LEGISLATIVE ANALYST REPORT

To: Supervisor Ma
From: Andrew Murray, Ernie Tedeschi, and Adam Van de Water, Office of the Legislative Analyst
Date: October 18, 2006
Re: **Enforcement Alternatives for Plastic Child Products Ban** (OLA No. 057-06)

SUMMARY AND SCOPE OF REQUEST

Supervisor Ma requested that the Office of the Legislative Analyst (OLA) work with the Department of Public Health (DPH) to explore enforcement options for the bisphenol-A (BPA)/phthalates ban passed by the Board of Supervisors on May 30, 2006 (BOS File No. 060107).

This report reviews the legislation as passed and the science behind the ban, surveys other jurisdictions that have enacted similar bans, and discusses enforcement considerations.

EXECUTIVE SUMMARY

Numerous products exist that contain or are manufactured with BPA or phthalates. Some other jurisdictions have restrictions similar to San Francisco's regarding phthalates, but to our knowledge no other jurisdictions do for BPA as it relates to consumer products. Although the health risks of these compounds are becoming clear, much uncertainty remains regarding pathways and safe levels of exposure. A number of issues are laid out for consideration in implementing the recently-passed ordinance.

THE LEGISLATION: PROHIBITING BPA AND PHTHALATES

At their May 30, 2006 meeting, the Board of Supervisors unanimously passed legislation (Ordinance 120-06) prohibiting the manufacture, sale, or distribution of any toy or child care article intended for use by a child under three years of age if it contains or has been made with BPA or any of six phthalates (under certain conditions).

BPA is a constituent of many polycarbonate plastics and epoxy resins. It is found in the lining of most food and beverage cans, in surgical products, in dentistry fillings, and in numerous children's products including pacifiers, baby bottles, bicycle helmets, and toys. Phthalates are used as an additive to polyvinyl chloride (PVC) plastics to make them flexible, including for the production of plastic toys such as teethers and bath books. Studies have shown that products made with these chemicals could pose a health risk to humans, particularly to children who may chew on them or put them in their mouths for extended periods. Risks include possible liver damage and disruption of the endocrine and reproductive systems.

Overview of the Legislation

The following excerpt from the Legislative Digest provides an overview of the ordinance:

> *Under the proposal, the City would prohibit any person or entity manufacturing, selling, or distributing in commerce within the City and County of San Francisco any toy or child care article intended for use by a child under three years of age if that product had been made with or contains bisphenol-A. For the purposes of this ordinance, "toy" means an article designed and made for the amusement of a child or for his or her use in play, and "child care article" means all products designed or intended by the manufacturer to facilitate sleep, relaxation, or the feeding of children or to help children with sucking or teething.*
>
> *The proposal would also prohibit any person or entity from manufacturing, selling, or distributing in commerce within the City and County of San Francisco any toy or child care article that is made with or contains di (2-ethylexyl)* [sic] *phthalate (DEHP), di butyl phthalate (DBP), or bencyl butyl* [sic] *phthalate (BBP) in concentrations exceeding 0.1 percent, or any toy or child care article intended for use by a child under three years of age if that product can be placed in the child's mouth and has been made with or contains diisononyl phthalate (DINP), diisodecyl phthalate (DIDP), or di-n-octyl phthalate (DnOP) in concentrations exceeding 0.1 percent.*
>
> *Finally, the proposal would require that manufacturers of such products within the City use the least toxic alternative when replacing bisphenol-A and phthalates in accordance with the proposal.*

This ordinance will take effect December 1, 2006 unless pre-empted by state or federal law[1].

THE SCIENCE OF BPA AND PHTHALATES

See the background section of the accompanying DPH memorandum, "Implementation options for phthalates and bisphenol-A Ordinance No. 120-06".

REGULATORY FRAMEWORK IN CALIFORNIA

Most infant product safety guidelines originate with the federal Consumer Product Safety Commission (CPSC). The CPSC has the power to enforce both its own rules and those set by ASTM International (formerly the American Society for Testing and Materials (ASTM)), an international standards group

[1] A similar measure in the state Assembly, AB 319 (Chan), was defeated 9-6 in the Appropriations Committee in January 2006. As of this memo, the state legislative portal lists its status as “dead,” although Chan aide Julie Gallagher indicated that her office may re-introduce legislation later in the year. A second measure passed by the U.S. House Energy and Commerce Committee July 12, 2006, HR4591, could block state or local governments from enacting environmental, public health, or consumer protections that are more restrictive than federal standards.

that has authored 12,000 guidelines on an array of products, including infant toys.[2] The CPSC is a partner in the implementation of the Federal Hazardous Substances Act regulations regarding small parts in children's toys.

In California, the Department of Health Services and local public health departments also regulate hazardous content in toys, per the California Health and Safety Code.[3]

PROTECTIONS FROM SIMILAR PUBLIC HEALTH THREATS

Other Jurisdictions that Have Banned Phthalates or BPA

California Assemblymember Wilma Chan introduced a measure (AB 319) in February 2005 nearly identical to San Francisco's ordinance. That bill was defeated 9-6 in the Appropriations Committee in January 2006 and was not re-introduced in 2006.

A bill was introduced to the Maryland General Assembly (HB 52) in January 2006 that bears close resemblance to the California bill and the San Francisco ordinance, prohibiting the same chemicals in the same concentrations. HB 52 was heard in January, but has not yet been acted upon in committee. The only substantive way in which the Maryland bill appears to differ from the San Francisco ordinance is that the Maryland bill includes penalties, specifically:

> *Violating any provision of this bill is a misdemeanor offense with a maximum penalty of $10,000 per violation upon conviction.*

California Assemblymember Judy Chu introduced a bill (AB 908) in February 2005 that was ultimately filed as it did not pass out of the Health Committee. The bill would have prohibited a person or entity from manufacturing, selling, or distributing any cosmetic that contains DBP or DEHP, beginning January 1, 2007. The bill did not specify an enforcement mechanism or penalties.

The only jurisdictions that the OLA found that have already banned phthalates in products intended for children are European nations and Japan. Austria, Denmark, Finland, France, Germany, Greece, Norway, and Sweden placed bans on the use of phthalates in manufacturing soft PVC toys.[4] Subsequently, in 2005, the European Parliament, one of the European Union's legislative arms, made permanent an earlier temporary emergency ban in place since the 1990s on six phthalates (those covered by the San Francisco ordinance) in children's toys[5]. DEHP, DBP, and BBP were permanently banned in all toys and childcare items, while DINP, DIDP, and DnOP were banned in toys able to be

[2] This includes, for example, restricting small parts that may pose a choking hazard to infants and setting decibel limits for toys that produce sound. The CPSC may also work with producers to voluntarily reduce their use of certain chemicals, as they did in 1998 when they encouraged producers of teethers and rattles to voluntarily discontinue using the phthalate ester, DINP. *Trouble in Toyland*, CalPIRG Education Fund (Nov 2005) 19.

[3] See California Health & Safety Code §108550 to 108580

[4] http://www.chem.agilent.com/cag/feature/09-01/feature.html

[5] DEHP, DBP, and BBP were banned in all toys and child care items, while DINP, DIDP, and DnOP were banned in toys able to be placed in the child's mouth. See http://pubs.acs.org/cen/news/83/i28/8328notw5.html

placed in a child's mouth. The European Union has also banned some phthalates in cosmetics.[6] The Japanese government put a temporary ban in place in 2001, and made it permanent in 2003, on the use of phthalates in objects intended for the mouths of young children (e.g., pacifiers, bite rings and teethers).[7]

The OLA was unable to identify any jurisdiction, other than San Francisco, that currently bans BPA. Neither the CPSC nor ASTM International, nor any other organization worldwide that the OLA could uncover, has issued guidelines on BPA.

Bans of Other Chemicals or Products in San Francisco

Because few other jurisdictions have banned phthalates, and none have banned BPA, there are not readily comparable and adaptable enforcement programs that San Francisco could mimic in implementing its ordinance. However, San Francisco and other jurisdictions have enacted enforcement programs relative to other chemicals or products that might be illuminating. Existing programs in San Francisco address mercury thermometers, lead-containing candy, and aerosol paint and permanent ink markers, among other products.

Mercury Thermometer Ban

On May 15, 2000 the Board of Supervisors passed a ban on the manufacture, importation, and sale of mercury thermometers (BOS file number 000359, 93-00 enacted). The Board had earlier, in 1999, adopted a resolution urging City departments and all medical facilities within San Francisco to eliminate mercury from their operations. Violation is a criminal misdemeanor, subject to a fine of up to $1,000 and/or imprisonment in the county jail for up to 6 months. In addition to the ban, the Solid Waste Management Program and the Public Utilities Commission created a take back program to collect mercury thermometers already in use in the community, and exchange them for safer alternatives.

San Francisco Lead Candy Program

Certain candy imported from Mexico has been found to have potentially harmful lead levels. The United States Food and Drug Administration and the California Department of Health Services are aware of the issue, but have been slow to take action. The Board of Supervisors therefore adopted a resolution (BOS file number 041757, 27-05 enacted) in January 2005 urging DPH to take action. DPH, which already had a broader Childhood Lead Prevention Program in place, was urged to do the following:

- Send an advisory to San Francisco grocery, convenience store, and liquor store owners citywide, requesting voluntary removal of all candy having been identified as potentially containing lead;
- Conduct a consumer awareness campaign publicizing the results of lead testing in imported candies; and

[6] http://pubs.acs.org/cen/coverstory/83/8346specialtychem4.html
[7] http://www.phthalates.org/yourhealth/childrens_toys.asp

- Distribute educational materials to schools, childcare providers, emergency rooms and health centers, and Women, Infant and Children centers in high-risk areas.

According to contacts at DPH, the department first visited stores to identify those that carried the candy of concern. The department subsequently sent letters asking the stores to voluntarily remove the candy. They conducted follow-up visits to determine who complied, and found that some did, although many eventually began to sell the candy again. Large chain retailers, such as Walgreens and Safeway, did stop selling the candy. Note that continuing to sell the candy is not in violation of any local law, and therefore there are no associated penalties. DPH contacts have reported that public education efforts have been somewhat effective.

Aerosol Paint and Permanent Marker Sale Restrictions

San Francisco Police Code Article 42 regulates the storage and display of aerosol paint containers and marker pens and the provision of scribing tools (window etchers, diamond cutters, etc.). Violation of sales restrictions for scribing tools is a misdemeanor punishable by imprisonment in the county jail not exceeding six months and/or by a fine not exceeding $1,000.

Consumer Product Bans in Other Jurisdictions

Other cities proscribe different substances and materials. Oakland, Berkeley, and Portland, OR, for example, prohibit food vendors from using Styrofoam containers. In Oakland's case, the City Administrator's office enforces the ban on a complaint basis only and is authorized to issue a warning and then fines of $100, $200, and $500 for each subsequent violation.

Similarly, after the link between chlorofluorocarbon (CFC) use and ozone depletion was first suggested in 1974[8], within a year the state of Oregon became the first jurisdiction worldwide to ban CFCs in aerosol spray cans, at a time when, much like phthalates and perhaps like BPA today, the science was trending toward identifying a hazard but had not yet reached a clear consensus. Note that the Oregon legislation included an exemption for medical equipment:

> *468A.655 Prohibition on sale or promotion; exemption from medical use. (1) Unless otherwise provided by law, after March 1, 1977, no person shall sell or offer to sell or give as a sales inducement in this state any aerosol spray which contains as a propellant trichloromonofluoromethane, difluorodichloromethane or any other saturated chlorofluorocarbon compound not containing hydrogen.*
>
> *(2) Nothing in this section prohibits the sale of any aerosol spray containing any propellant described in subsection (1) of this section if such aerosol spray is intended to be used for a legitimate medical purpose in the treatment of asthma or any respiratory disorder; or such aerosol spray is intended to be used for a legitimate medical purpose*

[8] Rowland & Molina 1974.

and the State Board of Pharmacy determines by administrative rule that the use of the aerosol spray is essential to such intended use. [Formerly 468.605]

Slovakia banned all PVC products in 2001; a decision reversed a year later. Several European countries have voluntary bans on PVC products, negotiated on an ad hoc basis between the government and manufacturer. Denmark, rather than adopting command-and-control legislation, levied a tax on PVC products (lower if the absence of phthalates is proven).

IMPLEMENTATION CONSIDERATIONS

Assuming that the California Assembly bill is not reintroduced and passed before the ordinance's legislated deadline of December 1, 2006, the City would need to design an implementation program. A number of considerations are discussed below. Note that a number of different program designs could be successful, incorporating different mixtures of the following elements:

- A range of public education options;
- Comprehensive or selective coverage of retailers, distributors, and manufacturers;
- Voluntary or inspection-driven compliance;
- Comprehensive or selective coverage of products;
- Responsibility of either the City, retailer, manufacturer, or other designated group for product testing; and
- A range of penalty options.

Risk Profile and Allocation of Resources

As discussed above, there continues to be a fair amount of uncertainty over pathways, exposure thresholds, and health impacts of both phthalates and BPA. Health experts at the enforcement agency, DPH[9], should review the available research and determine the health risk posed by these substances. Based on this information, other priorities, and available resources, the department should determine together with the legislation's sponsor and other policymakers an appropriate allocation of education and enforcement resources.

Identification of Products and Processes

As the legislation currently prohibits the manufacture, sale, or distribution of classes of products, rather than individual products, at some point it will be necessary to determine what specific individual products are covered. The OLA was unable to find any near-comprehensive list of products manufactured with or containing the restricted substances. Per the accompanying DPH memorandum, "Implementation options for phthalates and bisphenol-A Ordinance No. 120-06", the Danish government tested 15 products in 2002, Health Canada tested 42 products, and the U.S. PIRG listed test results for 18 products in a 2005 report. It will therefore presumably be necessary for the City or another organization to create a directory of banned products or processes.

[9] Although not named in the legislation, both the sponsor and the department have agreed that the Department of Public Health is the appropriate agency.

The issue of burden of proof is open. Rather than creating a list of banned products itself, the City could alternatively ask that businesses conduct their own tests, through a reputable laboratory, to verify that their processes and products are not in violation before being allowed to market them. The City might also be able to identify an advocacy organization that, hoping to maximize the coverage of the ban and extend it to other jurisdictions, might be willing to provide financial support for product testing through a reputable laboratory.

Education

So that businesses have the greatest opportunity to comply with the ordinance, whether penalties are eventually promulgated or not, the City should undertake an outreach program to businesses likely to be dealing in banned products. Identifying all such businesses in the City might be challenging (discussed further below). However, as the retailers rely on visibility and awareness of consumers of their presence, it might be straightforward to identify the majority of them.

It might also be worthwhile to educate the public about the new ordinance. Educated community members are key to an effective complaint-driven enforcement program. Also, public education alone, without regulating businesses, is an approach that has been employed to address other consumer safety issues. Recall that the San Francisco lead candy program primarily targets consumers, discouraging them through education from purchasing such candy. Educating consumers can be a good long-term strategy. If consumers stop buying BPA and phthalate-laden products, retailers and manufacturers will divest of them voluntarily. However, because there is not currently an easy way to identify products containing BPA or phthalates, public education might be challenging, and would need to keep abreast of new products that come to market.

One version of AB 319 (amended March 16, 2005) included a provision authorizing the California Environmental Protection Agency to implement a public information program regarding the health risks of products containing BPA and phthalates compounds. This provision was amended out of the final version of the bill.

Identification of Relevant Firms

As noted above, identifying all businesses that are covered by the ordinance might be challenging. However, as the retailers rely on visibility and consumer awareness of their presence, it might be straightforward to identify the majority of them through listings in telephone or Internet directories. There are a number of other avenues through which the City can identify the retailers. To begin with, when businesses apply for a business license, they report their Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) code. Although aggregated and subject to respondent error, the Treasurer/Tax Collector could generate a list of all licensed businesses that fall within categories of interest (NAICS 448130 (Children's and Infants' Clothing Stores) and 339932 (Game, Toy, and Children's Vehicle Manufacturing), for instance). It might also be possible for the City to enlist the cooperation of merchant and industry associations, such as the San Francisco Chamber of Commerce, Grocery Manufacturers' Association, or the Juvenile Products Manufacturers Association,

in reaching out to their members. Although these organizations might not have supported the ordinance originally, they might see reaching out to their members as an opportunity to provide their members a service that will ultimately help them avoid violation and potential penalties.

Although there are many small, independent retailers of child products, it seems possible that the bulk of the banned products are sold by a small number of large chain retailers. Outreach to these organizations should be readily achievable.

Ease of Compliance and Application

Although no comprehensive list exists of products that contain the banned compounds, one might reasonably expect most businesses to be sophisticated enough to know when their processes or products involve the chemicals. Businesses are already required, under Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986), to provide clear and reasonable warning when they knowingly and intentionally expose individuals to certain toxic chemicals, including some banned through San Francisco's ordinance (BBP, DEHP, and DBP). Also, manufacturers of children's products are already subject to small parts regulation under the Federal Hazardous Substances Act.

Numerous regulations have exceptions exempting compliance by small businesses or other entities that are perceived as being unable to comply. It is worthwhile to consider whether such exemptions should be incorporated into this program. Proposition 65 exempts businesses with fewer than 10 employees. A fuller understanding of the industry might make establishment of a threshold desirable. For example, if small businesses are difficult to regulate, or if they sell a small share of the banned products, or if they would find compliance inordinately burdensome, it might make sense to exempt them.

Enforcement

The manufacturers, distributors, and retailers covered by the ordinance do not generally fall under any other similar regulatory program of the City's. As such, there is no clear way to piggyback on an existing effort to monitor and inspect these businesses for compliance. Therefore, monitoring and enforcement could be expensive, depending upon the number of covered businesses. It might be worthwhile to consider whether a voluntary compliance program might be most efficient. Public education might create a change in market conditions such that divesting of banned products voluntarily would be attractive. For example, in Japan, where there is growing awareness of the potential health risks of BPA, manufacturers are migrating to alternatives rather than face a ban. CPSC also fostered a voluntary industry moratorium on the use of DINP. Some successful voluntary programs have offered participating businesses public recognition for their efforts.

It seems that focusing enforcement resources on retailers should be primary. It is unclear how many manufacturers of the banned products exist in the City, which has been steadily losing manufacturing businesses. Also, if retail establishments are targeted, and divest of the products, manufacturers, and particularly distributors, will likely follow suit for economic reasons. The retailer is the direct provider of the banned items to San Franciscans, so an effective choke point.

Identification of Violators

If it is determined that voluntary compliance alone won't be sufficient to encourage manufacturers, distributors, and retailers, the City will have to identify a monitoring strategy. The two basic options are proactive and reactive. Under a proactive scheme, the City would schedule regular (although the timeframe can vary) inspections of firms to determine whether they are in compliance. Under a reactive scheme, the City would rely on complaints or some other mechanism to be alerted to businesses that are violators, but otherwise would not conduct inspections. Note that advocacy organizations in favor of the ban might be willing allies in identifying and lodging complaints against violators. The two approaches can be undertaken simultaneously, relying on complaints to identify violators between regular inspections. As noted above, identifying the majority of businesses likely to be involved with the banned substances should be straightforward. Also, it seems quite possible that the bulk of applicable child products are sold by a small number of large retailers. Therefore, it might make sense to target those firms first.

In lieu of inspections, DPH could simply leave enforcement up to public interest groups that could bring suit against violators once they obtained evidence of violation. Presumably, after some time, vendors would fall into compliance.

Penalties

The San Francisco ordinance did not contain any penalties for violation. Therefore, it seems likely that the Board of Supervisors will consider an amendment to the code incorporating criminal penalties.

AB 319

One version of AB 319 (amended March 16, 2005) included a provision authorizing the Department of Toxic Substances Control to assess a civil penalty from a person who violates any provision of or any regulation adopted pursuant to the law, as follows:

> *(1) Up to one thousand dollars ($1,000) after notice and hearing in accordance with the informal hearing process pursuant to Article 10 (commencing with Section 11445.10) of Chapter 4.5 of Part 1 of Division 3 of Title 2 of the Government Code.*
>
> *(2) In an amount greater than one thousand dollars ($1,000), but not more than five thousand dollars ($5,000), after notice and hearing in accordance with Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.*
>
> *(c) Each violation of this chapter is a separate violation and each day a violation continues is a separate violation.*

Proposition 65

Violation of Proposition 65 has the following penalties:

> *(1) Any person who has violated Section 25249.5 or 25249.6 shall be liable for a civil penalty not to exceed two thousand five hundred dollars ($2500) per day for each violation in addition to any other penalty established by law. That civil penalty may be assessed and recovered in a civil action brought in any court of competent jurisdiction.*
>
> *(2) In assessing the amount of a civil penalty for a violation of this chapter, the court shall consider all of the following:*
>
> *(A) The nature and extent of the violation.*
> *(B) The number of, and severity of, the violations.*
> *(C) The economic effect of the penalty on the violator.*
> *(D) Whether the violator took good faith measures to comply with this chapter and the time these measures were taken.*
> *(E) The willfulness of the violator's misconduct.*
> *(F) The deterrent effect that the imposition of the penalty would have on both the violator and the regulated community as a whole.*
> *(G) Any other factor that justice may require.*

Mercury Thermometer Ban and Aerosol Paint and Permanent Marker Sale Restrictions

Violators of the mercury thermometer ban and the aerosol paint and permanent marker regulations face the standard misdemeanor penalty (per California Penal Code section 6), imprisonment in the county jail not exceeding six months and/or a fine not exceeding $1,000.

Evaluation and Refinement of the Implementation

Whatever approach is adopted, there should be a mechanism for evaluating and refining it regularly, particularly during early stages.

Product Testing

With BPA, and to a lesser extent with phthalates, one of the greatest hurdles to the ban is the need to identify covered products. To date, no organization has begun compiling a comprehensive list of specific brands or models of products manufactured with BPA. In some cases, the manufacturers are themselves possibly oblivious to its presence.

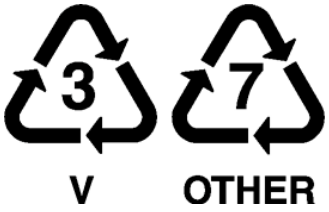
Conversations with experts from the University of Missouri[10] revealed that some baby products have a high risk of containing these chemicals: anything made of hard, clear plastic is almost certainly made of

[10] Myers et al, phone interview, 07/10/06

polycarbonate, which is likely to contain BPA. Other potential offending products include metal food cans, baby food and yogurt lids, plastic dolls, modeling clay, certain paints, teethers, flame-retardant treatments, some baby oils and colognes, and coated fabrics. Therefore, to compile a complete list, much testing would likely be needed.

According to Environment California, testing by an independent laboratory can cost between $200 - $500 per sample,[11] while Fred vom Saal at the University of Missouri, Columbia estimated the cost at closer to $150 - $200 per sample[12]. Several independent laboratories across the country are equipped to identify BPA and phthalates. Reputable ones are accredited by the National Environmental Laboratory Accreditation Program (NELAP) and by the American Industrial Hygiene Association (AIHA).

The level of BPA and phthalates detectable in a lab setting depends on the nature of the product being tested[13]. It may, for example, be the case that a particular level of BPA is undetectable in a liquid, such as baby shampoo, while that same level is detectable from a solid sample, such as a jar liner. It is also generally easier and less expensive for a lab to simply confirm a certain threshold concentration of a chemical (i.e. the 0.1% level of phthalates set in the ordinance) versus measuring the exact amount.



Resin Identification Codes (RICs) may present a useful shortcut in some spot identification. A code of "3" indicates the presence of PVC, which based on current industry manufacturing standards almost certainly contains phthalates. Polycarbonate, a hard, clear plastic that contains BPA, would fall under the "7" ("other") category, sometimes appended with "PC" to indicate polycarbonate; however, RICs are far from ubiquitous, and though PVC has its own category, a RIC of 7 alone is too broad to establish the presence of BPA.

Advocacy organizations might also be interested in performing their own testing, to supplement DPH resources, in order to expand the list of banned products.

Additional Considerations

Timeline

The effective date of the San Francisco ordinance is December 1, 2006. It might be sensible to implement the ban in stages. Notably, it would be useful for covered businesses to have sufficient warning before penalties are enacted to sell their existing inventory, assuming it would not create an undue threat to public health. Phased implementation would allow DPH to establish appropriate protocols.

[11] Phone interview, 06/23/06
[12] Myers et al, phone interview, 07/10/06
[13] Myers et al, phone interview, 07/10/06

Special Consideration for Health or Safety Critical Products

As noted above, in the case of the Oregon aerosol spray can CFC ban, the state exempted medical equipment. Opponents have indicated that some of the substances banned by the San Francisco ordinance are in widespread use for safety-critical applications, and it is unclear whether suitable nontoxic alternatives are readily available. For example, DEHP is commonly used in formulations for fire resistant wire insulation complying with UL standards. Also, some of the banned substances are likely found in plastics used for medical applications. Therefore, it might be necessary to selectively regulate these products or amend the ordinance itself to deal with special cases.

Proposition 65

Proposition 65, passed by the California voters in 1986, requires the Governor to publish a list of substances "known to the state to cause cancer or reproductive toxicity" and for businesses to inform consumers who have a reasonable chance of encountering them at certain thresholds. The most recent list, released June 9, 2006, includes four phthalates: butyl benzyl phthalate (BBP), di(2-ethylhexyl)phthalate (DEHP), and di-n-butyl phthalate (DBP). At least two common phthalates, diisodecyl phthalate (DIDP) and diisononyl phthalate (DINP), are not included among the Proposition 65 substances at this time, nor is di-n-octyl phthalate (DnOP) or BPA.

The City and County of San Francisco could formally request that the State of California add BPA and missing phthalates to the Proposition 65 list. Vendors statewide would then be required to post warnings on-site in the event they sell products known to contain these chemicals. This approach constitutes an indirect, *de facto* ban, as it is self-enforcing: toy stores would likely rather stop carrying offending products than have to post an environmental warning in public view, assuming the posting requirement was enforced.

The City could also create a local level program similar to Proposition 65. This program could also serve as a springboard for future chemical bans.

LEAST TOXIC ALTERNATIVES

Although much of the attention of the recently passed ordinance has focused on the ban, it also restricts the chemicals manufacturers can use to replace BPA and phthalates. Manufacturers shall not replace BPA or phthalates with the following:

- Carcinogens rated by the United States Environmental Protection Agency (US EPA) as A, B, or C carcinogens, or certain substances listed in the "List of Chemicals Evaluated for Carcinogenic Potential", or substances known to the State of California to cause cancer as listed in the California Safe Drinking Water Act; or
- Reproductive toxicants that cause birth defects, reproductive harm, or developmental harm as identified by the US EPA or listed in the California Safe Drinking Water Act.

Although some manufacturers have migrated to alternatives in response to bans in other locales, it is not clear what alternatives exist for most current applications of the banned chemicals. Determining that a non-toxic alternative has been employed in reformulation would require an additional monitoring and enforcement activity.

San Francisco City and County
Department of Public Health
Environmental Health Section

Gavin Newsom, *Mayor*
Mitchell H. Katz, *M.D., Director of Health*

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Director of Environmental Health

To: Andrew Murray

From: June Weintraub, Sc.D.

Date: October 5, 2006

Re: Implementation options for phthalates and bisphenol-A Ordinance No. 120-06

Background:

Products containing phthalates and bisphenol-A are ubiquitous. According to the FDA, phthalates are used in toys, vinyl flooring and wall covering, detergents, lubricating oils, food packaging, pharmaceuticals, blood bags and tubing, and personal care products, such as nail polish, hair sprays, soaps, and shampoos. Bisphenol-A is a component of polycarbonate plastic used in food and drink containers, such as baby bottles and sports bottles. Bisphenol-A is also a component of epoxy resins which are used as protective liners in metal cans.

In June 2006, San Francisco's Board of Supervisors unanimously approved legislation that bans the manufacture, sale, and distribution of child care articles and toys intended for use by children under age three containing bisphenol-a and six phthalates. The ordinance is intended to protect children from the hormone-disrupting effects of these chemicals. The scientific evidence on the hormone disrupting effects of these chemicals is strong, however there is not consensus in the scientific community as to the levels at which effects might occur in humans.[1]

A similar ban on phthalates is in place in the European Union, however we are unable to identify any specific information on how the E.U. ban is currently enforced. This was a temporary ban that was extended several times, finally adopted as Directive 2005/84/ec on December 14 2005. Each member state of the EU will implement the Directive in their own jurisdiction. For example, the UK published draft regulations in April 2006, presenting three options for implementation: (i) To fully implement the provisions of the Directive; (ii) To request industry to adopt voluntary measures; (iii) To do nothing.[2]

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[1] vom Saal FS, Hughes C. An extensive new literature concerning low-dose effects of bisphenol A shows the need for a new risk assessment. Environ Health Perspect. 2005 Aug;113(8):926-33
Hauser R, Calafat AM. Phthalates and human health. Occup Environ Med. 2005 Nov;62(11):806-18.

[2] This consultation was published for comment on http://www.dti.gov.uk/files/file27546.pdf; as of October 5, 2006 the regulations have not been published or finalized , and the consultation remains "closed awaiting response" on http://www.dti.gov.uk/consultations/closedwaitresponse/index.html.

To our knowledge, there are no comprehensive government agency lists (either U.S. or international) that show certified test results for the phthalates and bisphenol-a content of consumer products. We have identified the following partial lists for phthalate content of select products:

- The Danish government tested 15 products in 2002, with the results published here: http://www2.dmu.dk/1_viden/2_Publikationer/3_arbrapporter/rapporter/AR185.pdf#search=%22phthalates%20content%22

- In a 1998 report, http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/1998/1998_85bk7_e.html Health Canada reported that of a sample of 42 products, 27 contained DINP in the range of 3.9 to 44% by weight, concluding that DINP is present in 64% of all the children's products tested, and in 93% of these products identified as containing PVC. Although the report contains a list of 42 products, it is now >8 years old, making the testing and product information likely to be outdated.

- A list of phthalate test results for 18 products is in the appendix to a 2005 report by the U.S. PIRG Education Fund's Toxics and Environmental Health Program (see pages 27-28 http://uspirg.org/reports/therightstart.pdf).

A search on shopping.yahoo.com in category "Toys and Baby" for the keyword "plastic" returned 233,686 products. Within this category, there are 88 plastic teethers, 3,646 pacifiers, and 573 baby bottles. This website does not sort by unique products, so assuming that 1% of the 233,686 are unique products that are relevant to this ordinance, we would need to test approximately 2,300 products, @ $522[3] = $1.2 million**.** This cost does not include procurement of products. (N.B. A search for the words "phthalate free" in this category returns 98 products.)

Because of the interstate consumer product distribution systems in place in the U.S., consumer product testing for enforcement purposes is typically done at a national level. Implementing a local program would have many of the same upfront costs as a federal program. These costs, estimated on the following page, are significant. We believe the following is a fair and realistic estimate of the costs and timeline to implement this city ordinance.

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[3] Costs for testing are calculated with pricing provided by the testing company Bureau Veritas (Jerry Miller jerry.miller@us.bureauveritas.com).

For BPA, they plan to use a modified Japanese Food law test, which gives total content, as opposed to a leachable amount. The method utilizes a fluorescence detector; they anticipate using a limit of 5 ppm or less. The price of testing will be $110 per product tested. For phthalates, the test price is 132 for 1 phthalate and 56 dollars for each additional phthalate tested for; they use a solvent extraction followed by GC-MS & LC-MS Analysis. The SF law pertains to 6 phthalates.

Based on these figures, the price per product tested would be:

110	Bispenol-a
132	DEHP
56	DBP
56	BBP
56	DINP
56	DIDP
56	DnOP

$522	

Implementation:

No enforcement mechanism is specified in the ordinance. One option is voluntary compliance accompanied by some educational measures. Active implementation would be more resource intensive. The following outlines an active implementation and enforcement option, with budget.

Year 1: Planning and product identification:
Estimated annual budget: $100 K
We estimate it would take approximately one year of a full time staff person to identify appropriate products for testing, compile existing information, and establish protocols for obtaining, testing, and verifying product information. Definitions of products that are covered by the ordinance would need to be developed, including definitions of what is meant by "can be placed in the child's mouth" (see, for example, http://ec.europa.eu/enterprise/newsroom/cf/document.cfm?action=display&doc_id=165); rules for exceptions would need to be created (e.g. for medical devices). This would be 1 FTE of an MPH level Health Program Planner (2818), at ~$100K including fringe.

Years 2-5: Product testing and website development:
Estimated annual budget = $525K/year
In years 2-5, we would initiate product testing and development of a website to provide information to vendors, manufacturers, retailers, and consumers. In addition to the 1 FTE Health Program Planner staff at $100K, we would add .25 FTE IS Business Analyst (1052) for website development and maintenance, at $25K (including fringe). Product testing, spread out over three years, would be approximately one-third of $1.2 Million, or $400K. In year 5, planning could begin for the implementation of the enforcement phase, and may include legal consultations at additional costs to the program.

Year 6: Enforcement
Estimated annual budget = $300K
In year 6, enforcement could begin. The program would likely have an active education component in addition to enforcement activities by a health inspector. The program planner and a health inspector would implement the program at 2 FTEs ($100K each). A budget for testing new products and for website maintenance would also be necessary. Some cost recovery can come from enforcement penalties if they are provided for in amendments to the program. Annual cost is therefore estimated at $300K.