



A Little Prettier

Cosmetic companies deny health problems related to phthalates, but are they secretly reformulating?

A Follow-Up to the 2002 "Not Too Pretty" Report

The Campaign for
Safe Cosmetics

www.SafeCosmetics.org



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About the Campaign for Safe Cosmetics

The Campaign for Safe Cosmetics is a coalition of women's, public health, labor, environmental health and consumer-rights groups. Our goal is to protect the health of consumers and workers by requiring the health and beauty industry to phase out the use of chemicals linked to cancer, birth defects and other health problems, and to replace them with safer alternatives. Founding members of the Campaign for Safe Cosmetics include the Alliance for a Healthy Tomorrow, Breast Cancer Fund, Clean Water Fund, Commonweal, Environmental Working Group, Friends of the Earth, Massachusetts Breast Cancer Coalition, National Black Environmental Justice Network, National Environmental Trust and Women's Voices for the Earth. Visit www.safecosmetics.org for more information.

Introduction

In 2002 Environmental Working Group (EWG), Coming Clean and Health Care Without Harm tested 72 personal care products for the presence of phthalates, a set of plasticizing chemicals linked to birth defects, asthma, early puberty and decreased sperm count. More than 70% of the products tested – including top-selling shampoos, deodorants and fragrances – contained at least one phthalate, and many of the products contained multiple phthalates.

These findings were released in “[Not Too Pretty](#),”¹ a report that introduced many people to both the health problems related to phthalate exposure and the glaring lack of oversight of the U.S. cosmetics industry. For example, it is perfectly legal to put chemicals linked to cancer and birth defects into cosmetics. Companies are not even required to list phthalates on product labels if they are a component of fragrance (“fragrance” qualifies as a protected trade secret). None of the phthalate-containing products we tested for in “Not Too Pretty” listed phthalates on the label.

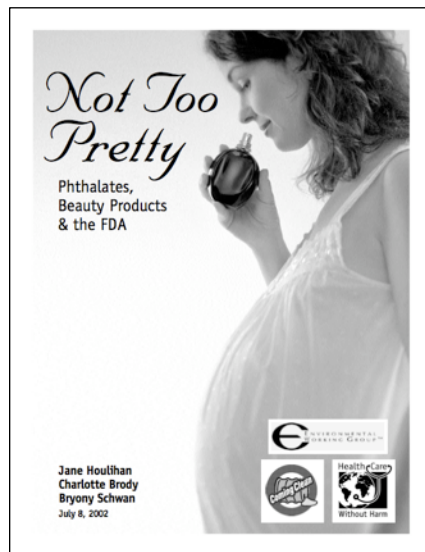
Since the release of that report, a national movement to reform the cosmetics and personal care products industry has emerged. The Campaign for Safe Cosmetics launched in 2004 and quickly gained momentum. As of November 2008, more

than 1,000 companies have signed the Compact for Safe Cosmetics, a pledge to eliminate harmful ingredients in their personal care products. Thousands of media stories have been published and millions of people have checked the safety of their cosmetics using [EWG’s Skin Deep cosmetics database](#) – an online resource that inventories more than 30,000 products cross-referenced against 50 toxicity databases.

Meanwhile, many of the largest cosmetics companies and the industry’s trade association, the Personal Care Products Council, have denied there is a problem.² The trade association even denies that phthalates in baby products is cause for concern.³ In fact, many cosmetic companies have developed aggressive lobbying campaigns to undermine efforts to regulate the industry.⁴ And with only a few exceptions, the large companies continue to insist that using phthalates in their products is safe.

But the Campaign for Safe Cosmetics wanted to know: are cosmetic companies publicly denying the problems with phthalates while quietly removing them in response to growing concern about cosmetic safety?

To find out, we decided to re-test some of the products highlighted in “Not Too Pretty.” This report summarizes these recent findings.



The original report, published in 2002.

How the Tests Were Conducted

In 2002, in tests commissioned by Environmental Working Group, Coming Clean and Health Care without Harm, 72 products were surveyed by an independent laboratory for the presence of seven phthalates that the U.S. Centers for Disease Control and Prevention (CDC) had recently found in people's bodies through biomonitoring studies.

The laboratory report showed that 52 (72%) of the deodorants, perfumes, hair gels, hair mousses, hair sprays and lotions tested contained at least one phthalate. Twelve products contained more than one phthalate and five contained very high levels of diethyl phthalate (DEP).

In July 2008, members of the Campaign for Safe Cosmetics in Boston and San Francisco shopped for the 17 products tested in 2002 that contained multiple



Sealed samples were sent to an independent laboratory for analysis. Since companies are not required to list phthalates on labels if they are components of "fragrance," the only way to know for certain if a product with artificial fragrance contains phthalates is to test it at a lab at a cost of about \$175 per test.

phthalates or unusually high levels of phthalates. Twelve of those products could still be found in chain drug stores.

Unopened samples of those 12 different products were then sent to Analytical Sciences, an independent laboratory based in Petaluma, Calif. Individual samples were tested for nine of the products, and four samples were tested for Poison, Aqua Net Professional Hair Spray and Arrid Extra Extra Dry Ultra Clear Ultra Fresh spray (see sidebar for list of all products tested).

This report highlights lab results for the following phthalates: DEP, dibutyl phthalate (DBP), butylbenzyl phthalate (BBP), diethyhexyl phthalate (DEHP) and dimethyl phthalate (DMP).

Products Tested in 2008

- Arrid Extra Extra Dry Ultra Clear Ultra Fresh Spray
- Aqua Net Professional Hair Spray
- Charlie Cologne Spray
- Tresor by Lancome Paris
- Oscar by Oscar de la Renta
- Pantene Pro V Stronghold Healthy Hold Spray
- Poison by Christian Dior
- Red Door by Elizabeth Arden
- Secret Sheer Dry Regular
- TRESemme European Freeze-Hold Hair Spray
- White Diamonds by Elizabeth Taylor
- Wind Song Extraordinary Cologne by Prince Matchabelli

The Results

Highlights of the Findings in 2008

- Based on our limited sampling of products currently on the market, at least some segment of the industry seems to have made considerable progress in removing phthalates from hair spray, deodorants and fragrances – although some companies continue to use the controversial chemicals.
- In the original tests six years ago, 12 products contained more than one phthalate. In 2008, none of the products tested contained more than one phthalate; the fragrances, deodorants and hair sprays tested negative for DBP, DMP, DEHP and BBP.
- The new tests also reveal that perfumes and colognes don't need to have high levels of phthalates. Poison perfume by Christian Dior – which in 2002 was the most contaminated product with four phthalates (DBP, DEHP, BBP and DEP) – had no detectable levels of phthalates in three of the four bottles tested in 2008, and low levels of DEP in the fourth bottle.
- However, not all the data was good news. The tests found that some companies are still using high levels of DEP, which has been linked in recent human studies to DNA damage in sperm,⁵ feminization of the male reproductive system⁶ and alteration in male sex hormones.⁷ The five perfumes and colognes with the highest levels of DEP in 2002 all still showed more than 20,000 parts per million (ppm) of that phthalate. Three of the fragrances – Charlie, Wind Song by Prince Matchibelli and White Diamonds Elizabeth Taylor – had higher levels of DEP in 2008 than they did in 2002. Charlie Cologne Spray, manufactured by Revlon, had more than twice as much DEP in 2008 as the same product had in 2002.

Test results reported from Analytical Sciences are displayed in Table I.



Table 1: Comparison of Phthalate Levels Detected in Tests in 2002 and 2008 (in parts per million). Tan indicates a decrease in the detected phthalate level since 2002. Purple indicates an increased phthalate level since 2002. ND stands for “Not Detectable.”

Product	DEP		DBP		BBP		DEHP		DMP	
	2002	2008	2002	2008	2002	2008	2002	2008	2002	2008
Arrid XX Dry Ultra Clear Ultra Fresh Spray	1,100	ND	200	ND	ND	ND	ND	ND	ND	ND
Aqua Net Professional Hair Spray	250	39-41	160	ND	ND	ND	ND	ND	ND	ND
Charlie Cologne Spray	21,000	48,000	ND	ND	ND	ND	ND	ND	ND	ND
Tresor	25,000	24,000	ND	ND	ND	ND	ND	ND	ND	ND
Oscar	9,400	1,600	ND	ND	ND	ND	14	ND	ND	ND
Pantene Pro V Stronghold Healthy Hold Spray	100-140	22	ND	ND	0-46	ND	ND	ND	ND	ND
Poison	3,400-4,200	ND- 500	38-260	ND	0-29	ND	0 -25	ND	ND	ND
Red Door	28,000	24,000	ND	ND	ND	ND	ND	ND	ND	ND
Secret Sheer Dry Regular	49	ND	ND	ND	ND	ND	ND	ND	33	ND
TRESemme European Freeze-Hold Hair Spray	210	120	ND	ND	25	ND	ND	ND	ND	ND
White Diamonds	23,000	32,000	ND	ND	ND	ND	ND	ND	ND	ND
Wind Song Extraordinary Cologne	20,000	26,000	ND	ND	ND	ND	ND	ND	ND	ND

What Do the Results Mean?

Based on this small sample of products on the market, at least some segment of the industry seems to be paying attention to consumer and scientific concerns about phthalates and appears to have made efforts to remove these chemicals. If the test results presented in this report actually mirror industry as a whole, then it appears that some leading beauty products have fewer toxic phthalates today than they did in 2002.



However, there is still reason to be concerned:

- **Many products still contain very high levels of DEP:** As the test results show, DEP continues to be widely used in personal care products, and in some cases its use is even on the rise. DEP is linked to poor sperm quality,⁸ alterations in male sex hormones⁹ and feminization of the male reproductive tract.¹⁰ Animal studies have shown links to other health problems, such as reduced offspring size,¹¹ liver abnormalities and elevated cholesterol.¹² Chemicals with these potential risks have no place in our everyday products.
- **We don't know what chemicals are replacing phthalates in cosmetic formulations:** We know there are concerns with phthalate safety (see the next section for details), so reducing their use is a significant step forward. What we don't know – and what is almost impossible to know since companies are not required to inform

the public – is what they are substituting, if anything, in place of phthalates in fragrance formulations. The lack of government oversight of cosmetic safety means that there are no assurances that products are getting safer.

- **We don't know how many other products on the market contain hidden phthalates – and there is no way to know without further testing:** These product tests analyzed only a small section of the market. Since phthalates are not required to be listed on the label if they are a component of fragrance, there is no way to know which other products still contain phthalates without sending them to the lab – at a cost of \$175 per product.

The lack of government oversight in cosmetic safety means that we have no assurances that products are getting safer.

The Problem With Phthalates

Phthalate (\ 'tha-,lāt\)

Phthalates are a class of hormone-disrupting industrial chemicals used in personal care products like hair spray (to make hair stiffer) and in fragrance and nail polish (to help spread the fragrance). There are dozens of different phthalates, which are used in numerous types of products, such as plastic toys, food packaging, plumbing pipes, solvents, industrial lubricants, wiring, carpeting, flooring and many other products in addition to personal care products. This rampant use of phthalates has resulted in widespread exposure to phthalates in the general population.

Phthalates in Our Bodies

The realization that phthalates were ending up in people came in September 2000, when CDC researchers reported finding metabolites of at least one of seven phthalates in the urine of all 289 people tested, and in many people they found combinations of different phthalates.¹³ Every person tested had DBP in their bodies. The ubiquity of phthalates in the general population surprised the scientists: “From a public health perspective, these data provide evidence that phthalate exposure is both higher and more common than previously suspected.”¹⁴

The CDC’s findings prompted environmental and health organizations to purchase 72 popular cosmetic products and send them to an independent lab to test for phthalates. The results – which

found that 72% of the products contained phthalates – are published in “Not Too Pretty.” The report also highlights some of the health problems related to phthalate exposure.

Since the release of “Not Too Pretty” in 2002 many more studies have found links between health problems and phthalates. Examples of these studies are included in *Appendix A*. Follow up studies have also confirmed that phthalate exposure is widespread in the U.S. population. One study found that 97% of the more than 2,500 people tested had metabolites of DEP, DBP and BBP in their urine, and 75% of the people tested positive for metabolites of DEHP.¹⁵

This widespread phthalate exposure underscores the need to prevent harmful chemicals from being used in our everyday products. This section highlights some of the trends in health problems that may be related to phthalate exposure.



The chemicals women are exposed to when they are pregnant can affect their children’s health throughout their lives.

Phthalates and Boys' Health

Two decades of research suggest that phthalates disrupt the hormonal systems during fetal development.¹⁶ Scientists have shown that phthalates can damage the female reproductive system (see *Phthalates and Girls' Health*), but it is the male reproductive system that appears to be more sensitive. Much of the evidence on phthalates has been from animal studies; however, a growing body of research is finding similar impacts on humans. Below are some examples of health problems in males to which phthalates may be contributing:

Declining Sperm Count & Quality

Analysis of 101 studies (1934-1996) by Dr. Shanna Swan of the University of Rochester confirms results of previous studies: average sperm counts in

industrialized countries appear to be declining at a rate of about 1% each year.¹⁷ Other research indicates that overall sperm quality may also be decreasing.¹⁸ Human and animal tests show a connection between phthalates and both decreased sperm count and sperm quality.^{19 20 21}

Declining Testosterone Levels

An analysis of a large sample of Massachusetts men has found that since the late 1980s, testosterone levels have declined on average 1.2% per year, or 17% overall. The downward trend was seen in both the population and in individuals over time and is not related to normal aging or to health and lifestyle factors known to influence testosterone levels.²² Phthalates may be contributing to this trend.^{23 24 25 26}

Hypospadias

Hypospadias is a physical deformity of the penis in which the urethra opening occurs on the bottom of the penis instead of the tip. Data from CDC show that rates of hypospadias in the United States began climbing in about 1970 and continued this increase through the 1980s.²⁷ Current trends are difficult to assess due to inadequate tracking systems, but as of 1999 the occurrence of hypospadias appeared to be leveling off at about 30 to 40 cases per 10,000 births.²⁸ Phthalates may be contributing to the increase in hypospadias over the last four decades.^{29 30}



Phthalates can be harmful to anyone, but research indicates that boys may be at even greater risk from phthalate exposure in the womb than girls.

Undescended Testicles

This birth defect, where testicles fail to completely descend into the scrotum during pregnancy, occurs in 2% to 5% of full-term boys in industrialized countries. Rates of the defect increased in the United States in the 1970s and 1980s. Men born with this defect are at higher risk for testicular cancer and breast cancer.³¹ Phthalates may be contributing to undescended testicles.³²

Feminization of Boys

The distance between the anus and the genitals is a measure used to determine gender. Shorter distance between the anus and the genitals is characteristic of female sex in both humans and animals. Phthalate exposure in human mothers has been associated with a shortened distance between the anus and genitals in male babies.³³ Animal studies also support this.^{34 35} Recent research in humans supports the theory that a shorter ano-genital distance is associated with the male genital birth defects of hypospadias and cryptorchidism (a developmental defect when the testes fail to descend into the scrotum and instead are located in the groin or in the abdomen).³⁶

Testicular Cancer

This is the most common cancer of young men in many countries, including the



The decisions we make today about which products we use and the government policies we need to better regulate the ingredients in cosmetics may affect all of us for generations to come.

United States. Incidences continue to increase at a rate of about 2% to 4% each year in industrialized countries, although rates appear to have stabilized in the United States after a 20-year increase. Men with hypospadias, infertility and undescended testicles – the same constellation of conditions seen in lab animals exposed to certain phthalates – are at greater risk for developing testicular cancer.^{37 38}

In human males, hypospadias, undescended testes, impaired male fertility/infertility and testicular cancer commonly occur together.³⁹ This constellation of outcomes in humans is now labeled testicular dysgenesis syndrome (TDS) and bears many similarities to phthalate syndrome, which has been described in laboratory animals.⁴⁰

Phthalates and Girls' Health

The scientific understanding of the impact of phthalates on male health is better understood than on female health, but there are health trends that appear to be linked to exposure to phthalates. Some examples include:

Early Puberty

In the United States girls get their first periods a few months earlier than they did 40 years ago, and they develop breasts one to two years earlier.⁴¹ Early puberty has been associated with polycystic ovarian syndrome, obesity, breast cancer, depression and a number of social challenges such as experimentation with sex, alcohol or drugs at a younger age.⁴² Phthalates may contribute to girls' early breast development and early start of their periods.^{43 44}



Impaired Fertility or Infertility

Many women experience difficulty or are unable to get pregnant and/or carry a pregnancy to term. Because there are no records of incidence, it is not possible to determine how many people experience impaired fertility, but the best estimate is 12% of the reproductive age population in the United States. This number seems to have increased over the last two decades, most sharply in women under the age of 25.^{45 46} Phthalates may be contributing to this trend.^{47 48}

Endometriosis

Endometriosis occurs when the tissue that lines the inside of the uterus (called the endometrium) grows outside the uterus on other parts of the body, such as the ovaries, abdomen or pelvis. Estimates vary, but most studies find between 10% and 15% of reproductive-age women have endometriosis.^{49 50} About 30% to 40% of women with endometriosis are infertile, making it one of the leading contributors to female infertility.⁵¹ Phthalates may be contributing to this trend.⁵²

Breast Cancer

Between 1973 and 1998 breast cancer incidence rates in the United States increased by more than 40%. In 2008, a woman's lifetime risk of breast cancer is one in eight.⁵³ More than 200 chemicals have been associated with increased incidence of breast tumors.⁵⁴ Although more research is needed to fully understand the role phthalates play in the development of breast cancer, some phthalates have been shown to increase breast cancer cell proliferation,⁵⁵ and they can reduce the effectiveness of anti-estrogen treatments such as tamoxifen.⁵⁶

The Product Tests in a Larger Context

Companies Respond to Pressure

The test results presented in this report show that the personal care product industry appears to be reducing its use of phthalates in response to activist pressure, consumer demand and government regulations. The likely reasons include:

- **Growing public concern about phthalates:** The Campaign for Safe Cosmetics has helped catalyze a massive wave of consumer pressure to remove toxic chemicals from personal care products in the United States and abroad.
- **The European Union's Cosmetics Directive:** In 2003, the European Union banned two phthalates – DBP and DEHP – and more than 1,000 other chemicals from personal care products.
- **The Safe Cosmetics Act:** In 2005, California lawmakers passed the Safe Cosmetics Act, which requires companies to disclose to the state their use of toxic chemicals such as DEHP and DBP.
- **Children's Safe Products Act** In 2007, Washington State banned phthalates from children's products, including children's personal care products.
- **Consumer Product Safety Improvement Act of 2008.** This year, the U.S. Congress banned six phthalates from children's toys, and the ban was signed into law by President Bush.

Phthalates Are Also in Children's Products

The tests conducted for this report focused on products that adults use, but children's products can also contain phthalates. [The Environmental Health Strategy Center in Maine](#) did similar independent testing of children's products. Of the two personal care products they tested, Dora the Explorer bubble bath and Johnson and Johnson's 2 in 1 shampoo, both contained phthalates. But the Dora the Explorer bubble bath contained the phthalate DINP at five times the legal level allowed in toys and child care articles in Europe and the United States.

One concern with all products, especially children's products, is the packaging, which can often be made of polyvinyl chloride (PVC). PVC can leach phthalates and other chemicals into the product. There is no way to know if the phthalate found in Dora the Explorer came from the packaging or the product fragrance, but it is always better to take precaution. Check the recycling symbol on the bottom and do not buy products in PVC (#3) containers.

Momentum is clearly building to eliminate phthalates from products. Despite this progress, we need smarter laws that prevent harmful chemicals from ever being used in personal care products. We also need to ensure that government agencies are funded and empowered to enforce those laws.

The reduction of phthalates in the personal care products tested in this report is an important victory. While some companies are voluntarily moving toward safer production (see The Market Is Moving below), we can't solve this problem one chemical or one company at a time.

Cosmetic companies use more than 7,000 ingredients in their products. Despite decades of research showing that phthalate exposure is linked to many painful and devastating health effects, the U.S. Food and Drug Administration does not currently have the authority or the strength to intervene.⁵⁷



A [recent study by EWG](#) found that teenage girls' bodies are contaminated with phthalates and other chemicals commonly found in cosmetics and body care products

The lack of government regulation, the evidence that companies are still using ingredients harmful to our health and the clear demand the general public has shown for safe cosmetics are all indicators that now is the time for significant reform of the cosmetic industry.

The Market Is Moving

While some companies continue to publicly defend phthalates, even while quietly removing the chemicals, other companies are vocal in their movement away from phthalates. We don't fully understand how many companies are removing phthalates from their products, but the examples below indicate that phthalates are not needed to make high-quality products. Some examples that show there are alternatives to phthalates include:

- OPI, the leading manufacturer of professional nail products worldwide, agreed to remove DBP from its products after a sustained pressure campaign by the Campaign for Safe Cosmetics. OPI is now advertising its products as free of this chemical. Other companies including Orly and Sally Hansen also publicly announced that they would no longer use DBP.
- The Body Shop will phase out phthalates including DMP, DEP, DEHP, and DBP by the end of 2008.
- More than 1,000 companies signed the Compact for Safe Cosmetics, a pledge to replace ingredients known or suspected of causing cancer, mutation, birth defects or other adverse health effects with safer alternatives.
- Whole Foods, the largest natural food retailer in the United States has disallowed the use of phthalates in products bearing its Whole Body Premium Standard Seal.

What You Can Do

1. Join the [Campaign for Safe Cosmetics](#), and help advocate for federal and state laws that will require all cosmetic ingredients be tested for safety.
2. Contact your governor, federal and state legislators and the candidates running for public office and ask them to support efforts to more strictly regulate chemicals, including those in personal care products.
3. Write a letter to the editor of your local paper or post a blog about the findings in this report and the lack of FDA oversight of the personal care products industry. Please refer to www.safecosmetics.org for more information (check out the FAQs about the Campaign, and our Materials and Resources section). While you're there, click on the link to the EWG's [Skin Deep database](#) for even more information on cosmetics safety.
4. Spread the word! Let your friends, family and colleagues know that no one is minding the store when it comes to pre-market safety assessment of personal care products, and ask them to take these steps to protect us all from toxic ingredients in products we use on our bodies.



Strong government oversight and regulation of the \$50 billion cosmetic industry is important for women, men and children. We all use personal care products, and we all need government protection from harmful ingredients in the products we use every day.

Appendix A: New Research on Phthalates

Since “Not Too Pretty” was published six years ago, many new studies have confirmed that phthalates cause harm and that humans, especially babies, are being exposed to dangerous levels of these chemicals. Examples of new research on phthalates include:

2003

- In cell cultures, DEHP and BBP stimulated the growth of human breast cancer cells.⁵⁸
- Exposure to DEP was associated with DNA damage in human sperm.⁵⁹
- Exposure to DBP and BBP was associated with reduced sperm counts, lower sperm motility and more deformed sperm in adult men.⁶⁰
- Women with higher levels of DEHP in their bodies tended to deliver their babies a little earlier compared to woman with lower levels of DEHP.⁶¹

2004

- Swedish children exposed to BBP attached to dust particles in their home experienced more allergic symptoms such as runny nose and rashes, while children exposed to DEHP attached to dust particles experienced more asthmatic symptoms when compared to children with lower levels of exposure.⁶²
- A study of breast cancer cells suggested that the phthalates DEHP, BBP and DBP may counteract the therapeutic effect of tamoxifen, a treatment used to combat breast cancer.⁶³
- Three phthalates, DEP, DEHP and DBP, were found in human amniotic fluid samples collected during the second trimester. This indicates that the fetus is exposed to phthalates during critical windows of hormone-driven development.⁶⁴

2005

- A strong relationship was established between a mother's exposure to phthalates during her pregnancy – especially DBP, BBP, DEP and DIBP – and changes in the ways her baby boy's genitals develop.⁶⁵
- Lifelong exposure to DEHP was associated with the development of liver and testicular cancer in laboratory animals.⁶⁶
- Men who used cologne or aftershave had higher levels of breakdown products of DEP.⁶⁷

2006

- Rats exposed to DBP while still in the womb were born with testicular changes similar to testicular dysgenesis syndrome in humans.⁶⁸
- In Danish and Finish infants, breakdown products of DEP and DBP in their mother's breast milk altered the levels of male sex hormones necessary for the healthy development of the male reproductive system.⁶⁹
- Indian women with higher blood levels of the phthalates DnBP, BBP, DnOP and DEHP were more likely to be diagnosed with endometriosis. The severity of endometriosis was worse with increasing phthalate concentrations.⁷⁰
- Rats exposed prenatally to the phthalate DEHP showed suppressed levels of the enzyme crucial for masculinization of the male brain. The levels of phthalates used in this study were set to match average human exposures.⁷¹
- Workers in a Chinese vinyl flooring factory with exposures to DBP and DEHP had higher phthalate levels and lower free-testosterone levels than unexposed workers.⁷²
- The risk of adult-onset asthma was more than double for workers employed in offices with plastic wall coverings. The Finnish researchers suggest that the association is a result of increased exposure to the phthalate DEHP.⁷³
- Female rats exposed to DBP during pregnancy had higher rates of miscarriage and altered levels of female sex hormones.⁷⁴

2007

- A study of pituitary cells suggested that the phthalate DEHP may counteract the therapeutic effect of tamoxifen, a treatment used to combat breast cancer.⁷⁵
- Young girls in three U.S. cities were found to have hormonally active environmental agents in their urine, and African American girls are found to have higher levels of the breakdown products of DEP and DEHP than girls of other ethnic backgrounds.⁷⁶
- Exposure to two phthalates, DEP and DEHP, was correlated to DNA damage in the sperm of men seeking care in an infertility clinic.⁷⁷
- Men exposed to higher levels of DEHP had lower levels of two major thyroid hormones in their blood.⁷⁸
- Rats exposed prenatally to a combination of DEHP and DBP had decreased testosterone levels and decreased expression of genes important for reproductive development.⁷⁹

- Early life exposure to BBP in laboratory animals was associated with increased proliferation and change in gene expression in the mammary gland. These changes could result in the development of cancer.⁸⁰
- Exposure to DBP during pregnancy was associated with lower levels of thyroid hormone. Thyroid hormone is essential for proper development of the fetus' brain and nervous system.⁸¹

2008

- The breakdown products of the phthalates DEP, DBP, BBP and DEHP were found in more than 90% of 163 tested babies. The phthalate levels measured in the babies' urine correlates with their mothers' reported use of baby lotion, powder and shampoo.⁸²
- Exposure to a mixture of five phthalates at low doses caused greater harm than exposure to each low dose phthalate individually. The phthalates BBP, DBP, DEHP, diisobutyl phthalate (DiBP) and dipentyl phthalate (DPP) acted in an additive manner to lower the male sex hormone testosterone.⁸³
- Preschool children in Bulgaria exposed to dust contaminated with DEHP reported more episodes of wheezing.⁸⁴

Adapted from [Environmental Health News](#) and "Abstracts of Selected Phthalates Studies" by Environment California and Natural Resources Defense Council.

References

- ¹ “Not Too Pretty” and other reports about cosmetics safety are available on the Campaign for Safe Cosmetics website. See: www.safecosmetics.org/about/reports.cfm.
- ² According to a December 2006 press release of the Cosmetics, Toiletries and Fragrance Association (now know as the Personal Care Products Council) “The use of phthalates in cosmetics and personal care products is supported by an extensive body of scientific research and data that confirms safety.” See: www.personalcarecouncil.org/Template.cfm?Section=News_Room&template=/ContentManagement/ContentDisplay.cfm&ContentID=4838 viewed on November 4, 2008.
- ³ John Baily, the chief scientist for the Personal Care Products Council claims: “The one phthalate that is sometimes found in baby care products is diethyl phthalate (DEP)...DEP has been extensively researched and has not been linked to reproductive toxicity or endocrine disruption.” (From www.personalcarecouncil.org/Template.cfm?Section=News_Room&template=/ContentManagement/ContentDisplay.cfm&ContentID=5721 viewed November 4, 2008). This statement is false on two counts: first, DEP has been linked to numerous health concerns, as documented in Appendix A and other places in this report. Additionally, DiNP was found in Dora the Explorer bubble bath at five times the legally accepted level in California, Washington and Europe, as described in the this report, page 12.
- ⁴ For example, see “Trade Group Has Record of Opposing Safe Cosmetics” by Heather Sarantis in Breast Cancer Fund’s Strong Voices Newsletter, Summer 2005, p. 7.
- ⁵ Duty SM, et al. The relationship between environmental exposures to phthalates and DNA damage in human sperm using the neutral comet assay, *Environ Health Perspect* 2003;111(9):1164-69.
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