

Metals in Lip Products A Cause for Concern?

Humans have used cosmetics for thousands of years. In recent years there has been growing consumer concern that cosmetics may contain harmful levels of toxic substances. For example, in 2007 the Campaign for Safe Cosmetics published a report drawing attention to the lead content in lipsticks and lip glosses,¹ and in 2009 and 2011 the Food and Drug Administration (FDA) published its own findings on lead in lipsticks.² A new study in *EHP* once again turns attention to metals in lip products, this time reporting on levels not just of lead but also of aluminum, cadmium, cobalt, chromium, copper, manganese, nickel, and titanium.³

The researchers purchased 32 lip products and applied optical emission spectrometry to determine their metal content. All the products contained manganese, titanium, and aluminum, with the latter two metals showing up at the highest concentrations. Three-quarters contained detectable amounts of lead, and in nearly half the samples, lead levels were higher than the FDA standard of 0.1 ppm for lead in candy. According to the authors, neither price nor type of product (lipstick versus lip gloss) affected the metal concentrations.

Based on usage data⁴ reported by the Personal Care Products Council (PCPC), a cosmetics industry group, the authors assumed the women ingested all the lip product they applied each day—an average of 24 mg per day, reaching 87 mg per day in the 95th percentile. They estimated intake of each metal based on the concentrations measured in the products, then compared these estimates with theoretical acceptable daily intakes that they calculated based on a variety of public health goals and reference exposure levels set by various government entities. Given these estimates, they concluded that if consumers' usage was in the higher range, they could be ingesting potentially hazardous amounts of aluminum, chromium, and manganese.

Since many pigment names are derived from formulations used in paints, such as manganese violet, lead white, and cadmium yellow, it would seem plausible that metals are intentionally added to lip products to produce specific colors. And, in fact, the two metals found at the highest concentration may have been intentionally added by manufacturers, says Linda Loretz, director of safety and regulatory toxicology for the PCPC—titanium via the FDA-approved cosmetic color titanium dioxide, and aluminum possibly through the use of additives that keep colors from bleeding. But the bulk of the metals found in the study are contaminants, Loretz maintains.

Although lip products present an obvious oral route of exposure, risk assessment data linked with cosmetics are unavailable for these metals. By its very nature, this type of exploratory research involves numerous assumptions. But Loretz says the authors chose inappropriate standards for predicting ingestion hazards. For example, for manganese ingestion the authors used an inhalation standard, and for chromium, they used a standard for the carcinogenic hexavalent form of chromium, which is not the form expected to be found in cosmetics.

Loretz also objected to the comparison of lead concentrations in lipstick to FDA limits for ingested lead. And referring to the fact that several of the metals (although not lead) are necessary nutrients in trace amounts, she says, “The cosmetic exposure would be so much lower than food exposure. Even the highest levels seen [in this study] were far below the Recommended Daily Intake for these metals as a nutrient.”

With its reports the FDA reached a similar conclusion, finding both times that lead levels in lipsticks were “within the range the agency would expect to find in lipsticks formulated with permitted color additives.”² FDA spokeswoman Tamara Ward says, “Lipstick, as a product intended for topical use with limited absorption, is ingested only in very small quantities. We do not consider the lead levels we found in the lipsticks to be a safety concern.”

Given the assumption that metal contamination is unavoidable, and because the cosmetics industry believes the levels are safe, Loretz says the industry has no incentive to try to reduce their concentrations in lip products. In June 2011 the PCPC asked the FDA to issue a guidance document stating that lead levels under 10 ppm in lip products are safe.⁵ “The industry would like to have FDA set levels for some of these metals to add some clarity and [establish] the fact that they don't raise health hazards,” Loretz says.

But considering there is believed to be no safe level of lead exposure,⁶ the Campaign for Safe Cosmetics would like to see guidelines for lead in lipstick set to correspond with the lowest detectable levels found in laboratory tests (less than 0.02 ppm), says spokeswoman Margie Kelly. “[Lipstick]

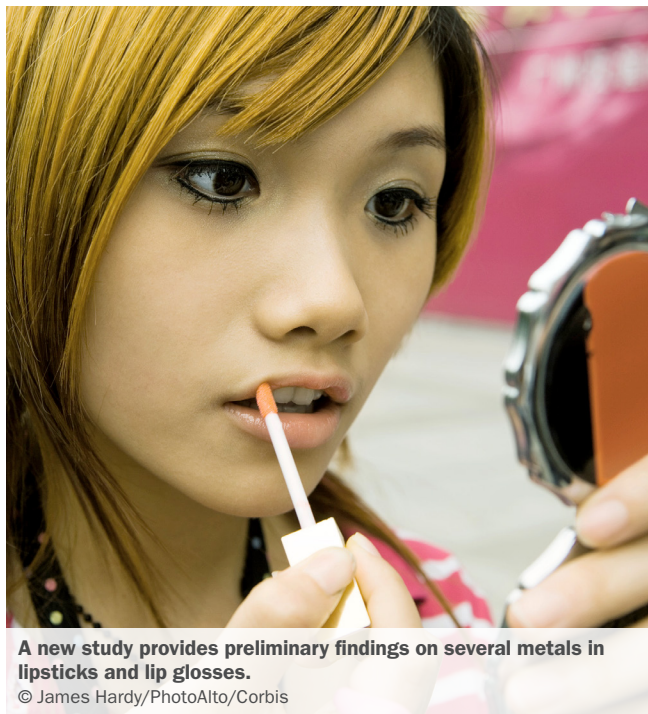
isn't the only exposure, but it's a deliberate exposure,” Kelly says. “There are companies making lipsticks without lead. It can be done, so we think it should be done.”

Without actual exposure and body burden data, the risk picture remains somewhat clouded. Senior author S. Katharine Hammond, a professor of environmental health in the University of California, Berkeley, School of Public Health, stresses that the current study is preliminary but says there is a cause for concern and definitely a need for additional research. “The big message,” she says, “is the FDA needs to be paying attention and protecting people who use lipsticks.” Says FDA spokeswoman Ward, “While we have not yet had the opportunity to conduct a thorough review of the recently released UC Berkeley report, we will certainly do so. We are also currently taking steps to evaluate cosmetics for possible trace levels of heavy metals.”

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A new study provides preliminary findings on several metals in lipsticks and lip glosses.

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