

Briefs about Mercury in Skin Lightening products:

1. Mercury Health Adverse Effects:

Mercury is considered by WHO as one of the top ten chemicals or groups of chemicals of major public health concern. According to WHO report entitled Mercury in Skin Lightening products:

“A study conducted by the Zero Mercury Group in 2017 and 2018 collected 338 samples of skin lightening creams from 22 countries in both formal and informal markets to identify the frequency and concentrations where mercury is used as an active ingredient in skin lightening creams worldwide. Thirty-four creams (10% of the samples) were found to have high mercury levels, i.e. above 1 ppm. These high mercury samples were found in seven of the 22 countries. Of these seven countries, four had requirements prohibiting more than 1 ppm mercury content. Overall, the mercury concentrations in these particular products ranged from 93 ppm to over 16 000 ppm. Other studies have found even higher concentrations of mercury in skin lightening products” ([Mercury in skin lightening products \(who.int\)](#)).

In addition the report of the WHO states the Adverse health effects of the inorganic mercury contained in skin lightening creams and soaps to include: “kidney damage, skin rashes, skin discolouration and scarring, reduction in the skin’s resistance to bacterial and fungal infections,

anxiety, depression, psychosis and peripheral neuropathy” ([Mercury in skin lightening products \(who.int\)](#)).

The WHO states that: “The medical literature reports specific instances of individuals suffering from the aforementioned health effects following exposure to mercury through skin lightening creams and soaps. One case report describes a 34-year-old Chinese woman who developed nephrotic syndrome, a condition marked by high levels of protein in the urine. The mercury levels in the woman’s blood and urine returned to normal one month and nine months, respectively, after she stopped using the skin lightening cream. Another case report describes a 54-year-old woman with an onset of dementia, epilepsy and peripheral polyneuropathy at the age of 49 ([Mercury in skin lightening products \(who.int\)](#)).

The WHO reports also states that: “One study revealed a large proportion of nephrotic syndrome among African women using ammoniated mercuric chloride–containing skin lightening creams for periods ranging from one month to three years. After cessation of mercury-containing skin lightening creams, urine mercury levels rapidly fell to within the unexposed range. In addition the WHO warn that: “Mercury in soaps, creams and other cosmetic products is eventually discharged into waste water. The mercury then enters the environment, where it becomes methylated and can enter the food chain as highly toxic methylmercury in fish. Pregnant women can transfer the mercury to their fetuses, which can

result in neurodevelopmental deficits in the children” ([Mercury in skin lightening products \(who.int\)](#)).

The US FDA also in its website reminded consumers of adverse health effects and states that “Exposure to mercury can have serious health consequences. The danger isn’t just to people who use mercury-containing products but also to their families, says Arthur Simone, M.D., a senior medical advisor at FDA. “Your family might breathe mercury vapors released from these products. Your children might touch washcloths or towels that are contaminated with mercury. It could be as simple as touching someone’s cheek or face,” Simone says. Some people – including pregnant women, nursing babies and young children – are especially vulnerable to mercury toxicity, he adds. Babies may be particularly sensitive to the harm mercury can cause to their developing brains and nervous systems. Newborns who nurse are vulnerable because mercury is passed into breast milk” ([Mercury Poisoning Linked to Skin Products | FDA](#)).

In addition, a report published presented several cases of mercury poisoning among three Mexican-American families in California from use of mercury-containing skin creams. *Summary of these Cases:*

“In 2014, following two hospitalizations, a 20-month-old was diagnosed with mercury poisoning. The baby exhibited hypertension, refusal to walk, irritability, difficulty sleeping, and required a nasogastric feeding tube for poor appetite. The baby’s mother used an artisanal

skin-lightening cream from Mexico. The baby's mercury urine level was 52 µg/g creatinine and the most likely exposure route was through physical contact with the mother or from contact with contaminated household items. Many of the family's personal belongings were discarded because of mercury contamination. The cream used by the mother was subsequently tested by the California Department of Public Health (CDPH) Food and Drug Laboratory and found to contain 38,000 ppm of mercury. As a result of media outreach and contact tracing of other people known to use the cream, five other contaminated households were identified. Eleven out of 24 people tested in these households had elevated urine mercury levels; of those, five were cream users and six were not cream-users.

In 2013, a 17-year-old was admitted to a pediatric intensive care unit and remained hospitalized for almost a month after using a non-commercial, artisanal cream from Mexico for acne. His symptoms progressed rapidly from weakness in his legs to involuntary muscle twitching. Later he developed severe back pain, diffuse and visible muscle twitching of the extremities, tongue, and lips, unsteady gait, delirium, agitation, sleep disturbances, profuse sweating, persistent tachycardia, and hypertension. After two weeks in the hospital, the adolescent's mercury urine level was tested and found to be 144 µg/g creatinine from a spot urine and 208 µg/g creatinine from a 24-h urine. At this point, a diagnosis of mercury poisoning was determined and chelation therapy initiated. He had only been using the acne cream twice

a day for about six weeks before the onset of symptoms. Eleven family members were found to have elevated mercury levels and almost all furniture and personal belongings in the home were discarded as hazardous waste. The creams were later tested by CDPH and found to contain between 96,000 ppm to 210,000 ppm of mercury.

In 2010, a 39-year-old woman and her four-year-old child were found to have elevated urine mercury levels after participating in a health study. The woman had 482 µg/g creatinine of mercury in urine and the four-year-old child had 107 µg/g creatinine. A clinical examination showed that the woman experienced mild to moderate symptoms of mercury toxicity, including numbness and tingling in her hands and lips, dizziness, forgetfulness, headaches, depression, irritability, and anxiety. The four-year-old appeared to be developing normally with no clinical symptoms of mercury toxicity. The woman had used an artisanal skin-lightening cream from Mexico for three years to fade freckles and age spots but her child did not use the cream. An additional 21 friends and family were assessed for mercury poisoning and five homes were inspected for contamination. The creams used were found to contain between 20,000 ppm and 57,000 ppm of mercury” (Ref: Copan, L.; Fowles, J.; Barreau, T.; McGee, N. Mercury Toxicity and Contamination of Households from the Use of Skin Creams Adulterated with Mercurous Chloride (Calomel). *Int. J. Environ. Res. Public Health* **2015**, *12*, 10943-10954. <https://doi.org/10.3390/ijerph120910943>)

A Table summarizes all the reported health effects of exposure to mercury containing skin lightening products is available in the following publication: Al-Saleh I. Potential health consequences of applying mercury-containing skin-lightening creams during pregnancy and lactation periods. Int J Hyg Environ Health. 2016 Jul;219(4-5):468-74. doi: 10.1016/j.ijheh.2016.03.002. Epub 2016 Mar 14. PMID: 27009692.

2. Brief about Regulations worldwide:

The US Food and Drug Administration (US FDA) recently stated that skin-lightening creams should contain no more than a trace amount of mercury, less than 1 ppm, as unavoidable impurities under the conditions of good manufacturing practice (US FDA, 2011).

Kenya, Mexico, and Brazil have instituted labeling systems to inform the public about the limits of mercury in skin-lightening products, and Russia has banned their sale.

The Philippines Food and Drug Administration (FDA) has banned 70 skin-lightening creams containing more than the allowable limit of 1 ppm mercury since January 2010 (<http://www.cosmeticsdesign-europe.com/Regulation-Safety/Philippines-FDAupdates-list-of-banned-mercury-laden-cosmetics>). A European Union Directive banned the use of mercury as an ingredient in cosmetics, including skin-lightening products (EC, 2009).