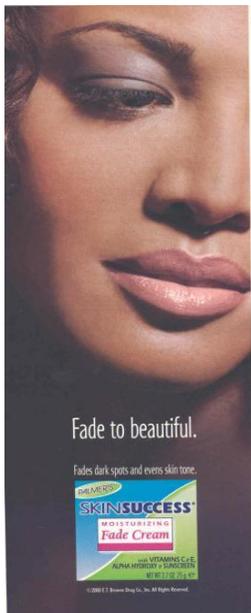


## FACT SHEET: Mercury in Skin Lightening Cosmetics

**Summary:** *Women in many countries use cosmetic products that lighten their skin, in pursuit of “fair-skinned beauty.”<sup>1</sup> Some of the products may be harmless, but others contain potentially hazardous ingredients such as inorganic mercury compounds, hydroquinone, and steroids. These products are often applied to large areas of the skin, left on the skin for hours at a time, and used repeatedly for weeks, months or years. Mercury-containing skin lightening cosmetics pose significant risks to users. Mercury absorbed through the skin from lightening products can damage the skin itself, the kidneys, and the nervous system. Governments urgently need to restrict the production, sale and distribution of the products and educate consumers about the hazards they pose.*



**The Products:** Skin-lighteners are sold as creams, lotions and soaps. Hundreds if not thousands of them are available in the global market. Those that use mercury as an active ingredient often contain from 2 to 10 percent mercury by weight. Products tested in a variety of countries in Africa, Asia and Latin America and North America have contained from 660 to 57,000 parts per million (ppm) mercury.<sup>2</sup> Unfortunately, the most effective ingredients, which include mercury compounds and hydroquinone, are also the cheapest, and that induces many manufacturers to use them in products, despite their well documented toxic hazards.



**Extent of Use:** Skin lighteners are used by large fractions of the population, primarily women and young girls, in Asia, Africa and Latin America. Surveys report these figures for use in specific countries: Senegal, 27 percent;<sup>3</sup> Mali, 25 percent;<sup>4</sup> Togo, 59 percent;<sup>5</sup> South Africa, 35 percent;<sup>6</sup> Nigeria, 77 percent;<sup>7</sup> Hong Kong, 45 percent;<sup>8</sup> Republic of Korea, 28 percent;<sup>9</sup> Malaysia, 41 percent;<sup>10</sup> The Philippines, 50 percent;<sup>11</sup> and Taiwan, 37 percent.<sup>12</sup> Systematic survey data have not been collected in Latin America, but the products are also widely used there and in the Caribbean. They are also imported illegally and used by women in the United States.<sup>13,14</sup>

When asked why they used the products, 61 percent of the respondents to the survey of five Asian countries said they felt they looked younger with a fair complexion.<sup>15</sup> Skin lighteners are heavily marketed to women, with the message that they hold a key to beauty (see ad at left). The surveys cited above and others have found that many women use the products for extended periods, up to 20 years in some cases.<sup>16</sup>

**Effects of Using the Products:** Women who use mercury-containing skin lighteners often have elevated mercury levels in their hair, blood and urine. Several studies have found hair mercury levels greater than 100 ppm in women using these products, compared with a “normal” range of below 10 ppm.<sup>17,18,19</sup> Similarly far above normal levels of mercury have been measured in urine of women in Kenya<sup>20</sup> and Tanzania<sup>21</sup> who used mercury-containing skin

lighteners, and users of these cosmetics in Hong Kong had elevated mercury levels in their blood and urine.<sup>22</sup>

Long-term use of mercury-based skin lighteners often produces a characteristic “slate gray” skin color.<sup>23</sup> Over-pigmented skin (see photo at right) is a common problem among African women, caused by mercury



and/or hydroquinone in skin-lightening creams, among other factors.<sup>24</sup> Ammoniated mercury, used in some skin-lightening creams, can cause rashes and allergic reactions (photo to the left). Other ingredients in these products, in particular steroids, also damage the skin, sometimes severely.<sup>25,26</sup>



Figure 3 Pigmentary disorder: hypo-hyperpigmentation

Kidney damage caused by long-term use of mercury-containing skin-lightening creams has been reported by investigators in China,<sup>27</sup> Hong Kong<sup>28</sup> and the UK.<sup>29</sup> In those cases, once the source of mercury exposure was identified and the women stopped using the harmful products, their kidney function gradually returned to normal. Unfortunately, most women who use skin-lightening products are unlikely to be seen by a medical professional who could detect such kidney damage at an early stage and eliminate their mercury exposure before more serious disease develops.

Mercury is also toxic to the nervous system. Users of mercury-containing soaps in Kenya had symptoms of nervous system toxicity including tremors, lassitude, vertigo, loss of memory, and generalized aches and pains, all classic signs of inorganic mercury poisoning.<sup>30</sup> Two German women who used skin lighteners for up to 20 years each suffered from headaches, abdominal cramps and shortness of breath; both were repeatedly hospitalized.<sup>31</sup> On the other hand, a large study in Hong Kong found that 78 percent of women using mercury-containing skin lighteners reported no symptoms, although two-thirds of them had significantly elevated blood and/or urine mercury levels.<sup>32</sup> However, the fact that even a majority of users may suffer no evident adverse effects does not make this category of products less dangerous to consumers.

The developing brain is particularly sensitive to toxic effects, and the chief public health concern about mercury exposure from fish consumption, for example, is the risk of prenatal damage to the developing fetus.<sup>33</sup> Mercury is also transferred from a mother to her nursing infant in breast milk.<sup>34</sup> Unfortunately, no research appears to have been done to assess the possible effects of long-term use of skin lightening products by women of childbearing age on their children’s health. *Such studies are urgently needed.*



**Environmental Concerns:** Most mercury in skin lightening products enters the environment in waste water, and may be transformed there into methylmercury, an even more toxic compound, by bacteria. Methylmercury accumulates in fish and thus can enter the human diet.<sup>35</sup> Amounts of mercury used in skin lightening products are less than many other sources of mercury pollution, but eliminating this source would significantly reduced global mercury exposure.<sup>36</sup>

**Government Responses:** While many skin-lightening products are safe, myriad products on the market are unlabeled, mislabeled, counterfeit,<sup>37</sup> or not labeled in a language the user can read. Therefore, consumers cannot know what is actually in the product they are using. Governments must step in to protect consumers from the toxic hazards in some of these products.

At the international level, the United Nations Environment Programme has developed a *Mercury Awareness Raising Toolkit*, which includes information about mercury in skin lightening products.<sup>38</sup> A treaty is currently being negotiated to govern world mercury trade, release and use and many NGOs globally, including ZMWG, support banning mercury-containing skin lighteners in the first phase of the treaty's implementation.<sup>39</sup> Several national governments, including Kenya<sup>40</sup> and Indonesia,<sup>41</sup> have mounted public education campaigns and banned long lists of specific products. Mercury uses in cosmetic products are prohibited by law in the European Union<sup>42</sup> and the United States.<sup>43</sup>

Despite national bans, however, recent tests show mercury-containing skin lighteners are still sold in developed countries like the US. In New York City, the Department of Health and Mental Hygiene found five such products, one of which had caused a case of mercury poisoning.<sup>44</sup> The products had been imported from the Dominican Republic. An American newspaper, the *Chicago Tribune*, recently tested 50 skin-lightening products and found five, manufactured in China, India, Lebanon, Pakistan and Taiwan, that contained mercury levels ranging from 6,000 to 29,600 ppm.<sup>45</sup>

There is an urgent need for broad, more effective government actions in all countries, to restrict the production and sale of mercury-containing cosmetics and to alert consumers of all cultures and continents to the hazards hidden in these products. We therefore respectfully suggest the following.

### **Recommendations:**

- Mercury-containing skin-lightening cosmetics should be banned from international commerce, as part of the global treaty on mercury now being negotiated.
- The World Health Organization and United Nations Environment Program should assess consumer use of skin lightening products, and of the mercury content of products on the market, in each region of the world, and provide region-specific health alerts and risk communication information to national and local governments for public distribution.
- National governments that have not already done so should ban the production, export, import and sale of mercury-containing skin lighteners, and distribute culturally appropriate materials to inform users of these products about the hazards they pose.
- Governments of developed countries should provide technical assistance to developing countries where use of mercury-containing skin lighteners is prevalent. Such assistance could include analysis of products to identify those that contain mercury, and creation of a global, multi-lingual database on mercury and other hazardous ingredients in these products.
- Non-governmental organizations concerned with consumer health and safety and the environment should work in partnership with national governments and intergovernmental bodies to develop and disseminate effective consumer education materials.

**For more information, see:** [www.zeromercury.org](http://www.zeromercury.org) ~ [www.mercurypolicy.org](http://www.mercurypolicy.org)

## Notes and References

- <sup>1</sup> Counter, S.A. (2003) Lab Report: Whitening skin can be deadly. The Boston *Globe*, December 16. See: [http://www.boston.com/news/globe/health\\_science/articles/2003/12/16/whitening\\_skin\\_can\\_be\\_deadly/](http://www.boston.com/news/globe/health_science/articles/2003/12/16/whitening_skin_can_be_deadly/).
- <sup>2</sup> For example, see Sin, KW and Tsang, HF (2003) Large-scale mercury exposure due to a cream cosmetic: community-wide case series. Hong Kong Medical Journal **9**:329-334; also see recent IPEN report at: <http://www.ipen.org/hgfree/#grs>
- <sup>3</sup> del Guidice, P. and Yves, P. (2002) The Widespread Use of Skin Lightening Creams in Senegal: a Persistent Public Health Problem in West Africa. The International Journal of Dermatology **41**: 69-72.
- <sup>4</sup> Mahé, A., et al. (1993) An Epidemiologic Survey on the Cosmetic use of Bleaching Agents by the Women of Bamako, Mali. Annals of Dermatology and Venerology **120**: 870-873.
- <sup>5</sup> Science in Africa: Africa's First On-Line Science Magazine. March 2004. "Mirror mirror on the wall, who is the FAIREST of them all?". [www.sciencein africa.co.za/2004/march/skinlightening.htm](http://www.sciencein africa.co.za/2004/march/skinlightening.htm).
- <sup>6</sup> Ibid.
- <sup>7</sup> Adabajo, S.B. (2002) An epidemiological survey of the use of cosmetic skin lightening cosmetics among traders in Lagos, Nigeria. West African Journal of Medicine **21**(1):51-55.
- <sup>8</sup> Survey data from Synovate Hong Kong. See <http://www.mrweb.com/dmo/news3214.htm>.
- <sup>9</sup> Ibid.
- <sup>10</sup> Ibid.
- <sup>11</sup> Ibid.
- <sup>12</sup> Ibid.
- <sup>13</sup> Gabler, E. and Roe, S. (2010), Mercury Found in Skin Creams. Chicago *Tribune*, May 8, 2010.
- <sup>14</sup> New York City Department of Health and Mental Hygiene (2006) Comments on the US FDA's proposed rule on skin-bleaching products, December 22, 2006. See <http://www.fda.gov/ohrms/dockets/dockets/78n0065/78N-0065-EC515-Attach-1.pdf>.
- <sup>15</sup> Synovate survey, Note 8, above.
- <sup>16</sup> Luderschmidt, C. and Plewig, G. (1979) Chronic mercury poisoning following topical application of skin bleachers. (author's translation) [Article in German] *Klinische Wochenschrift* **57**(6):293-298.
- <sup>17</sup> Gras, G. and Mondain, J. (1981) The problem of the use of mercurials cosmetics in Senegal (author's transl) [Article in French] *Recherche Européenne en Toxicologie* **3**(4):175-178.
- <sup>18</sup> Kahatano, J. M. J., Mnali, S. R. and Akagi, H. (1998) A Study of Mercury Levels in Fish and Humans in Mwakitolyo Mine and Mwanza Town in the Lake Victoria Goldfields, Tanzania. - In: Lars Landner (ed.): Small-Scale Mining in African Countries. Proceedings of an International Conference/Workshop 29th September – 1st October, 1997 Dar es Salaam, Tanzania.
- <sup>19</sup> Glahder, C.M., Appel, P.W.U., and Asmund, G. (1999) Mercury in Soap In Tanzania. NERI Technical Report No. 306, National Environmental Research Institute, Ministry of Environment and Energy, Denmark.
- <sup>20</sup> World Health Organization (1991), Environmental Health Criteria 118: Inorganic Mercury. Geneva, WHO.
- <sup>21</sup> Kahatano et al. (1998); see Note 18, above.
- <sup>22</sup> Sin and Tsang (2003); see Note 2, above.
- <sup>23</sup> Luderschmidt and Plewig (1979), see Note 16, above.
- <sup>24</sup> Olumide, Y.M., Oduwono, B.D., and Odiase, A.O. (1991) Regional dermatoses in the African. Part 1. Facial hypermelanosis. *International Journal of Dermatology* **30**(3):186-189.
- <sup>25</sup> Ibid.
- <sup>26</sup> Mahé, A., et al. (2003) Skin diseases associated with the cosmetic use of bleaching products in women from Dakar, Senegal. *British Journal of Dermatology* **148**(3):493-500
- <sup>27</sup> Li, S.J., et al. (2010) Mercury-induced membranous nephropathy: clinical and pathological features. *Clinical Journal of the American Society of Nephrology* **5**(3):439-444.
- <sup>28</sup> Tang, H.L., et al. (2006) Minimal change disease following exposure to mercury-containing skin lightening cream. *Hong Kong Medical Journal* **12**(4):316-318.
- <sup>29</sup> Oliveira, D.B., et al. (1987) Membranous nephropathy caused by mercury-containing skin lightening cream. *Postgraduate Medical Journal* **63**(738):303-304.
- <sup>30</sup> Harada, M., et al. (2001) Wide use of skin-lightening soap may cause mercury poisoning in Kenya. *Science of the Total Environment* **269**:183-187.
- <sup>31</sup> Luderschmidt and Plewig (1979), see Note 16, above.
- <sup>32</sup> Sin and Tsang (2003); see Note 2, above.
- <sup>33</sup> See for example Zero Mercury Working Group (2009) Mercury in fish: A global health hazard. Available at: <http://mercurypolicy.org/wp-content/uploads/2009/02/MercuryInFishFullReportFinal021009.pdf>.
- <sup>34</sup> Bose-O'Reilly, S., et al. (2008) Mercury in breast milk—a health hazard for infants in gold mining areas? *International Journal of Hygiene and Environmental Health* **211**:615-623.
- <sup>35</sup> For references, see Zero Mercury Working Group report, cited in Note 56, above.
- <sup>36</sup> United Nations Environment Programme (2008) Mercury in Products and Wastes. Available at: [http://www.chem.unep.ch/mercury/awareness\\_raising\\_package/C\\_01-24\\_BD.pdf](http://www.chem.unep.ch/mercury/awareness_raising_package/C_01-24_BD.pdf).
- <sup>37</sup> Rukmantara, A. (2006) Risky cosmetics still on store shelves. The Jakarta *Post*, April 15. See: <http://www.accessmylibrary.com/article-1G1-144915471/risky-cosmetics-still-store.html>.
- <sup>38</sup> See [http://www.chem.unep.ch/mercury/awareness\\_raising\\_package/default.htm](http://www.chem.unep.ch/mercury/awareness_raising_package/default.htm).
- <sup>39</sup> Zero Mercury Working Group (2010) ZMWG proposed partial conceptual text for a global mercury treaty. March 2010 working draft. See pages 6-7 and Annex B of the draft, available at: [http://www.zeromercury.org/UNEP\\_developments/Hg\\_Treaty\\_ZMWG\\_Working\\_Draft\\_Conceptual\\_Text\\_March\\_2010\\_Working\\_Draft-final.pdf](http://www.zeromercury.org/UNEP_developments/Hg_Treaty_ZMWG_Working_Draft_Conceptual_Text_March_2010_Working_Draft-final.pdf).
- <sup>40</sup> Ibid. For the list of products, see <http://www.whiterskin.com/banned.html>.
- <sup>41</sup> UNEP (2008), See Note 38 above; page 10.
- <sup>42</sup> Ibid., page 11.
- <sup>43</sup> Federal Register Notice, <http://www.fda.gov/ohrms/dockets/dockets/78n0065/78N-0065-EC515-Attach-1.pdf>.
- <sup>44</sup> New York City Department of Health and Mental Hygiene (2005). NYC Health Dept. warns against use of "skin lightening" creams containing mercury or similar products which do not list ingredients. Press release, January 27. See <http://www.nyc.gov/html/doh/html/pr/pr008-05.shtml>.
- <sup>45</sup> Gabler, E. and Roe, S. (2010), Some skin whitening creams contain toxic mercury, testing finds. Chicago *Tribune*, May 18, 2010. See: [http://articles.chicagotribune.com/2010-05-18/health/ct-met-mercury-skin-creams-20100518\\_1\\_skin-lightening-creams-mercury-testing](http://articles.chicagotribune.com/2010-05-18/health/ct-met-mercury-skin-creams-20100518_1_skin-lightening-creams-mercury-testing).