

ook co am
 .co m/ .co
 m/ Saf m/
 saf eC saf
 eco os eco
 sm me sm
 etics etic
 s) HQ shq
).)

BCPP.org
 (https://www.bcpp.org/)



(https://www.safecosmetics.org/)



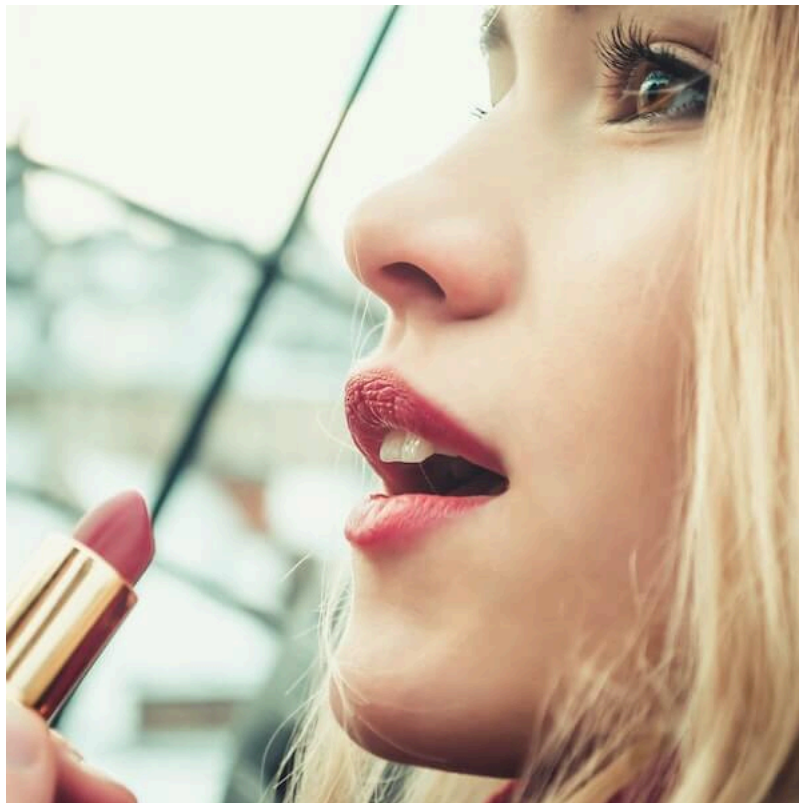
TAKE ACTION
 (/TAKE-ACTION/)

DONATE
 (?CAMPAIGN=407476)

Home (https://www.safecosmetics.org/) > Chemicals (https://www.safecosmetics.org/chemicals/) > Lead And Other Heavy Metals

Lead And Other Heavy Metals

Heavy metals like lead, arsenic, mercury, aluminum, zinc, chromium and iron are found in a wide variety of personal care products including lipstick, whitening toothpaste, eyeliner and nail color.



Some metals are intentionally added as ingredients, while others are contaminants.^[1] Exposure to metals has been linked to health concerns including reproductive, immune and nervous system toxicity.

WHAT ARE HEAVY METALS?

Some metals play important roles in normal functions of the body. For instance, iron is necessary for blood oxygenation. However, when these metals accumulate they may have serious negative effects. Other metals, such as lead and mercury, do not have normal physical functions in the body.

Cancerous breast biopsies show higher accumulations of iron, nickel, chromium, zinc, cadmium, mercury and lead than non-cancerous biopsies. In addition, several metals act like estrogen in the presence of some breast cancer cells.^{[2][3][4]}

Metals have been found as contaminants in a range of cosmetic products including sunscreen, foundation, nail polish, lipstick and whitening toothpaste. Several ingredients derived from plant sources like cottonseed oils and rice derivatives may also contain heavy metals such as lead and mercury.

While some metals are contaminants of the chemical combining process, others serve as colorants. For instance, chromium is used in a very small number of products as a colorant, and iron oxides are common colorants in eye shadows, blushes and concealers. Some aluminum compounds are colorants in lip glosses, lipsticks and nail polishes. In addition, some color additives may be contaminated by heavy metals, such as D&C Red 6, which can be contaminated by arsenic, lead and mercury.^[5]

Found In

- Lip products
- Whitening toothpaste
- Eyeliner
- Nail color
- Foundations
- Sunscreens
- Eye shadows
- Blush
- Concealer
- Moisturizers
- Eye drops

What to look for on the label

- Lead acetate
- Chromium
- Thimerosal
- Hydrogenated cotton seed oil
- Sodium hexametaphosphate.
- Note: products that contain contaminant metals will not list them on ingredient labels

Health Concerns

Lead: Lead is a potential impurity in many color cosmetics, including lipstick. Lead is a well-known and proven neurotoxin that has been linked to learning, language and behavioral problems.^[6] Because of this, lead has been eliminated from gasoline and paint in the United States, which has resulted in considerably reduced exposures in the past several decades. Lead has been linked to reduced fertility in both men ^[7] and women, ^[8] hormonal changes and menstrual irregularities. Pregnant women are especially vulnerable because lead crosses the placenta and may enter the fetal brain, and has also been linked to miscarriage.^[9] Pre-adolescents are also at risk as lead has been linked to a delay in the onset of puberty in girls, and the development of testes in boys.

Mercury: Mercury is linked to nervous system toxicity, as well as reproductive, immune and respiratory toxicity, and is a recognized environmental health concern by numerous national and international government bodies.^[10] A 2013 study suggested mercury may also disrupt thyroid hormones.^[11] Mercury is found in thimerosal, which is a mercury-based preservative. Mercury is particularly hazardous during fetal

development and is readily absorbed by the skin. Neither mercury nor thimerosal is common as a direct ingredient or impurity, but the high toxicity of this metal means that the presence of mercury in any cosmetics is a concern. In 2013 the United States ratified the Minamata Convention, which will curb mercury emitted from coal-fired power plants and household appliances, but fails to restrict the metal in mascara.^[12]

Other metals: Aluminum-based compounds vary in their toxicity, but some are linked to neurotoxicity, developmental and reproductive toxicity, and cancer.^[13] Chromium is strongly linked to immune and respiratory toxicity, as well as systemic toxicity.^[14]

Animal studies show tumor formation at low doses. Some metals or metal compounds, such as titanium dioxide and zinc oxide, show little evidence of toxicity in their natural forms. However, when these ingredients are turned into nanoparticles, they may be toxic when inhaled or absorbed through the skin. Very little research has verified the safety of nanoparticles, whose physical properties change when the particles become that small.^[15]

Vulnerable Populations

Babies & Children (<https://www.safecosmetics.org/population/babies-children/>),
Pregnant Women (<https://www.safecosmetics.org/population/pregnant-women/>),
Teenagers (<https://www.safecosmetics.org/population/teenagers/>).

Regulations

Banned/found unsafe for use in cosmetics in Canada, Japan and the European Union, restricted in cosmetics in the U.S.

How to Avoid?

Despite much attention to the issue of lead in cosmetics, the metal continues to be detected in some products.^[16] Heavy metals can be difficult to avoid as they are not always listed on the label, so the best strategy is to save color cosmetics for special occasions, and to encourage young girls to wait to use lipstick. In addition, sunscreens with titanium dioxide and iron oxide are often excellent options, but be sure these metals are non-nanoized.

Explore other Chemicals

[Polyacrylamide \(https://www.safecosmetics.org/chemicals/polyacrylamide/\)](https://www.safecosmetics.org/chemicals/polyacrylamide/)

[Fragrance \(https://www.safecosmetics.org/chemicals/fragrance/\)](https://www.safecosmetics.org/chemicals/fragrance/)

[Homosalate \(https://www.safecosmetics.org/chemicals/homosalate/\)](https://www.safecosmetics.org/chemicals/homosalate/)

[Triclosan \(https://www.safecosmetics.org/chemicals/triclosan/\)](https://www.safecosmetics.org/chemicals/triclosan/)

[Mica \(https://www.safecosmetics.org/chemicals/mica/\)](https://www.safecosmetics.org/chemicals/mica/)

[Ethoxylated Ingredients \(https://www.safecosmetics.org/chemicals/ethoxylated-ingredients/\)](https://www.safecosmetics.org/chemicals/ethoxylated-ingredients/)

[View All Chemicals of Concern > \(/chemicals/\)](/chemicals/)

Looking for a Safer Alternative?

Use Clearya's app to find non-toxic products! Clearya alerts you to toxics and helps you find safe products.



[\(https://www.clearya.com/\)](https://www.clearya.com/)

[Visit Clearya > \(https://www.clearya.com/\)](https://www.clearya.com/)

Your Action Helps

Together, we can make beauty safer for all.

Take Action Today!

[\(/take-action/\)](/take-action/)

FILTER BY:**By Population** **By Products** **By Health Concerns** **References**

- [1] Environmental Working Group (2007). Impurities of Concern in Personal Care Products. Accessed July 28, 2008.
- [2] Brama, M., Gnessi, L., Basciani, S., Cerulli, N., Politi, L., Spera, G., ... Migilaccio, S. (2007). Cadmium induces mitogenic signaling in breast cancer cell by an Eralpha-dependent mechanism. *Mol Cell Endocrinol*, 264, 102–108.
- [3] Martin, M., Reiter, R., Pham, T., Avellanet, Y., Camara, J., Lahm, M., ... Stoica, A. (2003). Estrogen-like activity of metals in MCF-7 breast cancer cells. *Endocrinology*, 144, 2425–2436.
- [4] Sukocheva, O., Yang, Y., Gierthy, J., & Seegal, R. (2005). Methyl mercury influences growth-related signaling in MCF-7 breast cancer cells. *Environ Toxicol*, 20, 32–44.
- [5] Environmental Working Group (2007). Impurities of Concern in Personal Care Products. Accessed November 17, 2011.
- [6] Needleman, Herbert L.; Schell, Alan; Bellinger, David; Leviton, Alan; Allred, Elizabeth N. (1990). The long-term effects of exposure to low doses of lead in childhood. An 11-year follow-up report. *New England Journal of Medicine* 322 (2): 83–88.
- [7] Wu, H. M., Lin-Tan, D. T., Wang, M. L., Huang, H. Y., Lee, C. L., Wang, H. S., ... & Lin, J. L. (2012). Lead level in seminal plasma may affect semen quality for men without occupational exposure to lead. *Reproductive Biology and Endocrinology*, 10(1), 91.
- [8] Snijder, C. A., te Velde, E., Roeleveld, N., & Burdorf, A. (2012). Occupational exposure to chemical substances and time to pregnancy: a systematic review. *Human reproduction update*, 18(3), 284–300.
- [9] Agency for Toxic Substances and Disease Registry (ATSDR) (2007). Toxicological profile for Lead. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.
- [10] Agency for Toxic Substances and Disease Registry (ATSDR) (1999). Toxicological profile for mercury. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. Available online: <http://www.atsdr.cdc.gov/toxprofiles/tp46.pdf> (<http://www.atsdr.cdc.gov/toxprofiles/tp46.pdf>). Accessed April 26, 2022.
- [11] Agency for Toxic Substances and Disease Registry (ATSDR) (2007). Toxicological profile for Lead. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. Available online: <http://www.atsdr.cdc.gov/ToxProfiles/tp13.pdf> (<http://www.atsdr.cdc.gov/ToxProfiles/tp13.pdf>). Accessed April 26, 2022.

[12] U.S. EPA (2013). Minamata Convention on Mercury. Available online: <https://www.epa.gov/international-cooperation/minamata-convention-mercury> (<https://www.epa.gov/international-cooperation/minamata-convention-mercury>). Accessed April 26, 2022.

[13] Agency for Toxic Substances and Disease Registry (ATSDR) (2008). Toxicological profile for Aluminum. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. Available online: <http://www.atsdr.cdc.gov/toxprofiles/tp22.pdf> (<http://www.atsdr.cdc.gov/toxprofiles/tp22.pdf>). Accessed April 26, 2022.

[14] Agency for Toxic Substances and Disease Registry (ATSDR) (2012). Toxicological profile for Chromium. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. Available online: <https://www.atsdr.cdc.gov/toxprofiles/tp7.pdf> (<https://www.atsdr.cdc.gov/toxprofiles/tp7.pdf>). Accessed April 26, 2022.

[15] Environmental Working Group. Sunscreen Report: Nanotechnology – Summary (2008). Available online: <https://www.ewg.org/sunscreen/report/nanoparticles-in-sunscreen/> (<https://www.ewg.org/sunscreen/report/nanoparticles-in-sunscreen/>). Accessed April 26, 2022.

[16] BCPP. A Poison Kiss: The Problem of Lead in Lipstick. Available online: https://www.bcpp.org/wp-content/uploads/2017/03/Report_A-Poison-Kiss_October_2007.pdf (https://www.bcpp.org/wp-content/uploads/2017/03/Report_A-Poison-Kiss_October_2007.pdf). Accessed April 26, 2022.

Add Impact To Your Inbox

Get our emails to stay in the know.

This site is protected by reCAPTCHA and the Google [Privacy Policy](https://policies.google.com/privacy) (<https://policies.google.com/privacy>) and [Terms of Service](https://policies.google.com/terms) (<https://policies.google.com/terms>) apply.



get to know us

