

Something Smells

WHAT TWEEN PERFUME
MAKERS DON'T TELL
YOU, BUT SHOULD



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Washington Toxics Coalition

Washington Toxics Coalition protects public health and the environment by eliminating toxic pollution. WTC promotes alternatives, advocates policies, empowers communities, and educates people to create a healthy environment.

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WHAT TWEEN PERFUME MAKERS DON'T TELL YOU, BUT SHOULD

On September 21, 2012, the Washington State Department of Ecology posted the first results from the state's new mandate for companies to disclose the presence of harmful chemicals in their products. This requirement—an important outcome of the 2008 passage of Washington's Children's Safe Products Act—constitutes the nation's biggest effort yet to find out what toxic chemicals are in toys and other products used by children[1]. Ecology received the information from the manufacturers themselves, required to report on certain types of products if they contained any of 66 chemicals determined to be of high concern for children.

Reports were due in the first cycle from the largest companies, those with annual gross sales of one billion dollars or more, and information from companies like Walmart, Mattel, and IKEA was submitted as expected. However, data from several large companies, including Disney and Claire's, were conspicuously absent. None of the companies whose products we tested were among the original companies submitting reports.

To obtain independent information on the chemical contents of products used by children, the Washington Toxics Coalition commissioned analysis of 20 fragrance products likely to be used by children. We chose fragrance products because past testing of fragrance products has revealed the presence of phthalates, which are among the 66 chemicals for which reporting is required[2]. We purchased the products from Washington retailers between April and June 2012 and sent them to Analytical Sciences in Petaluma, California, to analyze for phthalate content.

THE TWEEN YEARS

For this study, we targeted products likely to be used by a critical demographic: children between the ages of 10 and 12, commonly known as "tweens." Children in these years are truly between childhood and what lies beyond; puberty begins between the ages of 8 and 13, so tweens are commonly beginning or in the midst of puberty[3].

Marketers are interested in tweens because they are a target group for building brand loyalty. Experts in hormone disruption are interested for a different reason: because of the complex hormonal changes that take place during puberty, it is considered a critical window of vulnerability, in which exposure to chemicals that affect hormones can have a greater impact[3, 4].



RESULTS

Fragrances that we tested included products from retailers such as the Disney Store, which only offers products for children, as well as more comprehensive retailers such as Nordstrom, offering products that appeal to the tween demographic.

Nine of the fragrance products tested contained phthalates, most commonly diethyl phthalate (DEP), often found in previous tests of similar products. Levels ranged from 6.5 to 390 ppm. Two products also contained di-2-ethylhexyl phthalate (DEHP), at 3 and 11 ppm.

Table 1 presents the results of our testing for phthalates.

TABLE 1: PHTHALATES IN FRAGRANCE PRODUCTS LIKELY USED BY CHILDREN

	MANUFACTURER	RETAILER	PRODUCT NAME	PRODUCT TYPE	DEP (PPM)	DEHP (PPM)
1	Abercrombie & Fitch	Abercrombie & Fitch	8 Perfume	Eau de Parfum	< 0.2	< 0.2
2	Abercrombie & Fitch	Hollister	Malaia	Eau de parfum	< 0.2	< 0.2
3	Abercrombie & Fitch	Hollister	Crescent Bay	Body Mist	71	< 0.2
4	Aéropostale	Aéropostale	Benton	Cologne For Guys	< 0.2	< 0.2
5	Aéropostale	Aéropostale	Bayla	Fragrance For Girls	< 0.2	< 0.2
6	American Eagle Outfitters	American Eagle Outfitters	AE LIVE	Eau de Cologne	100	< 0.2
7	American Eagle Outfitters	American Eagle Outfitters	AE Crush	Eau de Toilette	< 0.2	< 0.2
8	Claire's	Claire's	Claire's cosmetics sweet sugar perfume	Perfume	14	< 0.2
9	Claire's	Claire's	Claire's cosmetics pomegranate body spray	Body spray	390	< 0.2
10	Claire's	Claire's	Claire's cosmetics Do you love me	Body mist	< 0.2	< 0.2
11	Disney	Disney Store	Pixie Dust	Eau de Toilette	12	< 0.2
12	Disney	Disney Store	A Princess Wish	Eau de Toilette	210	< 0.2
13	Elizabeth Arden, Inc.	Macy's	Born Wild	Eau de Parfum Spray	6.5	< 0.2
14	Elizabeth Arden, Inc.	Nordstrom	Someday by Justin Bieber	Eau de Parfum Spray	< 0.2	< 0.2
15	Elizabeth Arden, Inc.	Macy's	Wonderstuck, Taylor Swift	Eau de Parfum Spray	< 0.2	< 0.2
16	Elizabeth Arden, Inc.	Sears	Mariah Carey's Lollipop Bling, Honey	Eau de Parfum Spray	< 0.2	< 0.2
17	Elizabeth Arden, Inc.	Target	radiance Britney Spears	Eau de Parfum	< 0.2	< 0.2
18	Gigantic Parfums	Nordstrom	Meow! By Katy Perry	Eau de Parfum Natural Spray	< 0.2	< 0.2
19	Justice	Justice	tickled pink	Fragrance Rollerball	1.5	11
20	Parlux Fragrances, LLC	Walmart	South Beach, Paris Hilton Passport	Eau de Toilette Spray	160	3

Washington Toxics Coalition provided these results to the Walt Disney Company, Claire's, Abercrombie and Fitch, Elizabeth Arden, Inc., and American Eagle Outfitters, the companies whose products contained phthalates above the reporting level and that meet the threshold for gross sales. For DEP, the reporting level is 5 ppm; for DEHP, the reporting level is 20 ppm.

As of October 26, 2012, three companies had responded to Washington Toxics Coalition as requested with information about their plans to comply with the state reporting law. Washington Toxics Coalition received a letter from Claire's dated October 17, 2012, stating that Claire's Pomegranate Body Spray "is not a product that is intended to be used by children under age 12. As such, it is not a product that falls under the jurisdiction of the Washington Children's Safe Products Act or its reporting regulations."

Elizabeth Arden and Abercrombie & Fitch both provided information on their plans by telephone. A representative from Elizabeth Arden indicated that the company has no plans to report as it does not believe that any of its products are covered under the law. A representative from Abercrombie & Fitch indicated that the company was previously unaware of the reporting requirement, would be in contact with the Department of Ecology, and would do its best to comply.

Washington Toxics Coalition chose the products tested for this study because they were sold at retailers at which children under 12 typically shop, or they would appeal to children in that age range because of their packaging or marketing.

PHTHALATES: A THREAT TO REPRODUCTIVE HEALTH

Physicians, researchers, and advocates have been concerned about the use of phthalates in personal care products and cosmetics because it results in the application of products containing hormone-disrupting chemicals to the skin[5].

Phthalates are a family of chemicals used as plasticizers and fragrance carriers and found in a wide array of products: many PVC/vinyl items such as flooring, toys, and shower curtains; personal care products and cosmetics like nail polish and perfume; and building products such as adhesives and sealants[6]. They are not chemically bound in these products, so people are exposed to them when they breathe in phthalates that have escaped into the air, through contact with house dust, and when they apply cosmetic products to the skin[7-9]. People are also exposed to some phthalates through food[10, 11].

Laboratory researchers have uncovered what is known as “phthalate syndrome,” a pattern of reproductive problems that appear after prenatal exposure to phthalates. The defects include undescended testes, small or otherwise abnormal testes, and a condition known as hypospadias, in which the urethral opening is on the underside of the penis instead of the end—all signs of abnormal development of the male reproductive system[12].

Further studies have begun to elucidate the cause: a number of phthalates have been found to reduce testosterone production by the fetus, which can result in off-target reproductive development and abnormal genitals[13, 14].

Researchers have also discovered connections between phthalates and reproductive problems in people. In a study looking at the reproductive health of baby boys with varying levels of phthalate exposure, Shanna Swan of the University of Rochester found a link between greater exposure to several phthalates and altered genital development[15]. Boys exposed to higher levels of phthalates before birth had a reduced anogenital distance, an indicator of feminization; these boys also had smaller penis size and a higher prevalence of undescended testes.

A second study of infants, by Katharina Main, looked at levels of reproductive hormones in baby boys after birth, in comparison to their phthalate exposure levels[16]. Exposure to several phthalates was correlated with decreased hormone production, an indication that the testes were not functioning properly.



The phthalate most commonly found in our testing of fragrances likely to be used by children was diethyl phthalate. The Washington State Department of Ecology placed diethyl phthalate (DEP) on its list of Chemicals of High Concern to Children based on evidence of hormone disruption and human exposure. Also on the list is di-2-ethylhexyl phthalate (DEHP), found in two products we tested.

The European Union has classified DEP as an endocrine disruptor based on reproductive effects. Evidence for these effects comes from laboratory and human studies. A multi-generation mouse study found that offspring of mice treated with DEP had reduced sperm production[17]. Both the Swan and the Main studies, described above, found correlations between exposure to DEP and reproductive effects. In addition, a series of studies in Massachusetts has linked exposure to DEP and other phthalates and problems with sperm quality that affect fertility[18, 19].

Ecology included DEHP on its list of Chemicals of High Concern to Children based on its listing by authoritative sources as a carcinogen, hormone disruptor, and reproductive and developmental toxicant[20]. In laboratory studies, DEHP exposure before birth led to smaller testes as well as reduced testosterone production before and shortly after birth[12, 14]. DEHP is the phthalate chemical that has been shown most consistently in human and laboratory studies to affect reproductive development.

Besides the established research that has shown effects of phthalates on reproductive development, recent studies are finding that the chemicals may also be linked to nervous system harm and obesity. A 2009 study found that newborn girls whose mothers had higher exposure to certain phthalates performed more poorly on some neurological tests[21]. Some studies have also found a relationship between higher exposure to phthalates such as DEP and obesity[22-24].

APPENDIX 1: DETAILED METHODS

Fragrance products were purchased at Washington retailers and shipped to Analytical Sciences in their original packaging. The following description of phthalate analytical methods was provided by Analytical Sciences:

An accurately weighed amount of the sample was placed into a glass extraction vessel to which 5 milliliters of hexane were added. The sample extraction vial was sealed, mixed using a vortexer and sonicated for 30 minutes. Once cool, a 300 microliter portion of the extract was removed and placed into an autosampler vial. Internal standards were added, mixed in the autosampler vial and the autosampler vial was sealed. The hexane extracts were placed into an autosampler connected to a gas chromatograph with a mass spectrometer detector. Each sample extract was injected into the gas chromatograph and the phthalates were separated on the chromatographic column. The mass spectrometer detected compounds as they emerged from the gas chromatographic column. The instrument was calibrated with specific phthalates which the instrument looked for in each of the samples. If a target phthalate was found by mass spectrometer at the expected retention time it was quantified and reported.

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