A POISON KISS:
THE PROBLEM OF LEAD IN LIPSTICK

The Campaign for Safe Cosmetics
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www.safecosmetics.org

AN OVERVIEW OF LEAD IN LIPSTICK

Toys made in China aren't the only products laced with dangerous heavy metals. Lipsticks manufactured in the United States and used daily by millions of American women also contain surprisingly high levels of lead, according to new product tests released October 11, 2007 by the Campaign for Safe Cosmetics. An independent laboratory conducted the lead tests in September 2007 on red lipsticks bought in Boston, Hartford, Conn., San Francisco and Minneapolis. Among the findings:

- More than half of 33 brand-name lipsticks tested (61 percent) contained detectable levels of lead, with levels ranging from 0.03 to 0.65 parts per million (ppm). None of these lipsticks listed lead as an ingredient.

- One-third of the tested lipsticks exceeded the U.S. Food and Drug Administration's 0.1 ppm limit for lead in candy – a standard established to protect children from directly ingesting lead. Lipstick, like candy, is ingested directly. Nevertheless, the FDA has not set a limit for lead in lipstick – which fits with the disturbing absence of FDA regulatory oversight and enforcement capacity for the $50 billion personal care products industry.

Among the top brands testing positive for lead were:

- L'Oreal Colour Riche "True Red" – 0.65 ppm
- L'Oreal Colour Riche "Classic Wine" – 0.58 ppm
- Cover Girl Incredifull Lipcolor "Maximum Red" – 0.56 ppm
- Christian Dior Addict "Positive Red" – 0.21 ppm

Lead is a proven neurotoxin that can cause learning, language and behavioral problems such as lowered IQ, reduced school performance and increased aggression. Pregnant women and young children are particularly vulnerable to lead exposure because lead easily crosses the placenta and may enter the fetal brain, where it interferes with normal development. Lead has also been linked to miscarriage, reduced fertility in both men and women, hormonal changes, menstrual irregularities and delays in the onset of puberty. Lead builds up in the body over time and lead-containing lipstick applied several times a day, every day, combined with lead in water and other sources, could add up to significant exposure levels.

The laboratory results show that lead in lipstick is an unnecessary and avoidable problem. Thirteen of the lipsticks tested (39 percent) had no detectable levels of lead. The results also show that the more expensive brands are not necessarily safer: Dior Addict, one of the most contaminated samples, sells for $24.50 a tube, while the Revlon lipstick that contained no detectable lead retails for $7.49.

The Campaign for Safe Cosmetics is calling on cosmetics companies to test their full product lines for lead, to reformulate immediately products found to contain lead, to require from suppliers a guarantee that raw materials are free of lead and other contaminants, and to join the Campaign for Safe Cosmetics in demanding that the FDA more strictly regulate personal care products.

The complete results of the lipstick testing can be found in Appendix A.

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HEALTH EFFECTS OF LEAD

Lead, a proven neurotoxin linked to learning and behavioral disorders, is one of the most studied heavy metals. Exposure to lead can cause learning, language and behavioral problems such as lowered IQ, impulsiveness, reduced school performance, increased aggression, seizures and brain damage, anemia, and, after long exposure, damage to the kidneys. Lead has also been linked to miscarriage, reduced fertility in both men and women, hormonal changes, menstrual irregularities and delays in the onset of puberty in girls.

Pregnant women and young children exposed to lead are particularly vulnerable. Lead easily crosses the placenta and enters the fetal brain, where it interferes with normal development. Increased blood levels of lead early in life can result in decreased attention span, reading disabilities and failure to graduate from high school.

HISTORY OF THE LEAD PROBLEM

The troubling story of lead is almost 3,000 years old. Greek physicians and Roman architects were describing the symptoms of lead poisoning – blindness, convulsions, brain damage, kidney disease and cancer – in 100 B.C.

One hundred years ago, lead poisoning in children was linked to the use of lead-based paints. By 1909, this new science had resulted in laws in France, Austria and Belgium banning paint made with white lead. As the science got stronger, the League of Nations and more countries – including Greece, Great

Britain, Tunisia, Spain, Sweden and Cuba – also banned lead.

The United States did not. A U.S. trade group, the Lead Industry Association (LIA), responded to the science by mounting the White Lead Promotion Campaign "to offset the stigma attached to lead because of attacks made upon it by consumer organizations."

In 1943, the first studies came out showing that lead could create health problems for children at much lower levels of exposure than those linked to poisoning symptoms. The science began to mount that some behavioral disorders, attention deficit and learning disabilities were coming from household exposure to lead paint and from air pollution caused by lead in gasoline.

But lead manufacturers disputed these studies. Having admitted that lead was a poison in 1920, the industry argued that the levels of exposure from lead chips in a home or the fumes from the lead additives in gasoline were too small to be dangerous. The industry-motivated obfuscation of the science delayed U.S. government action on lead until the 1970s.

In the three decades since the laws phasing out lead in paint and gasoline were passed, blood lead levels in the United States have declined dramatically, according to biomonitoring studies. But that good news is tempered by the bad news that the last 30 years of research have also demonstrated that lead can cause other health problems and can have effects at much lower levels of exposure than previously considered harmful. The most recent studies conclude that there is no safe level of lead. No amount of exposure is without harm. Miscarriage, reduced fertility in both men and women, hormonal changes, menstrual irregularities and delays in when puberty begins for girls have all been linked to lead exposure. At puberty, boys' developing testes appear to be especially vulnerable to lead's impact.

ON THE LIPS, IN THE BODY

We are a culture in love with lipstick – a love that for many women starts early. A 2004 survey of cosmetics use by 5,856 U.S. girls aged 7 to 19 found that 63 percent of the girls aged 10 and younger reported using lipstick.

When we lick our lips, eat and drink while wearing lipstick, or kiss someone who is wearing lipstick, we can ingest the lipstick's ingredients. *Glamour* magazine's June 2002 "Beauty Quickie Tip" repeats a commonly quoted statistic, "Women inadvertently (but harmlessly) eat about 4 lbs of lipstick" in a lifetime. Unfortunately, the latest science shows that no level of lead is "harmless."

Given that lead does not break down in the body but accumulates over time, small amounts of lead can add up to harm. For inner-city communities where children and adults have higher levels of lead from old paint in buildings and old water pipes, the lead in lipstick is unnecessarily adding to levels of harm that are already too high.

WHAT DOES THE COSMETICS INDUSTRY SAY AND WHAT IS THE GOVERNMENT DOING?

Like the lead industry before it, the cosmetics industry says the levels of lead in its products are safe. The Cosmetics, Toiletries and Fragrance Association (CTFA), the trade association for manufacturers of personal care products, argues on its Web site:

"It is impossible to live in a lead-free world. Lead is ubiquitous in the environment. It is in the air, water, soil, in short, it is unavoidable. However, compared to the amount of lead a person would ingest from eating and drinking ordinary foods, the amount expected from the use of cosmetics would be extremely small."

When toy manufacturer Mattel learned that lead paint had been used in toys produced in China for their brands, the company did not argue that since lead water pipes might be a bigger source of exposure, it was acceptable for Mattel to do nothing to solve their part of the lead problem. The test results in this report show that the cosmetics industry can make lipstick without detectable levels of lead. So why aren't they doing it?

The answer lies in the sad state of consumer protection programs in the United States. As recent news reports make clear, there are no laboratories of government scientists checking the safety of toys or dog food ingredients or chemicals before these products are released into the marketplace. For personal care products, the situation is even worse. While the Food and Drug Administration is the national government agency responsible for cosmetics, the FDA does not have the regulatory authority over cosmetics that it has over food and pharmaceuticals. As the FDA explains on its Web site:

"FDA's legal authority over cosmetics is different from other products regulated by the agency, such as drugs, biologics, and medical devices. Cosmetic products and ingredients are not subject to FDA premarket approval authority… Cosmetic firms are responsible for substantiating the safety of their products and ingredients before marketing." In practice, this means that companies can put whatever they want into the products we use every day and call them "safe" and "natural."

In a cleverly worded statement, the CTFA boasts that "Under the Food, Drug and Cosmetic Act, the Food and Drug Administration (FDA) has the

responsibility to take action if it finds a product to be unsafe and has abundant legal authority to do so."

This statement correctly describes the FDA's authority once a product is on store shelves. But to be effective, a consumer protection agency needs both the authority (the law) and the regulatory structure and capacity (inspectors, laboratory scientists, enforcement officers) to test the safety of products and remove the products that are dangerous. So consumers are left unprotected for two reasons: First, the FDA does not have the legal, prevention-focused authority to require that ingredients and products be tested for safety before they can be sold to consumers. Second, it lacks the capacity to enforce existing laws to remove dangerous cosmetics ingredients or products from store shelves.

There is no FDA standard for lead in lipstick, nor does the agency test finished cosmetics products for lead. The FDA has set lead limits for FD&C color additives – which are sometimes used to color lipstick – at 10 to 20 ppm. These colorants are typically used at 1 percent range in highly colored products. Yet there is no FDA limit on the amount of colorant that may be used in cosmetics. Lead also may be introduced as a by-product from ingredients mined or obtained from other raw materials, which can include zinc oxide and titanium dioxide. Materials such as ozokerite and petroleum-based ingredients are other sources of lead.

In November 2006, the FDA's Center for Food Safety and Drug Administration issued a Guidance For Industry with a recommended maximum level of lead in children's candy. The permissible level of 0.1 ppm, (lower than the amount in one-third of the 33 lipsticks tested) was not set because that level of exposure is safe but rather because it was "consistent with the FDA's longstanding goal of reducing lead levels in the food supply to reduce consumers' lead exposure to the lowest level that can be practicably obtained."

The testing conducted by the Campaign for Safe Cosmetics shows that the cosmetics industry can make lipstick without detectable levels of lead at both ends of the price spectrum. But the FDA does not have the same authority over cosmetics as it has over food – and even for food, the FDA's power is often too little and too late. Government agencies need to have the legal authority, the regulatory structure and the capacity to test cosmetics, food, children's products and chemicals before they are put on the market. Until they do, consumers must organize themselves to insist that companies reformulate their products to get the lead out of lipstick and off our lips.

HOW WE TESTED FOR LEAD IN LIPSTICK

In August 2007, members of the Campaign for Safe Cosmetics in Boston, Hartford, Conn., Minneapolis and San Francisco purchased a variety of red lipsticks from retail stores in their communities. We asked the shoppers to go to local drug stores, big-box discount chains, high-end cosmetics shops and department stores and buy red lipsticks at all price levels. Thirty-three unopened red lipsticks were collected and sent to the Bodycote Testing Group laboratory in Sante Fe Springs, Calif.

This ISO 17025-accredited lab used inductively coupled plasma-mass spectrometry to conduct a quantitative analysis of lead for each of the 33 lipsticks. From each sample, 0.5 grams were extracted with sulfuric and nitric acid. Some of the samples did not completely dissolve. Upon analysis, the detection limit was 0.02 ppm and the spike recover averaged 53 percent. This combination of factors means that while the levels of lead in the tested lipsticks cannot be lower than the reported results, the actual levels of lead in some of the tested lipsticks may be higher than the lab tests reveal.

The lab results include another interesting finding. Lipstick shoppers in different cities inadvertently chose the same brand and color of lipstick six times. As a result, the lab tested three different tubes of one brand and color of lipstick, and two different tubes of five other brands in the same colors. For four of these matched sets bought in different cities, there was almost no difference between the tested samples. But for the remaining two sets there were 0.15 ppm and 0.44 ppm differences between the lipsticks of the same brand and color bought in different cities. To further test what seemed to be an unusual 0.44 ppm variation between Cover Girl Incredifull Lipcolor Maximum Red lipsticks bought in different cities, two more of this same brand and color were purchased the last week of September in San Francisco and Minneapolis and sent to the lab for testing. These two lipsticks also had different lead levels, which fell between the two earlier samples, yielding a range of variation among the four samples: 0.12 ppm, 0.18 ppm, 0.27 ppm and 0.56 ppm. The variations among samples may be due to different amounts of contamination taking place during manufacturing or different levels of lead contamination of the lipstick's individual ingredients.

WHAT YOU CAN AND CAN'T DO

Today, there is no way to really know if your lipstick contains lead. While the 33 lipsticks tested for this report may or may not represent the overall problem of lead in lipstick, the results do document that reading labels or spending more money won't guarantee that you are protected from lead. So what can we do?

We can learn from the experience of lead in toys and candy. We can raise our voices and send the cosmetics industry and our elected officials a clear and important message that there should not be lead in lipstick. Period.

Cosmetics companies must remove lead from lipstick immediately, and should eliminate their use of other toxic ingredients as well. Consumers are needlessly exposed to carcinogens and developmental and reproductive toxins through shampoo, lotions and lipsticks, in addition to other sources like food, air and water. The use of lead and other toxins in cosmetics is unacceptable and avoidable.

Here are four actions you can take to make sure that cosmetics companies and state and federal regulators hear this important message:

1) **Write or call L'Oreal**, the company that manufactures the two lipsticks that our tests showed to have the highest lead levels. Ask L'Oreal to commit to reformulating its lipsticks, and to test its raw materials and finished products for lead before they hit store shelves. Visit the Campaign for Safe Cosmetics Web site (www.safecosmetics.org) for L'Oreal contact information and a sample letter you can send to the company. Then write to your favorite lipstick manufacturer and make the same request!

2) **Write a letter to the editor** of your local paper expressing concern over the new lead in lipstick findings and the lack of FDA oversight of the personal care products industry. In addition to this report, please refer to www.safecosmetics.org as a source of information (check out the FAQs about the Campaign, and our Materials and Resources section). While you're there, click on the link to the Skin Deep database for even more information on cosmetics safety.

3) **Contact your governor and state legislators** and ask them to support efforts to replace lead and other hazardous ingredients in personal care products with safer alternatives. Cosmetics companies selling lead-free lipstick are already demonstrating that lipstick can be made without this dangerous ingredient. We don't need to risk our health in the pursuit of beauty!

4) **Spread the word!** Let your friends, family and colleagues know that no one is minding the store when it comes to pre-market testing of personal care products, and ask them to take these four steps to protect us all from lead and other toxic ingredients in personal care products.

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.

Appendix A: Lipstick Testing Results

BUYER BEWARE

The lipsticks tested for this report may or may not be representative of the entire lipstick market. The lead levels could vary widely for other shades, and as the results below demonstrate, levels are not consistent by brand, shade or state of purchase. This list should not be used to decide which brands are safe or unsafe. Instead it highlights two important findings: First, there is lead in some lipsticks and consumers cannot determine which those are from the ingredients, the price or the brand. Second, there are lipsticks at every price level containing no detectable levels of lead (less than .02 ppm, the lowest level detectable by the lab). Manufacturers have the ability to make lead-free lipsticks and we should require that they do so.

Lipsticks with non-detectable levels of lead (less than 0.02 parts per million)

Brand	Product Name/Shade	Lead	Parent Company	State Purchased/Date	
Avon	Ultra Color Rich Cherry Jubilee	<0.02	Avon	MA*	08/27/07
Body Shop	Lip Colour Garnet	<0.02	L'Oreal	MA	08/27/07
Body Shop	Lip Colour Garnet	<0.02	L'Oreal	CA	08/23/07
Clinique	Long Last Lipstick Merlot	<0.02	Estee Lauder	MA	08/27/07
Dior	Replenishing Lipcolor Red Premiere	<0.02	LVMH	MA	08/27/07
Estee Lauder	Maraschino	<0.02	Estee Lauder	MN	08/26/07
MAC	Matte Lipstick Viva Glam 1	<0.02	Estee Lauder	MA	08/27/07
Revlon	Superlustrous Love That Red	<0.02	Revlon	CT	08/27/07
Revlon	Superlustrous Bed of Roses	<0.02	Revlon	CA	08/23/07
Revlon	Colorstay Lipcolor Red Velvet	<0.02	Revlon	CA	08/23/07
Tarte	Inside Out Vitamin Lipstick	<0.02	Tarte	MA	08/27/07
Wet N Wild	Mega Colors Cherry Blossom	<0.02	Markwins	CA	08/23/07
Wet N Wild	Mega Colors Cherry Blossom	<0.02	Markwins	CT	08/27/07

Lipsticks with detectable levels of lead but less than 0.1 ppm lead (the FDA-recommended limit for candy)

MAC	Matte Lipstick Viva Glam	0.03	Estee Lauder	MN	08/26/07
Revlon	Love That Red	0.03	Revlon	MN	08/26/07
Cover Girl	Queen Collection Ruby Remix	0.03	P & G	CT	08/27/07
Clinique	Long Last Paprika	0.03	Estee Lauder	CA	08/23/07
Dior	Replenishing Lipcolor Red Premiere	0.04	LVMH	MN	08/26/07
Body Shop	Garnet	0.06	L'Oreal	MN	08/26/07
Wet N Wild	Cherry Frost	0.06	Markwins	MN	08/26/07
Clinique	Angel Red	0.09	Estee Lauder	MN	08/26/07
Burt's Bees	Lip Shimmer Merlot	0.09	Burt's Bees	MA	08/29/07

Lipsticks with lead levels higher than 0.1 ppm

Maybelline NY	Moisture Extreme Scarlet Simmer	0.11	L'Oreal	CT	08/27/07
Cover Girl	Incredifull Lipcolor Maximum Red	0.12	P & G	CA	08/23/07
Peacekeeper	Paint Me Compassionate	0.12	Peacekeeper	MA	08/27/07
Maybelline NY	Moisture Extreme Midnight Red	0.18	L'Oreal	MN	08/26/07
Maybelline NY	Moisture Extreme Cocoa Plum	0.19	L'Oreal	CA	08/23/07
Dior	Addict Positive Red	0.21	LVMH	CA	08/23/07
Cover Girl	Continuous Color Cherry Brandy	0.28	P & G	CA	08/23/07
L'Oreal	Colour Riche True Red	0.50	L'Oreal	MN	08/26/07
Cover Girl	Incredifull Lipcolor Maximum Red	0.56	P & G	MN	08/26/07
L'Oreal	Colour Riche Classic Wine	0.58	L'Oreal	CT	08/27/07
L'Oreal	Colour Riche True Red	0.65	L'Oreal	CA	08/23/07

* Purchased from Web consultant based in Boston

REFERENCES

Studies on the Health Impacts of Lead

Benoff, S., Jacob, A., Hurley, I.R., Male infertility and environmental exposure to lead and cadmium. Hum. Reprod. Update. 6:107-21, 2000.

Bonde, J.P., Joffe, M., Apostoli, P., Dale, A., Kiss, P., Spano, M. et al., Sperm count and chromatin structure in men exposed to inorganic lead: lowest adverse effect levels. Occup. Environ. Med., 59:234-42, 2002.

Canfield, R., Did we miss the boat? Cognitive deficits in children with blood-lead levels below 10ug/dl. Children's Health and the Environment 2000. The 18th International Neurotoxicology Conference. Colorado Springs, CO, Oct. 2000.

Choy, C.M., Lam, C.W., Cheung, L.T., Briton-Jones, C.M., Cheung, L.P., Haines, C.J., Infertility, blood mercury concentrations and dietary seafood consumption: a case-control study. Bjog. 109:1121-5, 2002.

Denham, M., Schell, L.M., Deane, G., Gallo, M.V., Ravenscroft, J., DeCaprio, A.P., Relationship of lead, mercury, mirex, dichlorodiphenyldichloroethylene, hexachlorobenzene, and polychlorinated biphenyls to timing of menarche among Akwesasne Mohawk girls. Pediatrics, 115:e127-34, 2005.

Figa-Talamanca, I., Traina, M.E., Urbani, E., Occupational exposures to metals, solvents and pesticides: recent evidence on male reproductive effects and biological markers. Occup. Med. (Lond.), 51:174-88, 2001.

Jurasovic, J., Cvitkovic, P., Pizent, A., Colak, B., Telisman, S., Semen quality and reproductive endocrine function with regard to blood cadmium in Croatian male subjects. Biometals, 17:735-43, 2004.

Lanphear, B.P., Dietrich, K, Auinger, P, Cox, C, Subclinical Lead Toxicity in U.S. Children and Adolescents. Pediatric Research, 47: 152A, May 2000.

Lanphear, B., Adverse neurobehavioral effects of blood lead levels below 10 micrograms/dl. Presented at the 17th International Neurotoxicology Conference, Little Rock, AK, October 17-20, 1999.

Miller, K.P., Borgeest, C., Greenfeld, C., Tomic, D., Flaws, J.A., In utero effects of chemicals on reproductive tissues in females. Toxicol. Appl. Pharmacol., 198:111-31, 2004

Needleman HL. The development of understanding of the extent and nature of lead toxicity in children. Presented at the 17th International Neurotoxicology Conference, Little Rock, AK, October 17-20, 1999.

Sallmen, M., Anttila, A., Lindbohm, M.L., Kyyronen, P., Taskinen, H., Hemminki, K., Time to pregnancy among women occupationally exposed to lead. J. Occup. Environ. Med., 37:931-4, 1995.

Schettler, T., Solomon, G., Valenti, M., Huddle, A., Generations at Risk. Reproductive Health and the

Environment. Cambridge, MA: MIT Press, 1999.

Schwartz, J., Low-level lead exposure and children's IQ: a meta-analysis and search for a threshold. Environ. Res., 65: 42-55, 1994.

Schwartz, J, Otto D, Lead and minor hearing impairment, Arch. Environ. Health, 46(5):300-5, Sept.-Oct..1991.

Selevan, S.G., Rice, D.C., Hogan, K.A., Euling, S.Y., Pfahles-Hutchens, A., Bethel, J., Blood lead concentration and delayed puberty in girls. N. Engl. J. Med. 348:1527-36, 2003.

Sharara, F.I., Seifer, D.B., Flaws, J.A., Environmental toxicants and female reproduction. Fertil. Steril., 70:613-22, 1998.

Tang, N., Zhu, Z.Q., Adverse reproductive effects in female workers of lead battery plants. Int. J. Occup. Med. Environ. Health, 16:359-61, 2003.

United States Department of Health and Human Services (H.H.S.), The Report on Carcinogens (RoC), Eleventh Edition, January 31, 2005. Prepared by the National Toxicology Program (NTP).

Winker, R., Rudiger, H.W., Reproductive toxicology in occupational settings: an update. Int. Arch. Occup. Environ. Health, 79:1-10, 2006.

World Health Organization (W.H.O.), Inorganic Lead. Environmental Health Criteria 165. Geneva, 1995.

Wu, T., Buck, G.M., Mendola, P., Blood lead levels and sexual maturation in U.S. girls: the Third National Health and Nutrition Examination Survey, 1988-1994. Environ. Health Perspect,. 111:737-41, 2003.

References on the History of Lead Use, the FDA, Teenage Use of Cosmetics

Bodycote Testing Group
http://www.bodycotetesting.com/category.aspx?catid=11245

Cincinnati Children's Hospital Medical Center
http://www.cincinnatichildrens.org/research/project/enviro/hazard/lead

Kittman, Jamie Lincoln, The Secret History of Lead: Special Report, The Nation, March 20, 2000.

Mintel Reports: USA, Lifestyles: Teen Consumer - US - December 2004 quoted in
http://www.breastcancerfund.org/site/pp.asp?c=kwKXLdPaE&b=1264315

United States Food and Drug Administration (F.D.A.), http://www.cfsan.fda.gov/~dms/pbguid3.html

United States Food and Drug Administration (F.D.A.),
http://www.cfsan.fda.gov/~dms/cos-206.html