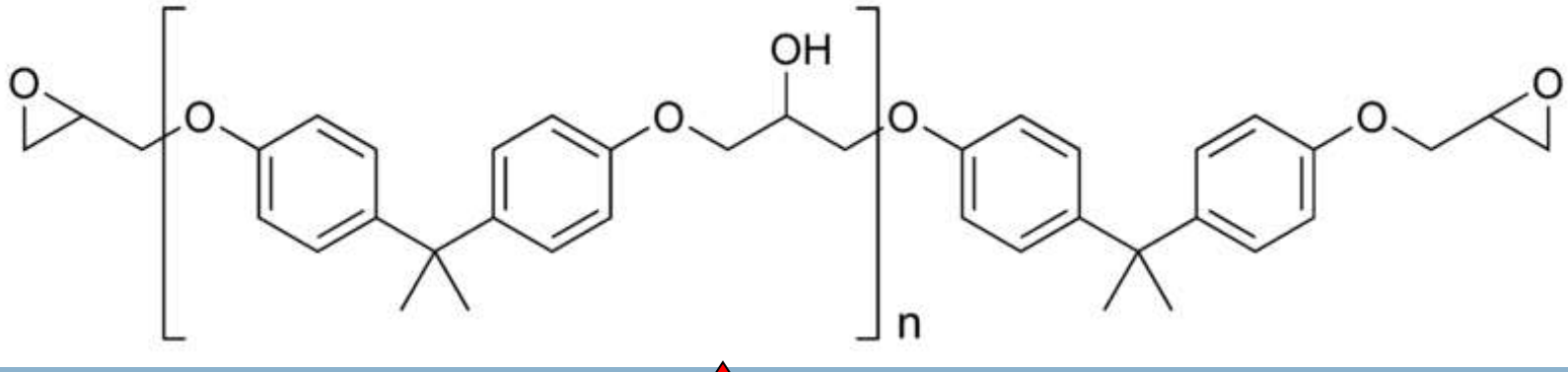
http://www.dow.com/productsafety/finder/bisphenol.htm

Termisk dekomponering av maling



Present knowledge regarding exposure and possible health effects of "hot work" in coated metal parts offshore
http://www.ptil.no/getfile.php/PDF/Vedlegg7.pdf

Diglycidyleter av bisfenol a tilbakedanner BPA ved termisk dekomponering



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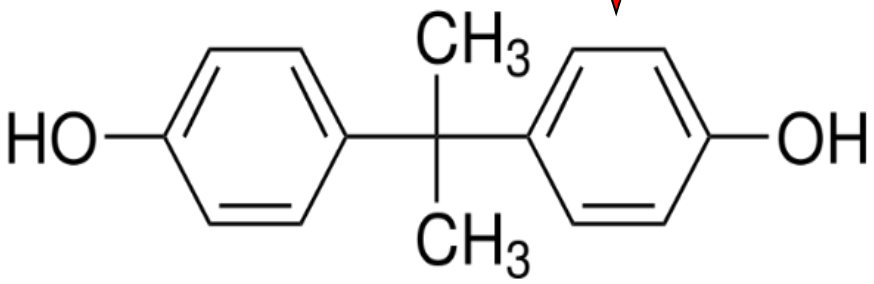

Kjemisk cocktail

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Estimated Costs of Endocrine-Disrupting Chemical Exposure Exceed €150 Billion Annually in EU

March 05, 2015

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Associate Director, Communications and Media Relations
Phone: 202.971.3655
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Chemicals contribute to health conditions including lowered IQ, male infertility, diabetes, obesity

SAN DIEGO, CA and BRUSSELS, BELGIUM - A new economic analysis found exposure to endocrine-disrupting chemicals likely costs the European Union €157 billion ($209 billion) a year in actual health care expenses and lost earning potential, according to a new series of studies published in the Endocrine Society's *Journal of Clinical Endocrinology and Metabolism*.

The authors presented the findings today at simultaneous press events at ENDO 2015, the Endocrine Society's 97th Annual Meeting & Expo, and in Brussels, Belgium.

Global experts in this field concluded that infertility and male reproductive dysfunctions, birth defects, obesity, diabetes, cardiovascular disease, and neurobehavioral and learning disorders were among the conditions than can be attributed in part to exposure to endocrine-disrupting chemicals (EDCs). The €157 billion estimate is conservative, and represents 1.23 percent of Europe's gross domestic product (GDP). These costs may actually be as high as €270 billion ($359 billion), or 2% of GDP.

https://www.endocrine.org/news-room/press-release-archives/2015/estimated-costs-of-endocrine-disrupting-chemical-exposure-exceed-150-billion-annually-in-eu

- **Global experts in this field concluded that infertility and male reproductive dysfunctions, birth defects, obesity, diabetes, cardiovascular disease, and neurobehavioral and learning disorders were among the conditions than can be attributed in part to exposure to endocrine-disrupting chemicals (EDCs).** The €157 billion estimate is conservative, and represents 1.23 percent of Europe's gross domestic product (GDP). These costs may actually be as high as €270 billion ($359 billion), or 2% of GDP.

https://www.endocrine.org/news-room/press-release-archives/2015/estimated-costs-of-endocrine-disrupting-chemical-exposure-exceed-150-billion-annually-in-eu

Informasjon til Sikkerhetsforum
27. nov 2008

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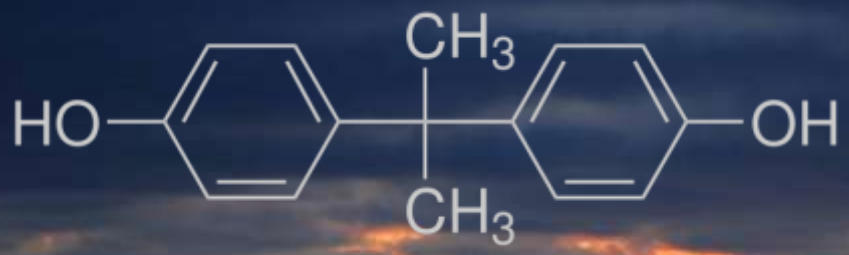
Hormonhermere i arbeidsmiljøet.
Bisfenol A eksponering ved varmt arbeid.



http://www.ptil.no/getfile.php/Presentasjoner/referat2008_5/hormonhermere.pdf

Hormonhermere i arbeidsmiljøet – fortsatt en lang vei å gå