



Comments from the Natural Resources Defense Council on

**LD 412, Resolve, Regarding Legislative Review of Portions of Chapter 882:
Designation of Bisphenol A as a Priority Chemical and
Regulation of Bisphenol A in Children's Products,
a Major Substantive Rule of the Department of Environmental Protection**

Friday, March 25, 2011, 1:00 PM, Cross Building Room 216

Dear Senator Saviello, Representative Hamper, and Committee Members,

Thank you for this opportunity to testify in support of L.D. 412. These comments are submitted by Natural Resources Defense Council (NRDC), who on behalf of our 1.2 million members and online activists uses law and science to ensure a safe and healthy environment for all living things. NRDC has no financial interest in bisphenol A (BPA).

I am Jennifer Sass. I have a doctorate degree in molecular biology, and a post-doctoral certificate in environmental toxicology. I am a Senior Scientist at the Natural Resources Defense Council (NRDC). I work in the Health and Environment Program, which reviews the federal regulation of hazardous industrial chemicals and pesticides. I have been working with NRDC for almost ten years. I have published over three dozen articles in scientific journals, provided written and oral testimony to Congress, to the Environmental Protection Agency, and to the National Academies, as well as served on Federal scientific advisory and stakeholder committees. I am also a professorial lecturer in the Department of Environmental and Occupational Health at George Washington University, where I teach the regulation of hazardous chemicals and emerging contaminants like nanotechnologies.

I am also the mother of a grown son. Although he is now in college, his physical, emotional, and intellectual development continue to be a daily priority for me. At this point in his life I think about what effect hormone-disrupting chemicals like BPA may have on his reproductive health and the health of my future grandchildren.

BPA was intentionally developed in the laboratory as an estrogen mimicking chemical over 70 years ago. Now, its widespread use in consumer products has resulted in 9 out of every 10 Americans carrying residues of this chemical in their body. BPA has also been found in breast milk, cord blood and amniotic fluid, indicating exposures are occurring during vulnerable periods of development. The FDA and other federal agencies have identified food as a major source of exposure and infants are amongst the most highly exposed. As a scientist and a mom, I am quite concerned that the levels found in humans have repeatedly been associated with harm in laboratory animals.

We applaud Maine's rule on BPA, which does three things:

1. Require that BPA is replaced with safe alternatives in reusable food and beverage containers, effective January 1, 2012 (targeting polycarbonate plastic). This has been provisionally adopted at this time.
2. Require research to identify safer alternative replacements for infant formula and baby food, effective January 1, 2012 (targeting epoxy resin lining on metal cans and lids). This has been adopted by the agency.
3. Require reporting where BPA is still used in child care articles, toys, and tableware, effective June 8, 2011. This has been adopted by the agency.

I would like to make four pertinent points about this legislation:

1. The weight of scientific evidence supports Maine's decision to ban BPA.
2. Market changes have already occurred which indicate alternatives to BPA are easily achieved.
3. While removing BPA from infant and children's products is a big step forward, our children will not be out of harm's way unless we take BPA out of the products that they have access to, including those that expose pregnant and nursing mothers.
4. Maine should not wait for federal action, either by the U.S. Congress, the Food and Drug Administration, or the Environmental Protection Agency to take action on BPA.

Over 200 scientific studies on BPA have been published which have demonstrated that exposures occurring during fetal or early childhood development can have life-long impacts on reproduction, including early puberty, learning and behavior, and a predisposition for the development of cancer in the prostate and breast. More recent research has demonstrated that BPA can interfere with the development and function of fat tissue and has been linked to pre-diabetes, cardiovascular disease, and thyroid hormone function.

Low levels of BPA, similar to those found in humans, have been demonstrated in dozens of well-conducted studies published in the peer-reviewed scientific literature by many different independent, academic laboratories to cause adverse effects on the development of an animals' reproductive system, brain and behavior, and potentially the metabolic system. Prenatal exposure has also been shown to increase susceptibility to prostate and mammary (breast) cancer later in life. Moreover, low doses of BPA, within the range of common human exposure, have been shown to interfere with prostate cancer treatment in human/animal models, to promote the transition of normal breast tissue to tissue which expresses genes found only in highly aggressive human tumors, and to interfere with the action of drugs used to treat human breast cancer.

The FDA and other federal agencies have identified food as a major source of exposure and stated that infants are amongst the most highly exposed. These agencies have identified use of polycarbonate bottles and infant formula as the major sources of exposure to infants. Previously concerns have been raised about drinking warm beverages from polycarbonate but now, a new Harvard study has demonstrated that drinking even cold beverages from polycarbonate containers increases exposure to BPA by as much as two-thirds. Infants drinking formula packaged with BPA in the lining are being exposed from two sources in one sitting – the formula and the baby bottle - and for young infants we know that this sequence can be repeated many times each day.

Also of concern are studies done on non-human primates and in humans that have shown exposure to BPA during critical periods of development interferes with the formation of parts of the brain that are important for learning and memory. More recent studies in monkeys and in young human toddlers, have found that BPA exposure early in life causes males to behave more like females. These troubling results are consistent with findings described previously in rodent studies.

In sum, we have abundant evidence in multiple species from laboratories across the globe, which have consistently shown that the developing fetus and infant is exquisitely sensitive to this chemical.

Exposures in adults during their reproductive years are also of concern because of the potential effects of BPA on sperm and oocytes (human eggs).

In the past 3 years, three different expert panels have recognized the impact of BPA on the developing child. First, in 2007 a panel of 38 internationally recognized BPA scientific experts, convened by the National Institute of Environmental Health Sciences, issued a consensus statement and published a series of articles in a peer reviewed scientific journal summarizing concerns about BPA toxicity. Second, in 2008, the U.S. National Toxicology Program, which acts as a science advisory panel to U.S. federal and state regulatory agencies, issued a report expressing concern current levels of exposures to BPA in fetuses infants and children potentially puts them at risk for health impacts. In January 2010, the FDA stated they were in agreement with the findings of this NTP report. Finally, the Endocrine Society, the premier professional organization comprised of over 14,000 research scientists and physicians from over 100 countries in 2010 issued their first public statement on the impacts of endocrine disrupting chemicals on human health, highlighting BPA as one of the chemicals which has been linked to a wide variety of health impacts caused by endocrine disruptors.

There is strong scientific evidence to restrict the use of BPA in children's products because it is a source of exposure during one of the most critical periods of development. However, getting BPA out of infant and children's products is not enough. Exposures occurring in the womb are likely to be as dangerous for development and requiring BPA-free 'adult' reusable containers is an important step to reducing a large source of BPA exposure during pregnancy. The National Toxicology Program scientific team determined that, "The primary source of exposure to BPA for most people is through the diet. While air, dust, and water are other possible sources of exposure, BPA in food and beverages accounts for the majority of daily human exposure. Therefore, replacing BPA in reusable containers, sports water bottles, and other reusable polycarbonate plastic containers will reduce the intake of BPA by pregnant and nursing women, and therefore reduce the risk of exposure to the fetus and infant during this critical window of development when our babies are most vulnerable to harm from BPA.

After public outcry over the mounting scientific evidence of BPA toxicity, many retailers and manufacturers have taken their own initiatives to eliminate BPA from their products.

- Wal-Mart, Toys R Us, Target, and Sears are just a few of the national chains that have phased out baby bottles containing BPA.
- The nation's six largest baby bottle manufacturers announced in 2009 that they either have already eliminated or will phase out BPA.
- Sunoco, a chemical manufacturer, instituted a policy to no longer sell BPA for use in food and water containers intended for children under three.
- Several major infant formula makers are already using BPA-free packaging.
- General Mills has announced that its *Muir Glen* organic tomato products will be packaged in BPA-free cans. ConAgra foods and Heinz have also announced their tomato products will be in BPA-free cans. Other canned food manufacturers, such as Eden Foods, have been using BPA-free cans for all of its bean products since 1999. Others that are packaging some or all of their products without BPA include Edward & Sons and seafood companies Wild Planet, Eco Fish and Oregon's Choice.

The sales of BPA-free products have sky-rocketed and many alternatives are available. However, we cannot rely on these voluntary measures to protect our children. While we applaud those U.S. industries that are recognizing the dangers of BPA and eliminating it from products, there are currently no laws in the U.S. prohibiting the use of BPA, and no way for parents to know whether the products they buy will help – or hinder—their child's development. Furthermore, parents should not have to take advanced chemistry lessons to be able to decipher which products are safe for their children.

Other countries and individual states are already taking action. Nine states have passed with bipartisan support legislation to remove BPA from children's products. The Canadian Ministry of Health has declared BPA to be a "toxic chemical" and has banned the use of BPA in baby bottles. Earlier this month a European ban on BPA went into effect and joined the United Arab Emirates in banning the substance in children's products. Finally, this month China announced it would be banning BPA in children's products.

You may receive testimony from manufacturers of BPA, the chemical industry, or other industries and trade associations with an interest in maintaining the status quo that Maine should not move forward with state-specific legislation, but instead allow the federal government to take action to address the problem. Such testimony might even imply that sufficient action is already underway at the federal level, making Maine's potential involvement unnecessary and superfluous. I urge the Committee not to be persuaded by these suggestions, or dissuaded from fulfilling its mission of protecting Maine's residents.

While it is true that legislation to ban specific uses of BPA has been introduced in both houses of the U.S. Congress, it is unlikely that either of these bills will see action and move through their legislative bodies. This is not because the need to address BPA nationally is any less real or pressing, but because the chemical industry and other industry interest groups so strongly oppose adoption of any such legislation. In fact, just last November, a compromise was reached in the U.S. Senate between a Democratic and a Republican Senator to include a ban on the use of BPA in baby bottles and sippy cups as part of the Food Safety Bill then under consideration. Unfortunately, this opportunity to establish a uniform national rule on BPA in those children's products was lost when the chemical industry, represented by its trade association, the American Chemistry Council, applied sufficient political pressure on key Senators to kill this compromise provision. We fully expect that the industry opposition to ongoing efforts to address BPA through national legislation will be just as strong in the months and years ahead. Maine should not wait for the U.S. Congress to act.

Regarding action by the federal agencies, EPA and FDA, you may hear that the EPA is handling this issue, and is working on publishing a list of "chemicals of concern" that would include BPA, using its existing authority under the Toxic Substances Control Act (TSCA). In other state legislatures, the chemical industry has cited this EPA initiative as a reason not to move forward on state-level regulation of chemicals. What has been left out of those presentations however is the industry's strong opposition to allowing EPA to even formally *propose* the creation of such a list. To date, EPA's draft proposal of a list of chemicals of concern has been stalled by the Office of Management and Budget for nearly a year, with no suggestion that it will be forthcoming soon. In short, Maine should not wait for the EPA to act.

Meanwhile, the FDA has not completed its current assessment of the safety of BPA. This will be their third attempt, because previous attempts have been heavily criticized for methodological flaws. External scientific reviews of the previous two assessments have been critical of the Agency relying on studies funded by the chemical industry. FDA's legal mandate when approving the use of food additives is that the chemical must be "shown by adequate scientific data to be safe for use in human food." Given the number of concerns that have been raised by the dozens of studies published by independent academic scientists and other federal agencies, BPA does not meet this bar and should not be allowed for continued use as a food additive. Unfortunately, there is no deadline for completion of the assessment and no guarantee that it will pass muster with their Science Advisory Panel when it is completed. While the FDA has primary jurisdiction over the use of BPA in food packaging and containers, it has taken very little action on this issue, beyond the poorly conducted assessment just described. In light of FDA's failure to date, Maine should not wait for the FDA to Act.

I urge your support of this important measure and will be happy to respond to any follow up comments or questions you may have.

Jennifer Sass, Ph.D.
Senior Scientist, Health and Environment, Natural Resources Defense Council (NRDC)
and, Professorial Lecturer, Dept Environ Occup Health, George Washington University

NRDC, 1200 New York Ave, NW. Suite 400, Washington, DC 20005
Email: jsass@nrdc.org; Tel: 202-289-2362

Suggested readings:

Braun JM, Hauser R. Bisphenol A and children's health. *Curr Opin Pediatr*. 2011 Feb 2.

Erler C, Novak J. Bisphenol a exposure: human risk and health policy. *J Pediatr Nurs*. 2010 Oct;25(5):400-7. Epub 2009 Jul 9. Review.

Fleisch AF, Sheffield PE, Chinn C, Edelstein BL, Landrigan PJ. Bisphenol A and related compounds in dental materials. *Pediatrics*. 2010 Oct;126(4):760-8.

Golub MS, Wu KL, Kaufman FL, Li LH, Moran-Messen F, Zeise L, Alexeeff GV, Donald JM. Bisphenol A: developmental toxicity from early prenatal exposure. *Birth Defects Res B Dev Reprod Toxicol*. 2010 Dec;89(6):441-66.

Groff T. Bisphenol A: invisible pollution. *Curr Opin Pediatr*. 2010 Aug;22(4):524-9. Review.

National Toxicology Program. Since you asked – Bisphenol A (BPA) questions and answers.
<http://www.niehs.nih.gov/news/media/questions/sya-bpa.cfm>

Vandenberg LN, Maffini MV, Sonnenschein C, Rubin BS, Soto AM. Bisphenol-A and the great divide: a review of controversies in the field of endocrine disruption. *Endocr Rev*. 2009 Feb;30(1):75-95.