



**Connecticut  
Public Health  
Association**

Promoting Public Health in Connecticut Since 1916

Written Testimony of Connecticut Public Health Association

***AN ACT PROHIBITING THE USE OF BISPHENOL-A IN THERMAL  
RECEIPT PAPER AND INCREASING THE DUTIES OF THE CHEMICAL  
INNOVATIONS INSTITUTE, S.B. 210***

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Health Association

Environment Committee  
February 15, 2011

Senator Meyer, Representative Roy and members of the General Assembly's  
Environment Committee:

Thank you for the opportunity to provide testimony on behalf of the Connecticut  
Public Health Association (CPHA) in favor of SB 210. In accordance with the  
Connecticut Public Health Association's mission that includes, "working to  
eliminate the state's most pressing public health concerns and promoting healthy  
and safe living for the people of Connecticut," CPHA strongly urges members of  
the Environment Committee to reduce people's exposure to toxic chemicals – in  
this case Bisphenol-A.

**The Health Effects of BPA Exposure:**

Scientific research shows that the public is routinely exposed to a variety of  
chemicals that increase the risk of serious health threats including cancer, asthma,  
infertility, and learning and developmental disabilities. One such chemical linked to  
these health threats is bisphenol-A (BPA) which is widely used in the  
manufacturing of polycarbonate plastics and epoxy resins. BPA was first  
synthesized in the late 19th century and has been known as an endocrine disruptor  
since the 1930s. Products include baby and water bottles, medical and dental  
devices, food storage containers, and linings in food cans [1]. It is a popular  
chemical with an annual global production greater than 6 billion pounds [1].  
Increasing rates of chronic diseases such as cancer and asthma have been linked to  
exposure to toxic chemicals such as BPA which has led many state legislatures  
across the country to enact policies to help decrease chemical exposure.

BPA is a known hormone-disrupting chemical and negative health effects linked  
specifically to its exposure include breast and prostate cancer, heart disease, obesity,  
diabetes, and weakened immune systems [2]. Other diseases and disorders include  
infertility, miscarriages, premature births, and early puberty [3,4]. BPA is  
especially detrimental to the health of children as it can affect their brain  
development and cause alterations in behavior. The 2003-2004 National Health and

Nutrition Examination Survey (NHANES) conducted by the Centers for Disease Control and Prevention (CDC) found detectable levels of BPA in 93% of 2517 urine samples from people six years and older [4]. The CDC NHANES data is considered representative of exposures to BPA in the United States. Equally disturbing is the fact that many studies have found the highest concentrations of BPA in children, who are most vulnerable to BPA-induced health problems [5]. Regarding the possible effects on human development and reproduction, the National Toxicology Program (NTP) has stated it has some concern for effects on the brain, behavior, and prostate gland in fetuses, infants, and children at current human exposure to BPA [6]. A recent study involving cord blood analyses showed every baby born today has toxic chemicals in his or her blood, including BPA, PCBs, phthalates, flame retardants, pesticides, lead, and mercury.[7,8] This scientific data demonstrates that embryos and fetuses are exposed to a vast array of toxic chemicals that cross the placental barrier throughout their early development.

### **BPA in Thermal Paper Receipts:**

Bisphenol-A is a widely used chemical that has been shown to adversely affect health outcomes in many scientific studies. In thermal printing applications, BPA functions chemically as a developer, which reacts with white or colorless dyes (color formers) in the presence of heat, converting them to a dark color [9]. BPA is used mostly as a developer in lower-grade thermal paper applications, such as receipts, lottery tickets, and medical papers. Today many paper companies produce massive quantities of thermal paper for receipts given out at retail stores, supermarkets, and gas stations. Unfortunately, unlike BPA in baby bottles or other products, BPA on thermal paper isn't chemically bound in any way. This free, unbound BPA then becomes a powdery film on the surface of receipts which means it can be transferred from the paper to a person's skin [10].

The Safer Chemicals, Healthy Families Coalition and the Washington Toxics Coalition recently released a report that examined the amount of BPA found on cash register receipts and dollar bills [10]. Data from the report indicate that this toxic chemical doesn't stay on the paper but easily transfers from the paper to a person's skin where it can be absorbed and enter the bloodstream. The highest transference of BPA to the skin came from crumpling a receipt, which deposited more than 10 times the BPA on the skin as simply holding a receipt between a finger and thumb. Researchers found that 50% of the thermal paper receipts tested had large quantities of unbound BPA and that 95% of the dollar bills tested positive for lower amounts.

### **Specific Findings of the Report:**

#### **1. About half of thermal paper receipts were made with large quantities of unbound BPA.**

Researchers collected receipts made with thermal paper from 22 retailers in 10 states. Laboratory tests showed BPA in large quantities, up to 2.2% of the total weight, in 11 of the 22 receipts. BPA used in thermal paper isn't chemically bound so it is free and able to come off onto skin, money, and other objects.

2. BPA transfers easily from thermal paper receipts to human skin.

In tests replicating typical handling of receipts, BPA transferred from receipts to fingers. After only ten seconds of holding a receipt, up to 2.5 micrograms of BPA was transferred. Much higher amounts, about 15 times as much, were transferred by rubbing the receipts.

3. Unregulated use of BPA has contaminated the money supply.

Since the BPA in thermal paper receipts is present in a powdery film, it could easily travel from those receipts to other objects. Of the 22 dollar bills tested, BPA was found on 21 of them. It is very likely that BPA contaminates much of the paper currency as well as many other objects used during daily activities.

While recent attention has been focused on BPA in certain plastic and canned products, the amount in a single typical paper receipt may be 1,000 times higher than the amount of BPA measured in canned food [9]. People working in certain occupations, such as cashiers and restaurant servers who handle thermal paper often, may be at greater risk of exposure. Hand-to-mouth behavior and mouthing of objects puts young children and babies, who are most sensitive to BPA, at greater risk of potential exposure. Teenagers, who are also at an important stage of their development, may potentially be exposed to BPA as they enter the workforce.

Alternatives to BPA are out there. The Environmental Protection Agency has identified 18 chemicals other than BPA that could potentially be used in thermal paper receipts [8]. Reducing use of BPA in receipts is an opportunity to reduce one source of human exposure and reduce release of it into our environment.

The Toxic Substances Control Act (TSCA), passed in 1976, gives the U.S. Environmental Protection Agency very limited authority to require safety testing of only a few hundred of the approximately 80,000 chemicals used in commerce [11]. Of that large number of chemicals, 62,000 were grandfathered under the law with no requirement for testing or safety assessment. This is why it is so important for the state government, through its legislative actions, to commit to the continued protection of its citizens' health, safety, and well-being.

**Conclusions:**

The Connecticut Public Health Association would like to thank the Committee for the opportunity to discuss the impact chemicals such as BPA are having on the health of the people who live in this state. In 2009, state legislatures passed a bill protecting children's health from dangerous chemicals and for the promotion of safer alternatives. While Connecticut is fortunate to have one of the strongest laws in the country regarding BPA, further legislation is needed to protect consumers from toxic chemical exposure. Passage of SB 210 will help ensure future generations are protected from exposure to BPA.

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