



Dangerous, mercury-laden and often illegal skin-lightening products

Readily available for (online) purchase



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Executive Summary

It is an uncomfortable truth that colorism is still pervasive worldwide. In communities of color, beauty standards based on the racist notion that lighter skin is more desirable still hold power. In the quest for lighter skin, many people of color turn to skin lightening products and by choosing some of the least expensive products, unwittingly expose themselves to more toxic and illegal substances.

By the end of 2020, the Minamata Convention on Mercury requires each Party to ban the manufacture, import or export of cosmetics containing over 1 ppm mercury, by taking appropriate measures. On the other hand, the massive growth of online retail is creating an enormous challenge for governments attempting to keep dangerous, toxic and often illegal products out of consumers' hands.

Extensive testing by the Zero Mercury Working Group (ZMWG) again confirms that local markets and also internet platforms such as Amazon and eBay (along with many other online internet marketers worldwide), are selling toxic, dangerous and often illegal skin lighteners that have been already identified by many governments around the world as over the legal limit. Further, e-commerce giants have failed to ensure that cosmetics sold through their sites directly or by third-party sellers are free of toxic and illegal substances like mercury.

In this study, the collection of samples was carried out by non-governmental organization (NGO) partners of the ZMWG^a. 158 samples (mainly creams, two serums and two soaps) were bought from both physical shops and large and frequently used e-commerce platforms in the 12 countries^b participating in the study. After testing, 95 of them, therefore 60%, were found to violate the limit of one part per million (ppm) of mercury that many countries have fixed as a legal limit.

For those products found to have mercury levels over 1 ppm, their contents ranged from 40 ppm to over 130,000 ppm. Most creams were analyzed with X-ray fluorescence (XRF), but 47 were analyzed by accredited labs using Atomic Absorption Spectroscopy. Nine creams (or 9.5%) had mercury contents exceeding 100 000 times the allowed limit according to the Minamata Convention. Sixty-five of the non-compliant creams (or 68%) were bought online.

While many of these non-compliant creams were identified in our prior 2018 ZMWG testing report last year, our testing confirms that the same brands are still available and being sold in several countries, and/or are available to them from e-commerce platforms. This study also showed that the same brands were found to contain high mercury levels on several consecutive sampling occasions, in different years, in both physical shops and via e-commerce platforms. In addition to previously identified high-mercury brands, 20 additional were found in the 2019 sampling round.

Based on the information from the packaging, most of the high-mercury products tested were manufactured in Asia, especially in Pakistan (62%), Thailand (19%) and China (13%). However, it's important to note that the study did not test products from Latin America.

^a Ban Toxics (BT), the Philippines; Bio Visio Africa (BIVA), Uganda; Centre Africain pour la Santé Environnementale (CASE), Côte d'Ivoire; Centre for Environment, Justice and Development (CEJAD), Kenya; European Environmental Bureau (EEB), the European Union; Environment and Social Development Organization (ESDO), Bangladesh; groundwork South Africa (gW), South Africa; Mercury Policy Project (MPP), USA; Sustainable Research And Action For Environmental Development (SRADev), Nigeria; Toxics Link (TL), India.

^b Bangladesh, Djibouti, European Union (EU) (the member states Belgium and UK), India, Côte d'Ivoire, Kenya, Nigeria, the Philippines, South Africa, the United States of America (USA) and Uganda.

The following table summarizes the product name of each high mercury skin-lightening cream analyzed, the countries where the products were purchased from and the concentration range in parts per million mercury.

Skin-lightening products with mercury content exceeding one ppm

Product name	Countries where purchased	Concentration range (ppm mercury)
Aneeza Gold Beauty Cream	Djibouti, India, Nigeria, Philippines	17,086 – 54,653
Chandni Whitening Cream	Bangladesh, Djibouti, EU, India, Kenya, South Africa, USA	0 – 102,233
Due Whitening Beauty Cream	Bangladesh, India, South Africa, USA	0 – 92,530
Erna Whitening Cream	Philippines	4,560
Face Fresh	Bangladesh, South Africa, USA	1,214 – 12,385
Faiza Beauty Cream	Bangladesh, Djibouti, India, the Côte d'Ivoire, Kenya, South Africa, Uganda	0 – 21,407
Golden Pearl Beauty Cream	Bangladesh, EU, India, South Africa, USA	0 – 73,953
Goree Day and Night Whitening Cream	Bangladesh, India, Philippines, South Africa	47 – 131,567
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Bangladesh, EU, India, Philippines, South Africa, USA	46 – 130, 667
Goree Whitening Soap	South Africa	32,505
JiaoBi Whitening set	EU	15,404 - 20,813
Jiaoli Miraculous Cream set	Bangladesh, EU, India, Philippines	585 – 18,877
Jiaoli Speckle Dispelling & Whitening Cream	Nigeria	1,154
Jiaoli Cream Jaoe whitening Yan Ying, set	USA	1,800
JJJ Magical Spot Removing Cream	Philippines	7,777
Jolié Beauty Cream	Djibouti	9,871
Kim Whitening Ginseng and Pearl Cream	Bangladesh, USA	8,600 – 17,417
Kim Whitening Pearl and Snow Lotus Cream	Bangladesh, India, Nigeria; USA	2,584 – 100,500
NOOR Herbal Beauty Cream	Djibouti	17,669
Palmer's Skin Success Fade Milk	Côte d'Ivoire	14,121
Parley Beauty Cream	Uganda	15,985
Parley Goldie Pearl Shine	Djibouti	19,242

Parley Herbal Whitening Cream	Bangladesh, India	113,833 – 116,600
RDL Cream	Philippines	49
POP Popular Facial Cream Whitening Acne Pimple	Bangladesh, EU, India, Philippines, Uganda, USA	0 - 60
Sandal Whitening Beauty Cream	Bangladesh, India, South Africa, USA	26,321 – 100,567
Stillman's Skin Bleach Cream	Bangladesh, India, South Africa	0 - 63
Temulawak Beauty Whitening Cream	Bangladesh, Nigeria, USA	1 – 32,670
White Rose Whitening Cream	EU, India, USA	0 – 48,840
White Rose Whitening Cream (super Gold Caviar)	EU	6,188

Non-compliant creams are not only widely available, but the same brands are often found to be sold in several countries or are available via e-commerce platforms accessible from multiple countries. The study also shows that the same brands were found to contain high mercury levels on several consecutive sampling occasions, in different years, and purchased from both physical shops and via e-commerce platforms. In addition to previously identified high-mercury brands, 20 additional such products were found in the 2019 sampling round.

The following table lists the countries in which our NGO partners purchased skin-lightening products for this study and provides the names of the internet marketers from which the products were purchased, as well as the range of mercury detected in the products purchase from the internet marketers.

NGO Purchasing Products	Country	Internet Platform Products Were Purchased from	Range of mercury in the tested products (ppm)
ESDO	Bangladesh	Daraz (www.daraz.com.bd)	9344.33 - 116,600
EEB	United Kingdom	Amazon UK (www.amazon.co.uk/)	0.00 -11,928.00
EEB	Belgium	eBay Belgium (www.ebay.be/)	0.00 – 20, 813.00
Toxics Link	India	Amazon, India (www.amazon.in)	46.95 – 113, 833.33
Toxics Link	India	Flipkart, India (https://www.flipkart.com/).	62.53
CEJAD	Kenya	Jumia, Kenya (www.jumia.co.ke)	0,00 - 11,313.18
SRADev	Nigeria	Jumia, Nigeria (https://www.jumia.com.ng)	0.00 - 20,598.76
SRADev	Nigeria	Nigeria - Jiji, (https://www.jiji.ng),	0.00 - 2584.46
SRADev	Nigeria	Nigeria - Konga (www.konga.com)	0.00
Ban Toxics	Philippines	Lazada, Philippines (www.lazada.com.ph)	47.98 - 131,566.67
groundWorks	South Africa	South Africa - BidorBuy (www.bidorbuy.co.za)	0.00 – 33,082.92
MPP	United States	U.S.- eBay, USA (www.ebay.com)	0.00 – 23,000.00
MPP	United States	U.S. - Amazon (www.amazon.com/)	3400 – 26,000.00

Online purchases were made from popular domestic and international e-commerce platforms. Nineteen of the products exceeding the 1 ppm mercury limit came from the U.S. global e-commerce platform Amazon, and seventeen from the U.S. global e-commerce platform eBay. In South Africa, ten non-compliant products were bought from BidorBuy. Seven non-compliant products were from Lazada, the largest e-commerce platform in South East Asia (Singapore) ¹, based on monthly web visits. Daraz is a Chinese owned e-commerce platform that operates in South Asia. Six of the non-compliant products came from Daraz. Both Lazada and Daraz are affiliated with the Chinese global e-commerce platform Alibaba. Jumia and Jiji are Nigerian-owned e-commerce platforms of regional significance in Africa. One non-compliant product came from the Indian-owned Flipkart e-commerce platform.

E-commerce further complicates the implementation of legislation, and associated inspections and sanctions for non-compliance. Unclear division of liabilities exist in the e-commerce supply chain. Therefore, coordinated compliance mechanisms are needed at the local, national, regional and global levels to target their removal from commerce before they are sold to consumers.

Our study clearly shows that skin-lightening creams with more than 1 ppm mercury are still widely available in the markets of several of the countries, although the 1 ppm limit is adopted into their national legislation.

In summary, adopting conforming legislation to fulfil the Convention's 1 ppm limit for mercury is just the first step, since many countries that already have adopted that limit for mercury in cosmetics are still experiencing an enormous and growing influx of illegal cosmetics. For more examples of policy instruments relevant to enforcement, inspections and sanctions, see: ZMWG report: Enforcement measures to restrict high mercury cosmetic products under the Minamata Convention^c.

^c Report can be found at <https://www.zeromercury.org/mercury-added-skin-lightening-creams-campaign/>

1 Introduction

1.1 Background and aim

At the end of 2020, cosmetics containing more than one part per million (1 ppm or 1 µg/g) will no longer be legal in countries where Parties to the Minamata Convention have adopted national laws or regulations.²

Mercury has long been used as a skin-lightening active agent in creams and soaps but can also be found in the form of preservatives in some specific categories of cosmetics, such as in eyeliners. The former function is of particular concern, especially as the market for skin-lightening products continues to soar worldwide where people of color try to lighten their complexion.³

Mercury is highly toxic and is a hazard to users of skin-lightening products,^{4, 5, 6} as well as to their families because the home environment can also become contaminated.^{7, 8} Furthermore, mercury in cosmetics is released to the environment as products are rinsed off, and mercury can also evaporate from the products and contaminate indoor air.

In 2017 and 2018, the Zero Mercury Working Group (ZMWG) conducted an international survey collecting and then analyzing 338 skin-lightening products from 22 countries. 34 creams (10% of the samples) had mercury concentrations ranging from 93 to 16,353 parts per million (ppm).⁹ In some countries the percentage of sampled creams exceeding the 1 ppm limit for mercury was especially high, peaking at 63% in Thailand.

Follow-up investigations in 2018 showed that several creams, including some previously identified with especially high mercury content, were still available from internet sales platforms, despite already being targeted in national alert or detention lists. In addition, in 2019, we compiled a listing of additional products already identified by governments as high mercury and also targeted those brands for testing.

As described in this report, our follow up investigations confirmed that high mercury and often illegal skin-lightening creams were still widely available and offered for sale by multiple internet marketers around the globe.

As in past studies, we also looked at the availability of high-mercury creams in local markets. It should be noted that the creams analyzed here were not random samples, but rather creams that were targeted due to previous evidence or suspicions of excessive mercury content.

In particular, the structure of e-sales platforms adds to the complexity of such an investigation. Products that are banned in a country or region where compliance controls are relatively efficient may still be available to the same buyers over the Internet. This report, therefore, helps to inform the authorities about how this particular market is structured, and includes recommendations on how to identify and deal with unacceptable and often illegal levels of mercury in skin-lightening creams.

2 Sampling and analysis

2.1 Sampling process

In preparation for the study, an initial list of skin-lightening creams known to be “high-mercury” products was compiled. The 2017-2018 ZMWG report was one source, in combination with a number of government alert or detention lists collected online, or from partner organizations participating in sample collection. This list is presented in Annex A. The collection of samples was

carried out by non-governmental organization (NGO) members of the ZMWG^d, from 12 countries^e, with instructions for sampling and handling the creams according to the protocol described in Annex B. Each NGO partner was further asked to check whether their country had a national detention or alert list; the products on these lists were also considered for purchasing, both from the local markets and national/regional e-platforms. The full list of purchased creams can be found in Annex C.

The screening of the purchased samples was carried out with an X-ray fluorescence (XRF) spectrometer or analyzer by our two regional hubs: CASE in Côte d'Ivoire (for Africa), and Ban Toxics in the Philippines (for Asia). A Niton XL3t-970 GOLDD+ Analyzer SDD XRF and an Olympus Innov-X Delta Professional DS 2000 XRF were used respectively by the hubs for screening the collected samples for mercury content, as per the screening protocol described in Annex D. These screening results were not independently checked by a certified laboratory since our 2018 study had previously demonstrated that for high-mercury XRF readings, subsequent laboratory analysis confirmed that the concentrations were of the same order of magnitude.

In parallel, samples purchased from the internet in the European Union (EU) and in the United States (US) were sent directly for lab analysis using:

- Cold Vapor Atomic Absorption Spectroscopy by Enthalpy Analytical, an accredited US-based lab, for the US samples, and
- Hydride Atomic Absorption Spectroscopy, by Quality Assurance & Control Systems (QACS laboratory), an accredited laboratory based in Greece, for the EU samples.

For further information about Atomic Absorption Spectroscopy, the test protocol used by the QACS Laboratory is presented in Annex E and the test protocol used by the Enthalpy lab in Annex F.

2.2 Results of analysis

158 samples (mainly creams, but also including two serums and three soaps) were collected by NGOs in 12 countries: Bangladesh (16); Belgium (18); Djibouti (18), India (17); Côte d'Ivoire (5); Kenya (13); Nigeria (9); the Philippines (11); South Africa (11); Uganda (11); the United Kingdom (UK) (5) and the USA (24). These are listed in Annex E, in which Belgium and the UK are combined under the EU heading. The raw data (brand name and mercury concentration) are presented in Annex G.

Some creams were of the same brand even though they were purchased in different countries and shops, or purchased through different internet platforms.

2.2.1 Mercury content of creams

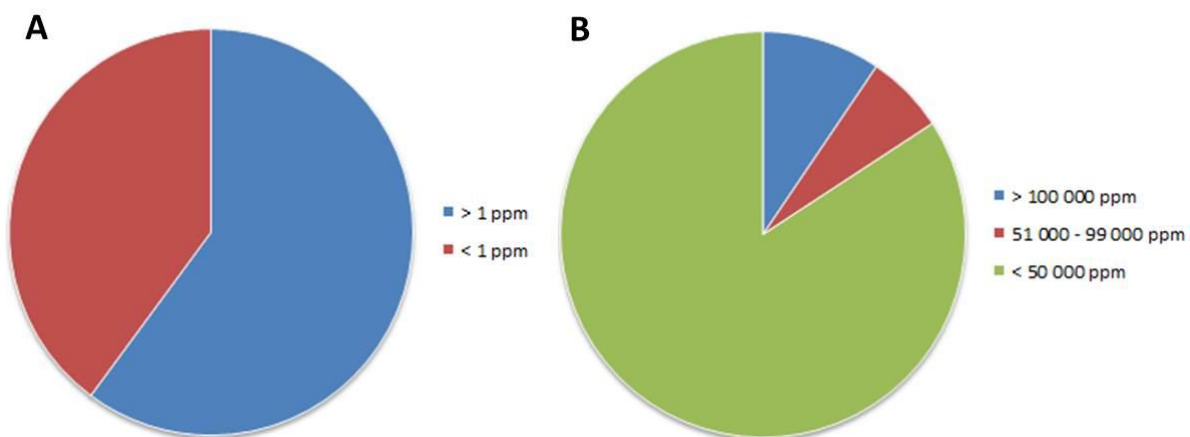
Analysis of these samples confirmed that 95 of the 158 products purchased (or ordered) from the 12 different countries contained more than 1 ppm mercury. This corresponds to 60% of the samples. Moreover, 65 of the 95 creams (68%) containing more than 1 ppm mercury were bought online, as summarized in Figure 1A and the table in Annex H.

In assessing the extent of the hazard presented by these creams, Annex H also shows that nine of the creams exceeding 1 ppm mercury had more than 100,000 ppm mercury, which

^d Ban Toxics (BT), the Philippines; Bio Visio Africa (BIVA), Uganda; Centre Africain pour la Santé Environnementale (CASE), Côte d'Ivoire; Centre for Environment, Justice and Development (CEJAD), Kenya; European Environmental Bureau (EEB), the European Union; Environment and Social Development Organization (ESDO), Bangladesh; groundwork South Africa (gW), South Africa; Mercury Policy Project (MPP), USA; Sustainable Research And Action For Environmental Development (SRADev), Nigeria; Toxics Link (TL), India.

^e Bangladesh, Djibouti, European Union (EU) (the member states Belgium and UK), India, Côte d'Ivoire, Kenya, Nigeria, the Philippines, South Africa, the United States of America (USA) and Uganda).

corresponds to roughly 9.5% of the samples; six had between 50,000 and 100,000 ppm mercury, which corresponds to roughly 6.3% of the samples; and 80 of these creams, or 84.0 % of the samples, had less than 50,000 ppm but more than 1 ppm mercury, as summarized in Figure 1 B.



Figures 1 A and B: Pie chart A shows the share of creams below (39.9%) and above 1 ppm mercury (60.1%) in the data set of 158 products. Pie chart B shows high-mercury creams (≥ 1 ppm) (in total 95). 9.5 % of the samples had a mercury content exceeding 100,000 ppm, 6.3% between 51,000 and 99,000 ppm, and 84.2 % less than 50,000 ppm but more than the Minamata Convention 1 ppm limit.

2.2.2 Sources of high-mercury creams

It is also evident from Annex H that the preponderance of the creams with excessive mercury appear to be manufactured in Pakistan and Thailand, followed by China. Based on information on the packaging, 59 of the high-mercury products were manufactured in Pakistan (62%); 18 in Thailand (19%); 12 in China (13 %); 2 in Malaysia (2 %); 1 in the Philippines (1%); 1 in the USA (1%); and 3 (2 %) had no indication of origin, as summarized in Figure 2.

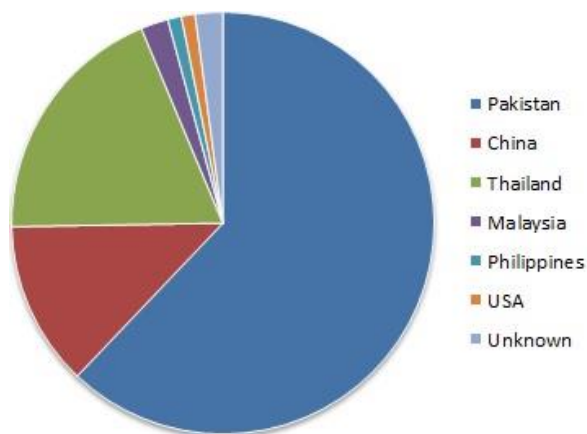


Figure 2: Countries apparently manufacturing high-mercury (above 1 ppm) skin-lightening creams, from indications on the packaging.

However, it's important to point out that the current study did not collect for testing skin lightening cream from Latin America.

2.2.3 Common brands of high-mercury creams

Annex H presents all products that were found to have a high mercury content, and their concentration. The more common high-mercury products, available in several countries, and the concentration ranges are shown in

Table 1: Product name, countries where available in physical shops or can be ordered online, and range of mercury concentration

Product name	Countries where purchased	Concentration range (ppm mercury)
Aneeza Gold Beauty Cream	Djibouti, India, Nigeria, Philippines	17,086 – 54,653
Chandni Whitening Cream	Bangladesh, Djibouti, EU, India, Kenya, South Africa, USA	0 – 102,233
Due Whitening Beauty Cream	Bangladesh, India, South Africa, USA	0 – 92,530
Face Fresh	Bangladesh, South Africa, USA	1,214 – 12,385
Faiza Beauty Cream	Bangladesh, Djibouti, India, the Côte d'Ivoire, Kenya, South Africa, Uganda	0 – 21,407
Golden Pearl Beauty Cream	Bangladesh, EU, India, South Africa, USA	0 – 73,953
Goree Day and Night Whitening Cream	Bangladesh, India, Philippines, South Africa, USA	47 – 131,567
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Bangladesh, EU, India, Nigeria, Philippines, South Africa, USA	46 – 130,667
Jiaoli Miraculous Cream set	Bangladesh, EU, India, Philippines	585 – 18,877
Kim Whitening Ginseng and Pearl Cream	Bangladesh, USA	8,600 – 17,417
Kim Whitening Pearl and Snow Lotus Cream	Bangladesh, India, Nigeria; USA	2,584 – 100,500
Parley Herbal Whitening Cream	Bangladesh, India	113,833 – 116,600
POP Popular Facial Cream Whitening Acne Pimple	Bangladesh, EU, India, Philippines, Uganda, USA	0 - 60
Sandal Whitening Beauty Cream	Bangladesh, India, South Africa, USA	26,321 – 100,567
Stillman's Skin Bleach Cream	Bangladesh, India, South Africa	0 - 63
Temulawak Beauty Whitening Cream	Bangladesh, Nigeria, USA	1 – 32,670
White Rose Whitening Cream	EU, India, USA	0 – 48,840

below.

Table 1: Product name, countries where available in physical shops or can be ordered online, and range of mercury concentration

Product name	Countries where purchased	Concentration range (ppm mercury)
Aneeza Gold Beauty Cream	Djibouti, India, Nigeria, Philippines	17,086 – 54,653
Chandni Whitening Cream	Bangladesh, Djibouti, EU, India, Kenya, South Africa, USA	0 – 102,233
Due Whitening Beauty Cream	Bangladesh, India, South Africa, USA	0 – 92,530
Face Fresh	Bangladesh, South Africa, USA	1,214 – 12,385
Faiza Beauty Cream	Bangladesh, Djibouti, India, the Côte d'Ivoire, Kenya, South Africa, Uganda	0 – 21,407
Golden Pearl Beauty Cream	Bangladesh, EU, India, South Africa, USA	0 – 73,953
Goree Day and Night Whitening Cream	Bangladesh, India, Philippines, South Africa, USA	47 – 131,567

Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Bangladesh, EU, India, Nigeria, Philippines, South Africa, USA	46 - 130,667
Jiaoli Miraculous Cream set	Bangladesh, EU, India, Philippines	585 - 18,877
Kim Whitening Ginseng and Pearl Cream	Bangladesh, USA	8,600 - 17,417
Kim Whitening Pearl and Snow Lotus Cream	Bangladesh, India, Nigeria; USA	2,584 - 100,500
Parley Herbal Whitening Cream	Bangladesh, India	113,833 - 116,600
POP Popular Facial Cream Whitening Acne Pimple	Bangladesh, EU, India, Philippines, Uganda, USA	0 - 60
Sandal Whitening Beauty Cream	Bangladesh, India, South Africa, USA	26,321 - 100,567
Stillman's Skin Bleach Cream	Bangladesh, India, South Africa	0 - 63
Temulawak Beauty Whitening Cream	Bangladesh, Nigeria, USA	1 - 32,670
White Rose Whitening Cream	EU, India, USA	0 - 48,840

2.2.4 E-platforms found to be selling high mercury creams

Online purchases were made from popular domestic and international e-commerce platforms. Beyond the well know Amazon and eBay, after our investigation, other frequently used platforms came to our attention.

The following table lists the countries in which the ZMWG NGO members^f purchased skin-lightening products for this study, and provides the names and websites of the internet marketers from which the products were purchased.

Table 2: NGO, country of purchase internet platforms

Non-governmental Organization Purchasing Products	Country	Internet Platform Products Were Purchased from
Environment and Social Development Organization (ESDO)	Bangladesh	Daraz (www.daraz.com.bd)
European Environmental Bureau (EEB)	United Kingdom	Amazon UK (www.amazon.co.uk/)
EEB	Belgium	e-bay Belgium (www.ebay.be/)
Toxics Link (TL)	India	Amazon, India (www.amazon.in)
Centre for Environment, Justice and Development (CEJAD)	Kenya	Jumia, Kenya (www.jumia.co.ke)
Sustainable Research And Action For Environmental Development (SRADev)	Nigeria	Jumia, Nigeria (https://www.jumia.com.ng)
SRADev	Nigeria	Nigeria - Jiji, (https://www.jiji.ng),

^f See the full NGO names in footnote d.

SRADev	Nigeria	Nigeria - Konga (www.konga.com)
Ban Toxics	Philippines	Lazada, Philippines (www.lazada.com.ph)
groundWork	South Africa	South Africa - BidorBuy (www.bidorbuy.co.za)
Mercury Policy Project (MPP)	United States	U.S.- e-Bay, USA (www.ebay.com)
MPP	United States	U.S. - Amazon (www.amazon.com/)

2.2.5 Key distributors of high-mercury creams

Apart from the sources of production, it is also useful for the authorities to know the identities of the key distributors or intermediaries (the companies that physically posted the products after the order was placed in the e-platform) of high-mercury creams. They either ignore or are simply ignorant of the relevant international health standards, or the standards of the internet platforms that have hazardous product policies in place.

An example of the key distributors/intermediators of such creams to buyers in the EU and the US are shown in

Table 3, compiled as a result of this investigation.

Table 3: Product name, country of purchase, indicated country of origin, e-commerce platform, distributor and mercury content (ppm) for samples exceeding 1 ppm mercury, according to the postal packaging

Product name	Country of purchase	Country of origin*	E- commerce platform	Intermediator/Distributor	Mercury content (ppm)
Chandni Whitening Cream	EU	Pakistan	Amazon, UK	Pranjali Khanna – D/0 Ravindra Khanna H. No – C- 239/4 Street NO-9, Bhjan Pura, North East Delhi, India 110053	11,928
Golden Pearl Whitening Beauty Cream	EU	Pakistan	Amazon, UK	Mariyam Usamni V-222, Gali No16, Vijay Park, Maujpur, Delhi, India - 110053	10,515
Golden Pearl Whitening Beauty Cream	EU	Pakistan	eBay, Belgium	Kapil Gulati B-6009, Gaur Green City, Plot No-8, Vaibhav Khadnd Indirapuram, Ghaziabad Uttar Pradesh 201014 India	10,338
Golden Pearl Whitening Beauty Cream	EU	Pakistan	eBay, Belgium	Mariyam Usamni V-222, Gali No16, Vijay Park, Maujpur, Delhi, India - 110053	5,266
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	EU	Pakistan	eBay, Belgium	Not available	12,656
JiaoBi Whitening set, make up base	EU	China	eBay, Belgium	Geladi Jiaobao Cosmetics Co. ltd, No69 Nanyuan Edao Street,	20,813

				Ha Erbin, Heitongjiang Province, China.	
JiaoBi Whitening set, Night cream	EU	China	eBay, Belgium	Geladi Jiaobao Cosmetics Co. ltd, No69 Nanyuan Edao Street, Ha Erbin, Heitongjiang Province, China.	15,404
Jiaoli Miraculous Cream set, cream A	EU	China	eBay, Belgium	Geladi Jiaobao Cosmetics Co. ltd, No69 Nanyuan Edao Street, Ha Erbin, Heitongjiang Province, China.	585
Jiaoli Miraculous Cream set, cream B	EU	China	eBay, Belgium	Geladi Jiaobao Cosmetics Co. ltd, No69 Nanyuan Edao Street, Ha Erbin, Heitongjiang Province, China.	1,543
Pop Popular Facial Cream Whitening Acne Pimple	EU	Thailand	eBay, Belgium	SUMALEE YAWICHAI, 16 M. 7 T.Huai-Krai A.Mae-sai CR57220 Thailand	2
Pop Popular Facial Cream Whitening Acne Pimple	EU	Thailand	eBay, Belgium	SUMALEE YAWICHAI, 16 M. 7 T.Huai-Krai A.Mae-sai CR57220 Thailand	2
White Rose Whitening Cream (super Gold Caviar	EU	Thailand	eBay, Belgium	Onusa Kambuppha 429/28 Sukhumvit Road Seansuk, Mueang Chonburi 20130 Thailand	6,188
Jiaoli Cream Jaoe whitening Yan Ying, skin care set	USA	China	eBay, USA	Okeny's, HYT 208.246 Haneul-Gangseo,-GU, Seoul, Korea (HUBNET) www.alivava.com	1,800
Whitening Pearl and Snow Lotus Cream	USA	Thailand	eBay, USA	Phimshop, Phimwalan Sutthakan, 46/1 soy22, T.C, ChangPhueak, A.Mung 50300, CM, Thailand	19,000
Chandni Whitening Cream	USA	Pakistan	eBay, USA	Indianport, Tauqueer Usmani, V-22, Gali No 16, Near Shiv Sadhna Mandir, Vijay Park, Yamuna Vihar, Delhi, India	14,000
Sandal Whitening Beauty Cream	USA	Pakistan	eBay, USA	Indianport, Tauqueer Usmani, V-22, Gali No 16, Near Shiv Sadhna Mandir, Vijay Park, Yamuna Vihar, Delhi, India	21,000
Face Fresh	USA	Pakistan	eBay, USA	Blackpanther0007, Indianport, Tauqueer Usmani, V-22, Gali No 16, Near Shiv Sadhna Mandir, Vijay Park, Yamuna Vihar, Delhi, India	15,000
Goree Day and Night Whitening Cream	USA	Pakistan	eBay, USA	Indianport, Tauqueer Usmani, V-22, Gali No 16, Near Shiv Sadhna Mandir, Vijay Park, Yamuna Vihar, Delhi, India	23,000

Kim Whitening Pearl and Snow Lotus Cream	USA	Thailand	eBay, USA	Not indicated	14,000
Kim Whitening Pearl and Snow Lotus Cream	USA	Thailand	Amazon, USA	Kawaii-land, 10481 Scott Ave N, Brooklyn Park, MN 55443	16,000
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	USA	Pakistan	Amazon, USA	AFA Concept Beauty, Indiglobalshop, C 03 Sanjay Mittal Estate, AK Road Marol Andheri East, Maharashtra, India	25,000
Chandni Whitening Cream	USA	Pakistan	Amazon, USA	Triple Trading, 7301 West Gunnison St. #56935, Harwood Heights, Illinois 60706 TripleTraders.com	40,000
Whitening Ginseng and Pearl Cream	USA	Thailand	Amazon, USA	Oummshop Kunakorn, 200/156 Moo.4, T.Bangragum A.Nakornluag, Ayuthaya, Thailand 13260	8,700
Whitening Ginseng and Pearl Cream	USA	Thailand	Amazon, USA	Oummshop Kunakorn, 200/156 Moo.4, T.Bangragum A.Nakornluag, Ayuthaya, Thailand 13260	8,600
Chandni Whitening Cream	USA	Pakistan	Amazon, USA (e-commerce platform)	Bombino Express, 17715 149th Rd, Jamaica, NY 11434m http://www.bombinoexp.com/	22,000
Goree Beauty Cream	USA	Pakistan	Amazon, USA	Bombino Express, 17715 149th Rd, Jamaica, NY 11434m http://www.bombinoexp.com/	26,000
Kim Whitening Pearl and Snow Lotus Cream	USA	Thailand	Amazon, USA	Kawaii-land, 10481 Scott Ave N, Brooklyn Park, MN 55443	13,000

2.3 Discussion and recommendations

2.3.1 Discussion

In this 2019 follow-up of the study done by ZMWG in 2017-18,⁹ it is once more demonstrated that mercury is still prevalent as an ingredient in many skin -lightening creams, despite the bans in several of the study countries. 158 skin-lightening creams, from 12 countries, were bought from physical stores or from e-commerce platforms and analyzed. 95 samples were found to contain more than 1 ppm mercury. Some of the creams were the same brands as in the 2017-18 study; others were identified from a compilation of national alerts or detention lists (see Annex A).

Continued availability of non-compliant creams previously identified

Eleven of the brands identified as high-mercury creams in the ZMWG 2017-2018 study were still available on the market in 2019. Furthermore, even though the production batches analyzed in this sampling round differed from those in 2017-18, these creams are still non-compliant with the 1 ppm limit for mercury. This clearly suggests that it is not a question of unwitting or haphazard contamination, but rather that mercury is still systematically used as an active ingredient in the formulation of these creams. In addition to the 11 "repeat" brands, 20 other brands were also

found to be non-compliant. In total 60% of the samples were non-compliant, which raises serious concerns about health risks for the consumers and their families, as well as environmental risks in connection with manufacturing or discarding the creams.

Inconsistent mercury content in a single brand or batch

The mercury content of the high-mercury brands varied widely between samples, not just between different production batches but even within the same batch. This could be due to a number of factors:

1. The formulation of the products is not very precise, resulting in inconsistent formulations;
2. The mercury compound may not be evenly mixed into a batch of cream so, for example, if a jar is filled from the top of a batch, the mercury concentration could be different from that at the bottom of the batch;
3. the transport and storage conditions of the final product may result in varying rates of evaporation of mercury (being higher at higher temperatures, etc.).

No connection between the mercury content and the expiration date for a specific brand was observed. Sometimes samples with less remaining shelf life left had a higher mercury concentration than those of the same brand but with more remaining shelf life, and vice versa. This suggests that these manufacturers are making no effort to replace mercury as an active ingredient.

Annex H provides a number of examples of the observed variation in mercury content among creams of the same brand, and even from the same batch.

Mercury not listed among the contents

Mercury or mercury compounds were not listed in the ingredient lists of any of the high-mercury creams. This illustrates the serious problem that ingredient lists may not be reliable if no independent verification mechanism is in place, such as inspection measures and sanctions to discourage non-compliance. More information on this issue, and suggestions for addressing it, e.g. with a licensing system, can be found in the 2019 ZMWG companion report, "Enforcement measures to restrict high-mercury cosmetic products under the Minamata convention."¹⁰

Sources of skin-lightning products containing mercury

Based on the information from the packaging, most of the high-mercury products were manufactured in Asia, especially in Pakistan (62%), Thailand (19%) and China (12%). One claimed to be manufactured in the USA, but this seems less likely as it was the only one and may be counterfeit. It is known, for example, that China is a major producer of counterfeit products, including cosmetics, and that these products sometimes contain harmful chemicals.^{11, 12, 13} However, it's important to note that no samples were collected for testing from Latin America. Another observation along the same lines is that the White Express Cream (sold as a single product or in kits with several products) was labelled as manufactured in France for the single product (sold by eBay and Jumia), but as manufactured in India for the kits (sold by eBay and Jumia, and in shops). This again could indicate that some are counterfeit.

Greater efforts must be made to track and crack down on the manufacturers, including those that make counterfeit products. Parties to the Minamata Convention, are obliged to do what they can within their respective jurisdictions, and with international collaboration, to comply with the provisions of the convention.

Roughly 3% of the high-mercury products had no information about the country of origin on the packaging, and 32% had no batch number. Such missing information could also indicate that a product is counterfeit, as suggested by Cosmetics Europe.¹⁴

Transparency and compliance

Sixty-eight percent of the high-mercury creams detected in this study were bought from e-commerce platforms, but ordered from NGOs in countries that have already adopted the 1 ppm mercury limit in their national legislation. This illustrates the failure to ensure compliance of e-commerce products with national legislation, or with international agreements.

Apart from issues linked to bans and restrictions, like national laws and the Minamata Convention 1 ppm limit for mercury-added cosmetics starting at the end of 2020, there are also issues connected to information sharing and transparency for products bought online. For example, companies in the European Union (EU) are required to inform their customers and consumers (the latter on request) about the content of certain particularly hazardous chemicals, the so-called Substances of Very High Concern (SVHCs),⁸ in the products they manufacture. This requirement also applies to stakeholders importing products and placing them on the EU market. However, when purchases are made directly from companies based in countries outside the EU, this information obligation disappears, and there is a risk that consumers are not adequately informed about the existence of hazardous chemicals in the products.

A basic requirement for all products intended for export should be labeling on the packaging in English, at a minimum, or in the language of the importing country. However, some of the products investigated for this report lacked English information, notably Chinese and Thai products. This illustrates yet another potential issue connected to e-commerce: the lack of appropriate user information may lead to incorrect handling and use of the products, such as when dosing or discarding them, exposing consumers and the environment to unnecessary or unacceptable risks.

E-commerce, producer and distributor responsibility and liability

E-commerce is further complicated by the fact that e-commerce platforms offer and market products from many different companies from different countries without manufacturing, handling, or accepting some level of responsibility for the products themselves. A product is often not physically sourced or registered in the same country as the buyer and, consequently, therefore maybe beyond the purview of the compliance mechanism established by the national jurisdiction. Issues of unclear liability may then arise, and tracking down the original manufacturer may be hard.

Online purchases were made from popular domestic and international e-commerce platforms (see Table 2 above). Nineteen of the products found in this study to be non-compliant with the Minamata Convention 1 ppm mercury limit came from the US global e-commerce platform Amazon, and seventeen from the US global e-commerce platform eBay. In South Africa, the most popular e-commerce platform is the national BidorBuy,^{Error! Bookmark not defined.} from which ten non-compliant products were bought. The largest e-commerce platform in South East Asia, based on monthly web visits, is Lazada, a Singapore-based company.^{Error! Bookmark not defined.} 15 Seven non-compliant products were from Lazada. Daraz is a Chinese owned e-commerce platform that operates in South Asia.^{Error! Bookmark not defined.} Six of the non-compliant products in this study came from Daraz. Both Lazada and Daraz are affiliated with the Chinese global e-commerce platform Alibaba. Jumia^{Error! Bookmark not defined.} and Jiji are Nigerian-owned e-commerce platforms of regional significance in Africa. One non-compliant product came from the Indian-owned Flipkart e-commerce platform.^{Error! Bookmark not defined.}

⁸ A substance may be proposed as a “substance of very high concern” if it meets one or more of the following criteria: carcinogenic; mutagenic; toxic for reproduction; persistent, bioaccumulative, and toxic according to the criteria set out in Annex XIII to the EU’s REACH Regulation; or of equivalent concern due to neurotoxicity, endocrine disruption, etc. (<https://www.echa.europa.eu/candidate-list-table>).

In addition to e-commerce purchases, 31% of the high-mercury creams were bought from physical shops that should be subject to local regulations. Importers and retailers are responsible for offering products in compliance with the law, yet a high number of non-compliant products were found in countries where the Minamata Convention 1 ppm limit for mercury-added cosmetics is already adopted into national legislation. A small retailer may not know what kind of verification they should request from their suppliers of cosmetics, and high-mercury creams may have passed into the country without customs inspection.

General

This study was not based on randomly selected product samples, so from a statistical point of view it may not give a representative picture of the entire skin-lightening cream market. Nevertheless, it clearly confirms that there is a large and ongoing problem with skin-lightening creams in non-compliance with the Minamata Convention 1 ppm limit for mercury-added cosmetics. Furthermore, the study clearly shows that certain brands have consistently violated the 1 ppm limit over the 2017-19 sampling period, which should certainly justify that they be placed on a global alert or detention list.

All countries investigated during this study have already adopted the 1 ppm mercury limit into their national legislation, which means that many of the tested creams are illegal. After 2020, all parties to the convention must adhere to the < 1 ppm limit. If not already, they must soon be prepared to enforce these laws not only on local markets selling cosmetics with high levels of mercury, but also the e-commerce platforms with unclear liability in international trade.

2.3.2 Recommendations

This investigation clearly demonstrates that high-mercury skin lightening creams (i.e., with more than 1 ppm mercury) are both widely and continuously available (i.e., the same brands found on several consecutive sampling occasions, in different countries, and in different years) in both physical shops and via e-commerce platforms. Meanwhile, the number of internet purchases continues to grow worldwide.¹⁶ In response to this situation, implementation and enforcement becomes of major importance.

Our companion report, “**Enforcement measures to restrict high mercury cosmetics under the Minamata Convention**”¹⁰ suggests elements for improving enforcement of the Minamata Convention provisions for banning cosmetic products with mercury levels over one ppm. It also presents a field survey of the systems and strategies in eight countries where the ZMWG has member organizations.

Combined, the two reports identified a number of key measures that are important for successful implementation of the Minamata Convention provisions for controlling cosmetics containing over 1 ppm mercury, including:

- **Laws, regulations and supporting tools.** Laws and supporting policies should be enacted in line with the Minamata Convention restrictions on cosmetics. Supporting measures could include such provisions as ingredient lists, licensing systems, detention lists,¹⁷ advisories and alert systems (e.g. EU RAPEX , ASEAN PMAS).
- **Division of responsibilities and mandates.** Roles, responsibilities, mandates and decision-making processes should be clearly defined in national law for all relevant stakeholders.

- **International collaboration.** Regional and international collaboration is essential for countries with limited resources to share costs and technical expertise, e.g., for market surveillance and enforcement, information-sharing, product inspection and analysis, and training. A regional alert system, for example, can be used to rapidly share information about non-compliant products among collaborating countries. Joint units for monitoring and tracing dangerous and non-compliant products sold online can inform the customs service, as well as consumers, regarding products that may be non-compliant and take relevant measures.
- **Inspections, sanctions, penalties, voluntary agreements and screening tools.** For an enforcement scheme to be effective, there should be a system of regular inspections, sanctions and penalties for non-compliance. Customs services need access to basic monitoring equipment (e.g. XRF) and the training to effectively utilize them. Laboratory capacity for higher accuracy analytical work is also needed if legal measures are to be taken against importers.
- **Engagement with e-commerce platforms.** Channels of communication between governments and e-commerce platforms are key to inform sellers about national/regional labelling requirements, detention lists, communication means for posting alerts, etc. Effectively dealing with e-commerce, may require special measures such as voluntary agreements (e.g. EU Product Safety Pledge), or the ability to shut down web pages if other reasonable measures fail.
- **Consumer outreach and collaboration with civil society organizations (CSOs), market surveillance and testing mechanisms.** Well-informed consumers are key to combatting the marketing of toxic products. Information on the risks of certain product ingredients could be presented through health care providers, online advisories and national detention lists, along with information on how to submit complaints to the authorities. In particular, in low- and middle-income countries where scarce resources may limit the scope of the authorities, CSOs with access to reliable analytical instruments could support the authorities in the work of identifying non-compliant products.
- **Systems for sustainable financing.** Effective implementation of any international agreement requires dedicated funds. Many low- and middle-income countries still rely heavily on external funds to implement international agreements. In the long run, however, Parties will need to create conditions for raising the necessary funds in their own countries, to sustainably implement obligations required under the Minamata Convention. Industry is a potentially important partner in the “integrated approach,” and may help to unlock new funds.
- **Harmonization of implementation and enforcement mechanisms.** In the medium to long term, in support of the Minamata Convention, countries should strive for better regional and/or global harmonization of legislation, enforcement measures, standards and communication systems preventing the marketing of unsafe products. Such harmonization will simplify and facilitate enforcement, which helps to ensure a level playing field among companies acting in both the traditional and online supply chains, while at the same time reducing product related risks to consumers.

Further examples of policy instruments relevant to enforcement, inspections and sanctions may be found in the full report.

Annex A: Compilation from government or organization alert and detention lists

Table 1: Compilation of brand names for mercury-containing skin-lightening creams from various government and organization alert and detention lists.

Brunei Darussalam	
Brand names	List
Goree Beauty Cream	Brunei Darussalam list
Goree Day and Night Whitening Cream	Brunei Darussalam list
European Union	
Brand names	List
Goree Beauty Cream	RAPEX (2018)
Kenya	
Brand names	List
Pimplex Medicated Cream	Kenyan Bureau of Standards
New Shirley Medicated Cream	Kenyan Bureau of Standards
Cream preparations containing hydrogen peroxide	Kenyan Bureau of Standards
Jolen Cream	Kenyan Bureau of Standards
Movate Cream, skin success gel	Kenyan Bureau of Standards
Hot Movate Gel	Kenyan Bureau of Standards
Amira-C	Kenyan Bureau of Standards
Neu Clear Gel	Kenyan Bureau of Standards
Tenovate	Kenyan Bureau of Standards
Body Clear Cream Spot Remover	Kenyan Bureau of Standards
Top Gel Plus	Kenyan Bureau of Standards
Soft and Beautiful Cream	Kenyan Bureau of Standards
Lemonvate Cream, Secret Gel	Kenyan Bureau of Standards
TBC Gel Plus	Kenyan Bureau of Standards
Unic Clear Super Cream	Kenyan Bureau of Standards
Topifram Cream	Kenyan Bureau of Standards
Skin Balance Lemon Cream	Kenyan Bureau of Standards
Peau Claire Gel Plus	Kenyan Bureau of Standards
Fashion Fair Gel Plus	Kenyan Bureau of Standards
Visible Difference Gel	Kenyan Bureau of Standards
Sivoclair Cream	Kenyan Bureau of Standards
Action Demovate Cream	Kenyan Bureau of Standards

Regge Lemon Gel	Kenyan Bureau of Standards
Ultimate Lady Gel	Kenyan Bureau of Standards
Topifram Gel Plus	Kenyan Bureau of Standards
Age Renewal Cream	Kenyan Bureau of Standards
Fair & White Gel Plus	Kenyan Bureau of Standards
Peau Claire Cream	Kenyan Bureau of Standards
Fashion Fair Cream	Kenyan Bureau of Standards
First Class Lady Cream	Kenyan Bureau of Standards
Skin Success Cream	Kenyan Bureau of Standards
Neu Clear Cream Plus	Kenyan Bureau of Standards
Jaribu Beta-β Cream	Kenyan Bureau of Standards
Body Treat Cream Spot Remover	Kenyan Bureau of Standards
Clear & Lovely Gel, Peau Clair Cream	Kenyan Bureau of Standards
Soft & Beautiful Gel	Kenyan Bureau of Standards
Action Demovate Gel Plus	Kenyan Bureau of Standards
Posone Gel	Kenyan Bureau of Standards
Skin Balance Gel Wrinkle Remover	Kenyan Bureau of Standards
Ultra-Gel Plus	Kenyan Bureau of Standards
Pro-One Gel MCA	Kenyan Bureau of Standards
Betalemon Cream	Kenyan Bureau of Standards
Skin Blance Cream Wrinkle Remover	Kenyan Bureau of Standards
Dark & Lovely Cream	Kenyan Bureau of Standards
Dark & Lovely Gel	Kenyan Bureau of Standards
Dermo-Gel Plus	Kenyan Bureau of Standards
Pakistan	
Brand name	List
Faiza Beauty Cream	Pakistan stops production ^{18h} still sold on internet; possible case studies
Philippines	
Brand name	List
Goree Beauty Cream	Philippines Food and Drug Administration
Goree Day and Night Whitening Cream	Brunei Darussalam, Philippines Food and Drug Administration

^h Pakistan Ministry of Science and Technology has issued Technical Regulation in the form of SRO 45 (KE)/2017 PS:3228/2017, dated May 19, 2017, to regulate “skin creams” all over Pakistan through PSQCA. See more below; also see: <https://profit.pakistantoday.com.pk/2018/12/31/psqca-issues-notice-to-beauty-cream-manufacturers-over-health-concerns/>; <https://www.incpak.com/health/faiza-beauty-cream-banned-in-pakistan/>; <https://en.dailyakistan.com.pk/pakistan/popular-beauty-cream-banned-in-pakistan-over-toxic-chemical-use/>

Aneeza Gold Beauty Cream	Philippines Food and Drug Administration (unregistered product)
Golden Pearl Whitening Beauty Cream	Philippines Food and Drug Administration
Jiaoli	Philippines Food and Drug Administration
JJJ Magic Spot Removing Cream	Philippines Food and Drug Administration
Erna Whitening Cream	Philippines Food and Drug Administration
Jiaoli Miraculous Cream	Philippines Food and Drug Administration
S'Zitang	Philippine Food and Drug Administration
Deeja Cosmetic Sun Cream	Philippine Food and Drug Administration
Deeja Cosmetic Wrinkle Cream	Philippine Food and Drug Administration
RDL Babyface Whitening Cream, Night Cream 5 in 1	Philippine Food and Drug Administration
RDL Face Off Fade-Out Cream, Day Cream 5 in 1	Philippine Food and Drug Administration
B Plus Miracle Gold Cream	Philippine Food and Drug Administration
Madame Organic Withening Arbutin	Philippine Food and Drug Administration
Herbal Turmeric Herbal Cream	Philippine Food and Drug Administration
Melusma Melasma Brightening Cream	Philippine Food and Drug Administration
Beauty 3 Night Cream	Philippine Food and Drug Administration
BeQuala Beauty Quality Lab	Philippine Food and Drug Administration
Ozzy Mask	Philippine Food and Drug Administration
Polla Gold Super White Perfects	Philippine Food and Drug Administration
O-Ping Wink Winner Ping Whitening Cream	Philippine Food and Drug Administration
Myrina White Cream	Philippine Food and Drug Administration
Glow Skin White French Technology Smart Pack	Philippine Food and Drug Administration
Glow Skin White French Technology Smart Pack - SPF 50 Cream	Philippine Food and Drug Administration
Parley Beauty Cream	Philippine Food and Drug Administration
Parley Herbal Whitening Cream, Nourishing With Avocado	Philippine Food and Drug Administration
Special UV Whitening AAA Asli (SP)	Philippine Food and Drug Administration
SEERI Cosmetic Day Cream	Philippine Food and Drug Administration
SEERI Cosmetic Herbal Cream	Philippine Food and Drug Administration
Tati Ultra Night Cream	Philippine Food and Drug Administration
Deeja Wrinkle Cream	Philippine Food and Drug Administration
ROBISIS Anti-acne Whitening Day & Night Cream	Philippine Food and Drug Administration

Asdanne Whitening Freckle Day Cream	Philippine Food and Drug Administration
Fulenze Whitening Freckle Day Cream	Philippine Food and Drug Administration
Dnars Dinar Cream	Philippine Food and Drug Administration
Tati 5 in 1 Skincare New & Improved Glow of Lasting Beauty - Ultra Night Cream	Philippine Food and Drug Administration
Deeja Cosmetic Vouge Cream	Philippine Food and Drug Administration
Deeja Krim Nano Night	Philippine Food and Drug Administration
Miracle White Whitening Cream	Philippine Food and Drug Administration
Delux Beauty Ultra Lightening Cream	Philippine Food and Drug Administration
Singapore	
Brand name	List
Parley Herbal Whitening Cream	Singapore Health Science Authority (HSA)
Parley Cream	Singapore Health Science Authority (HSA)
RDL cream	Singapore Health Science Authority (HSA)
Royal Expert Whitening Cream	Singapore Health Science Authority (HSA)
Goree Beauty Cream	Singapore Health Science Authority (HSA)
Uganda	
Brand name	List
Pimplex Medicated Cream	Ugandan Bureau of Standards
New Shirley Medicated Cream	Ugandan Bureau of Standards
Maxi Claire	Ugandan Bureau of Standards
Shiny Beauty Cream	Ugandan Bureau of Standards
Top Clair Plus	Ugandan Bureau of Standards
Tamarin	Ugandan Bureau of Standards
Charms	Ugandan Bureau of Standards
Caroderm	Ugandan Bureau of Standards
Skin Light	Ugandan Bureau of Standards
Carro 7	Ugandan Bureau of Standards
L'abidjainaise	Ugandan Bureau of Standards
Rapid Clair	Ugandan Bureau of Standards
Beauty Lotion Shinny	Ugandan Bureau of Standards
Djarabi	Ugandan Bureau of Standards
Yes To	Ugandan Bureau of Standards
Bio 21 Jours	Ugandan Bureau of Standards
Bio Liss	Ugandan Bureau of Standards
Yes To Lotion	Ugandan Bureau of Standards
Bio 21 Jours	Ugandan Bureau of Standards
Bio Liss	Ugandan Bureau of Standards

Yes To Lotion	Ugandan Bureau of Standards
Caro Top Lotion	Ugandan Bureau of Standards
Top Lemon	Ugandan Bureau of Standards
Top Claire Plus	Ugandan Bureau of Standards
United Kingdom (member state of the European Union)	
Brand name	List
White Express cream	London Trading Standards
POP popular cream	London Trading Standards https://www.brandsynario.com/pakistani-beauty-brands-exposed-bbc-complete-list-toxic-fairness-creams/
United States of America	
Brand name	List
Face Fresh	New York City (2018)
Sandal Whitening Beauty Cream	New York (2018), [Manuf.- Cosmetics Pakistan]
Kim Whitening Ginseng and Pearl Cream	Minnesota, also purchased in Thailand, on internet
Kim Whitening Pearl & Snow Lotus Cream	Minnesota, also purchased in Thailand, on internet
White Rose Whitening Cream	Minnesota, also purchased in Thailand, on internet
Jiaoli	US Food and Drug Administration (?)
Zero mercury Working Group	
Brand name	List
Due Whitening Beauty Cream	On ZMWG list; purchased in Bangladesh
Temulawk Cream Beauty	ZMWG list https://www.ebay.com/itm/Temulawak-Cream-Beauty-Whitening-Cream/183677395824?hash=item2ac406a370:g:SS0AAOSwoF5cXpi9:rk:2:pf:0

Annex B: Instructions for sampling of “Terrible Twenty” skin-lightening creams (2019)



Building upon the 2017 and 2018 results in the skin-lightening project, this third round of sampling of skin lightening creams will focus on targeting skin lightening creams confirmed to contain high mercury levels, based on national alert or detention lists as well as our own results from 2017-2018.

The ultimate goal of our “Terrible Twenty” Campaign is to encourage governments to place these products on their “detention lists,” shut down any in-country production and to otherwise to end to the manufacturer, distribution and sale of these high mercury and often illegal skin lightening creams worldwide. We will do this by targeting these products for sampling and testing, and to alert governments worldwide regarding the profiteering in the toxic trade and the need for both national and global coordination to stop such illegal practices.

It is important to note that only the creams listed below in Annex A, should be purchased following the conditions below as per internet or market purchasing.

If you cannot find ANY of the listed creams, AND your country has a detention list developed by the government, please contact us, send us this list and we could check if we go after some of those ‘nationally’ identified products.

Purchases/sampling from internet

1. Check the on -line platforms that are most popular in your respective countries. They may include, but not be limited to, the large international eBay, Amazon or Alibaba.
2. If they include the large, international online platforms, look only on the relevant country page, where someone from your country would purchase from.
3. Take a screenshot of the product the day you looked for it on an e-commerce platform, so that we have definite proof that the company sold the cream/ the cream was available.
4. Proceed with purchasing, note the details of the cream (name, country of origin etc.), note the cost, product description, and send all this information to the regional hub so they know what they should expect.

Purchases /sampling from the market-place

1. Look only for the creams listed in Annex A and purchase them (even if the same brands were purchased/tested in 2017-2018; we could still check if formula/mercury content still stays the same).
2. Select creams that are not too close to their expiration dates, providing that the date is printed on the package. Old products exposed to heat may potentially have lost mercury.

Please carefully read and follow the below instructions for selecting, handling, packaging and shipping the products.

Handling and storing of the purchased products, instructions to sampling organizations and to the regional testing hubs

- 1) Do not store the purchased products in hot conditions, as this may enhance breakdown of some mercury compounds, with subsequent loss of the mercury. Try to find the coolest secure place outside the house or office, or if not possible find a secure place inside but do not store the product near food, e.g. in the fridge.
- 2) Do not remove the package materials around the products. Do not open the tube/box. They need to be delivered intact to the regional testing hubs.
- 3) Log the name of the product, the producer, the place where you bought the product (i.e. note the name of the store and address) and take photos of the product and its ingredient list (if it has a list). Please use the format of the matrix in the appendix B for logging the information.

After confirmation by the EEB, the samples are to be sent to our regional testing hubs:

Screening of mercury content is then to be done by XRF (and Lumex as relevant).

The results need to be communicated to the EEB. Creams with concentrations equaling or exceeding 1 part per million (PPM) will be sent most likely to an accredited lab for confirmatory analyses, to be confirmed later.

Appendix A:

"TERRIBLE TWENTY" TARGET LIST (draft 25 February), compiled by the ZMWG

Targeted Brands		Government detention lists	
1	Aneeza Gold Beauty Cream all type skins	Philippines FDA (unregistered product)	
2	Chandni Whitening Cream	NYC (2018),	
3	Due whitening Beauty Cream	On ZMWG list; purchased in Bangladesh,	
4	Erna Whitening Cream	Philippines FDA	
5	Face Fresh whitening cream age spots/freckles, scars	NYC (2018),	

6	Faiza Beauty Whitening Cream	Pakistan stops production ⁱ still sold on internet; possible case studies	 GENUINE FAIZA BEAUTY CREAM WORLDWIDE FREE SHIPPING.!
7	Golden Pearl Whitening Beauty Cream	Philippines FDA	
8	Goree Whitening Beauty Anti-ageing spots pimples removing Cream	RAPEX (2018), Brunei Darussalam. HSA (Singapore), Philippines FDA	
9	Goree Day and Night Skin Whitening Beauty Cream	Brunei Darussalam, Philippines FDA	
10	Jiaoli Cream Jaoc whitening Yan Ying 3 in 1 skin care set	Philippines FDA. US FDA (?)	
11	Jiaoli Miraculous Cream	Philippines FDA	
12	JJJ Magic Spot Removing Cream	Philippines FDA	
13	Kim Whitening Ginseng and Pearl pimple spot removing Cream (Kim Ginseng and Pearl Latina Smoother Face Cream)	MN, also purchased in Thailand, on internet	
14	Kim Whitening Pearl and Snow Lotus Latinal Smoother Face Cream (Whitening Pearl Cream with snow lotus natural herb reduce wrinkles dark spots)	MN, also purchased in Thailand, on internet	

ⁱ Pakistan Ministry of Science and Technology has issued Technical Regulation in the form of SRO 45 (KE)/2017 PS:3228/2017, dated May 19, 2017, to regulate “skin creams” all over Pakistan through PSQCA. See more below; also see: <https://profit.pakistantoday.com.pk/2018/12/31/psqca-issues-notice-to-beauty-cream-manufacturers-over-health-concerns/>; <https://www.incpak.com/health/faiza-beauty-cream-banned-in-pakistan/>; <https://en.dailypakistan.com.pk/pakistan/popular-beauty-cream-banned-in-pakistan-over-toxic-chemical-use/>

15	Parley no marks anit marks cream Herbal Whitening Cream	HSA (Singapore)	
16	Parley Cream	HSA (Singapore)	
17	POP popular facial cream whitening Acne pimple cream	London Trading Standards https://www.brandsynario.com/pakistani-beauty-brands-exposed-bbc-complete-list-toxic-fairness-creams/	
18	RDL Babyface whitening cream	HSA (Singapore),	
19	Royal Expert Whitening Cream	HSA (Singapore),	
20	Sandal Beauty Whitening Facial Cream	NYC (2018), [Manuf.- Cosmetics Pakistan]	
21	Stillman's Skin Bleach Cream	NYC (2018), US FDA,	
22	Temulawak Cream Beauty Whitening Cream	ZMWG list https://www.ebay.com/item/Temulawak-Cream-Beauty-Whitening-Cream/183677395824?hash=item2ac406a370:g:SS0AAOSwoF5cXpi9:rk:2:pf:0	
23	White Express cream	London Trading Standards	
24	White Rose Whitening Cream	MN, also purchased in Thailand, on internet	

Appendix B:

Matrix for logging the skin-lightening cream samples

- Log the brand name.
- Log the date of expiration. If not on the package, put a minus sign in the matrix.
- Log the country of origin of the product. If unknown, put a minus sign in the matrix.
- Indicate if there is any indication that the product contains mercury. Log "ingred list" if it is from the ingredient list, log "instr" if it is from other instructions on the package, e.g. that the product should not be in touch with gold, silver or rubber (this may indicate mercury as an ingredient), or log "oral acc." if it is from oral account.
- Log the name of the shop/e-commerce platform and the address.
- Log with an X if you have taken a photo of the product.
- Log with an X if you have taken a photo of the ingredient list.
- Log with an X if you have taken a screen short of the product in an e-commerce company.

Reference number (the initials of your country 1, 2 3. Etc. e.g. SA1,) the same reference should be on the outside/inside cream box before sending to the hubs for screening	Brand name	Date of expiration (month/year)	Batch Number	Country of origin	Indication of mercury	Shop/e-commerce platform name and address	Photo of the product taken	Photo of the ingredient list taken	Screen shot taken of the product from an e-commerce company

Please send the completed log and photos in an e mail with the topic "Log and photos, skin-lightening cream project" to: andreas.prevodnik@ssnc.se

Annex C: Purchased skin-bleaching products and raw data

Table C1: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by an Olympus Innov-X Delta Professional DS 2000 XRF, for the products bought in Bangladesh.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Chandni Whitening Cream	03/2021	-	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	102,233.33
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	11/2021	GB114	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	129,433.33
Goree Day and Night Whitening Cream	08/2021	GDN131	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	124,566.67
Kim Whitening Ginseng and Pearl Cream	01/2021	-	Thailand	Daraz (www.daraz.com.bd)	No	17,416.67
Kim Whitening Pearl and Snow Lotus Cream	05/2023	-	Thailand	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	28,610.00
Sandal Whitening Beauty Cream	01/2022	267	Pakistan	Daraz (www.daraz.com.bd)	No	83,633.33
Parley Herbal Whitening Cream	12/2020	1001	Pakistan	Daraz (www.daraz.com)	No	116,600.00
Stillman's Skin Bleach Cream	04/2020	LOTST 0254	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	49.21
Face Fresh	03/2021	N22980	Pakistan	New Variety House 248. New Dhaka Market	No	1,214.00
Jiaoli set, cream A	-	-	China	Daraz (www.daraz.com)	No	9344.33
Jiaoli set, cream B	-	-	China	Daraz (www.daraz.com)	No	12,513.33
Due Whitening Beauty Cream						92,530.00

Golden Pearl Whitening Beauty Cream	09/2021	199214	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	60.08
POP Popular Facial Cream Whitening Acne Pimple	01/2020	011	Thailand	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	32,670.00
Temulawak Beauty Whitening Cream	05/2021	00512	Malaysia	S.D. Enterprise 451/452 New Supermarket, Dhaka	No	72,513.67
Faiza Beauty Cream	-	39194243	Pakistan	Daraz (www.daraz.com)	No	21,426.67

Table C2: Brands, expiration dates, batch numbers, country of origin according to the packaging, indication of mercury (Hg) content on the packaging, and shops, and mercury concentrations (ppm), determined by a Niton XL3t-970 GOLDD XRF, for the products bought in **Djibouti**. <LOD means under the detection limit.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
MELANOFREE Topical Cream	02/2020	180056	-	Rasasi Perfumes & Cosmetics, Hayabley, Dj.	No	<LOD
Gold Skin	-	L36 F12:18	Côte d'Ivoire	Rasasi Perfumes & Cosmetics, Hayabley, Dj	No	<LOD
Parley Goldie Pearl Shine	08/2021	0018	Pakistan	Rasasi Perfumes & Cosmetics, Hayabley, Dj	No	19,241.50
Jolié Beauty Cream	10/2021	-	Pakistan	Rasasi Perfumes & Cosmetics, Hayabley, Dj	No	9870.96
SEVEN HERBAL Beauty Cream	01/2022	190112SHBC4	India	Rasasi Perfumes & Cosmetics, Hayabley, Dj	No	<LOD
White Perfect	05/2020	0P503	-	Supermarket Nougaprix, Rye de Genève, Dj	No	<LOD
Kanza Beauty Cream	08/2021	28415	-	Rasasi Perfumes & Cosmetics, Hayabley, Dj	No	<LOD

Dermovate Cream Clobetasol Propionate	08/2020	CS9E	United Kingdom	Perfumerie, Rue de Soleillet, Djibouti	No	<LOD
Faiza Beauty Cream	12/2020	18511517	Pakistan	Perfumerie, Rue de Soleillet, Djibouti	No	3449.85
Labell BB Cream		28415	Belgium	Supermarket Nougaprix, Rye de Genève, Djibouti	No	<LOD
Fairness Cream	06/2020	C054897	-	Supermarket Nougaprix, Rye de Genève, Djibouti	No	<LOD
SNAIL WHITE	03/2021	C2/11322-B	Côte d'Ivoire	Perfumerie, Rue de Soleillet, Djibouti	No	<LOD
Aneeza Gold Beauty Cream	02/2021	26959-62	Pakistan	Perfumerie, Rue de Soleillet, Djibouti	No	17,085.99
Chandnii Whitening Cream	03/2021	-	Pakistan	Perfumerie, Rue de Soleillet, Djibouti	No	28,342.04
NOOR Herbal Beauty Cream	12/2020	-	-	Perfumerie, Rue de Soleillet, Djibouti	No	17,668.86
Light Natural Carotene	05/2021	D200611 B	Côte d'Ivoire	Rasasi Perfumes & Cosmetics, Hayabley, Dj	No	<LOD
Bronz Tone	09/2021	100646 K	Côte d'Ivoire	Supermarket Nougaprix, Rye de Genève, Djibouti	No	<LOD
Faiza Beauty Cream	02/2022	17LX10	Pakistan	Rasasi Perfumes & Cosmetics, Hayabley, Dj	No	6213.75

Table C3: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by Hydride Atomic Absorption Spectroscopy, for the products bought in **the EU**.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Chandni Whitening Cream	07/2021	0102196013014	Pakistan	Amazon UK (www.amazon.co.uk/)	No	11,928.00
Golden Pearl Whitening Beauty Cream	09/2021	03006902822	Pakistan	Amazon UK (www.amazon.co.uk/)	No	10,515.00
Goree Whitening Soap	11/2021	-	India	Amazon UK (www.amazon.co.uk/)	No	<0.1
White Express Cream	01/2021	9782061380017	France	Amazon UK (www.amazon.co.uk/)	No	<0.1
White Rose Whitening Cream	-	8850107485932 (bar code)	Thailand	Amazon UK (www.amazon.co.uk/)	No	<0.1
Golden Pearl Whitening Beauty Cream	09/2021	8964001078586 (Bar Code)	Pakistan	EBay Belgium (www.ebay.be/)	No	5266.00
Golden Pearl Whitening Beauty Cream	08/2021	03006902822	Pakistan	eBay Belgium (www.ebay.be/)	No	10,338.00
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	01/2022	GB115	Pakistan	eBay Belgium (www.ebay.be/)	No	12,656.00
JiaoBi Cream Jae whitening Yan Ying 3 in 1 skin care set, facial cleaner	06/2022	4006378315	China	eBay Belgium (www.ebay.be/)	No	<0.1
JiaoBi Cream Jae whitening Yan Ying 3 in 1 skin care set, make up base	06/2022	4006378315	China	eBay Belgium (www.ebay.be/)	No	20,813.00
JiaoBi Cream Jae whitening Yan Ying 3 in 1 skin care set, day cream	06/2022	4006378315	China	eBay Belgium (www.ebay.be/)	No	<0.1
JiaoBi Cream Jae whitening Yan Ying 3 in 1	06/2022	4006378315	China	eBay Belgium (www.ebay.be/)	No	15,404.00

skin care set, night cream						
Jiaoli Miraculous Cream set, 3 creams, cream A	08/202 2	QB/T1857-96	China	eBay Belgium (www.ebay.be/)	No	584.70
Jiaoli Miraculous Cream set, 3 creams, cream B	08/202 2	QB/T1857-96	China	eBay Belgium (www.ebay.be/)	No	1543.90
Jiaoli Miraculous Cream set, 3 creams, cream C	08/202 2	QB/T1857-96	China	eBay Belgium (www.ebay.be/)	No	<0.1
Pop Popular Facial Cream Whitening Acne Pimple, Cream A	10/202 1	88533180007 41 (bar code)	Thailand	eBay Belgium (www.ebay.be/)	No	2.20
Pop Popular Facial Cream Whitening Acne Pimple, Cream B	10/202 1	88533180007 41 (bar code)	Thailand	eBay Belgium (www.ebay.be/)	No	1.91
Stillman's Fairness Cream	04/202 2	LOT 141901	Pakistan	eBay Belgium (www.ebay.be/)	No	0.36
White Express Cream (package, cream, serum, soap, soap	07/202 1	0K10MNFA10 24567NG6	India	eBay Belgium (www.ebay.be/)	No	<0.1
White Express Cream (package, cream, serum, soap, lotion	02/202 2	U16/02-2019 (37006079040 04)	India	eBay Belgium (www.ebay.be/)	No	<0.1
White Express Cream (package, cream, serum, soap, serum	08/202 2	23218901267 89000	India	eBay Belgium (www.ebay.be/)	No	<0.1
White Express Cream (package, cream, serum, soap, 10 day fast action cream	07/202 1	0K10MNFA10 24567NG6	India	eBay Belgium (www.ebay.be/)	No	<0.1

White Rose Whitening Cream (super Gold Caviar)	06/2020	8850107485291	Thailand	eBay Belgium (www.ebay.be/)	No	6188.00
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Table C4: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by an Olympus Innov-X Delta Professional DS 2000 XRF, for the products bought in India.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Aneeza Gold Beauty Cream	03/2021	27645-56	Pakistan	Amazon, India (www.amazon.in)	No	54,653.33
Chandni Whitening Cream	06/2020	-	Pakistan	Shop no. 14, Gaffar market, Delhi	No	48.17
Due Whitening Beauty Cream	-	-	-	Amazon, India (www.amazon.in)	-	53.10
Face Fresh Gold, Whitening Cream Age Spots/Freckle and Scars	07/2021	N23168	Pakistan	Amazon, India (www.amazon.in)	No	97,906.67
Faiza Beauty Whitening Cream	04/2020	15LX08	Pakistan	Shop no. 14, Gaffar market, Delhi	No	50.08
Golden Pearl Whitening Beauty Cream	09/2021	181222	Pakistan	Shop no. 14, Gaffar market, Delhi	No	58,10
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	2021	GB114	Pakistan	Shop no. 14, Gaffar market, Delhi	No	49.34
Goree Day and Night Whitening Beauty Cream	04/2020	-	Pakistan	Amazon, India (www.amazon.in)	No	46,95

Jiaoli Miraculous Cream set, 2 creams, cream A	- (language problem)	- language problem)	China	Amazon, India (www.amazon.in)	- (language problem)	836.43
Jiaoli Miraculous Cream set, 2 creams, cream B	- (language problem)	- language problem)	China	Amazon, India (www.amazon.in)	- (language problem)	10,129.33
Kim Whitening Pearl and Snow Lotus Cream	- (language problem)	- language problem)	Thailand	Amazon, India (www.amazon.in)	- (language problem)	100,500.00
Parley Cream	10/2019	103	Pakistan	Amazon, India (www.amazon.in)	No	113,833.33
POP Popular Facial Cream Whitening Acne Pimple	06/2020	-(language problem)	Thailand	Amazon, India (www.amazon.in)	- (language problem)	59.20
Sandal Whitening Beauty Cream	- (language problem)	-(language problem)	Pakistan	Maeena manzil micro factory back gate, Karnataka	- (language problem)	100,566.67
Stillman's Skin Bleach Cream	10/2020	-	Pakistan	Flipkart (www.flipkart.com)	No	62.53
White Rose Whitening Cream	-	-	Thailand	Amazon, India (www.amazon.in)	No	48,840.00

Table C5: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by a Niton XL3t-970 GOLDD XRF, for the products bought in the **Côte d'Ivoire**. <LOD means under the detection limit.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Palmer's Skin Success Complexion Toner	06/2021	J8177C	USA	Kyad Cosmetic Adjame, Bvd. Nangui Abrogoua Forum des marches – Adjamé, Abijan	No	14,120.89

Palmer's Skin Success Fade Milk	12/2020	BB 800IU035	USA	Kyad Cosmetic Adjame, Bvd. Nangui Abrogoua Formum des marches - Adjamé Abijan	No	<LOD
Faiza Beauty Cream	05/2022	17NX12	Pakistan	Tapis rouge boutique, Bvd. Nangui Abrogoua Formum des marches - Adjamé, Abijan	No	<LOD
La "Fresh"	06/2020	MA1707014	United Arab Emirates	Salawu Rassaki, Bvd. Nangui Abrogoua Formum des marches - Adjamé, Abijan	No	<LOD
Harmony 55H+	-	-	-	Kyad Cosmetic Adjame, Bvd. Nangui Abrogoua Formum des marches - Adjamé, Abijan	No	<LOD

Table C6: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by a Niton XL3t-970 GOLDD XRF, for the products bought in **Kenya**. <LOD means under the detection limit.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Age Renewal Gel	09/2019	64	Italy	4Ever Young Cosmetics	No	<LOD
Chandi Whitening Cream	10/2020	-	Pakistan	Jumia, Kenya (www.jumia.co.ke)	No	<LOD
Dermo Gel Plus	01/2024	1905-6	Switzerland	4Ever Young Cosmetics	No	<LOD
Faiza Beauty Cream	03/2022	17MX11	Pakistan	Jumia, Kenya (www.jumia.co.ke)	No	11,313.18
Hot Prosone Gel	11/2021	1810218	Italy	Precious Cosmetics	No	<LOD
Lemonvate Cream	10/2021	1810218	Italy	Imani Beauty Shop	No	<LOD

Movate Cream	06/2020	1705096	Italy	Jumia, Kenya (www.jumia.co.ke)	No	<LOD
Peau Claire	07/2020	-	Côte d'Ivoire	Jumia, Kenya (www.jumia.co.ke)	No	<LOD
Sivo Claire	07/2020	-	Côte d'Ivoire	Precious Cosmetics	No	<LOD
Skin Success Cream	-	J8319C	USA	Jumia, Kenya (www.jumia.co.ke)	No	<LOD
Soft & Beautiful Gel	07/2020	1572	Italy	Precious Cosmetics	No	<LOD
Skin Balance Gel	07/2026	16118	Italy	Imani Beauty Shop	No	<LOD
White Express cream (package, cream, serum, soap, 10 day fast action cream.	04/2021	W01308	India	Precious Cosmetics	No	<LOD

Table C7: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by a Niton XL3t-970 GOLDD XRF, for the products bought in **Nigeria**. <LOD means under the detection limit.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Temulawa k Beauty Whitening Cream	-	00512	Malaysia	Dupe Cosmetics	No	625.54
Aneeza Gold Beauty Cream	02/2021	26864	Pakistan	Jumia, Nigeria (https://www.jumia.com.ng)	No	20,598.76
White Express, Cream	01/2022	30L14	France	Jumia, Nigeria (https://www.jumia.com.ng)	No	<LOD
RDL Whitening Cream	03/2020	25WC0082-2	Philippines	Jiji (https://www.jiji.ng) , through Bishop Francis Cosmetics Nig. Ltd.	No	<LOD

Goree Whitening Body Lotion	09/2020	-	Pakistan	Jiji (https://www.jiji.ng), through Bishop Francis Cosmetics Nig. Ltd.	No	<LOD
Kim Whitening Pearl and Snowlouts Cream	05/2020	-	Thailand	Jiji (https://www.jiji.ng), through Humduke Nig. Ltd.	-	2584.46
POP Popular Facial Cream Whitening Acne Pimple	07/2021	005	Thailand	Jumia, Nigeria (https://www.jumia.com.ng)	-	<LOD
Jiaoli Speckle Dispelling & Whitening Cream	02/2021	-	China	Jumia, Nigeria (https://www.jumia.com.ng)	-	1154.07
Parley Natural Fairness Cream	03/2020	1022	Pakistan	Konga (www.konga.com)	-	<LOD

Table C8: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by an Olympus Innov-X Delta Professional DS 2000 XRF, for the products bought in the **Philippines**.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	01/2022	GB115	Pakistan	Korean Drugstore & General Merchandise	No	46.00
Goree Whitening Beauty Anti-ageing spots pimples	01/2020	GB111	Pakistan	Lazada, Philippines (www.lazada.com.ph)	No	130,666.67

removing Cream						
Goree Day and Night Whitening Beauty Cream	08/2021	GDN131	Pakistan	Lazada, Philippines (www.lazada.com.ph)	No	131,566.67
Aneeza Gold Beauty Cream	01/2022	24720-31	Pakistan	Lazada, Philippines (www.lazada.com.ph)	No	40,46.67
Golden Pearl Whitening Beauty Cream	09/2021	18AE08	Pakistan	Lazada, Philippines (www.lazada.com.ph)	No	73,953.33
POP Popular Facial Cream Whitening Acne Pimple	03/2022	001	Thailand	999 Mall Divisoria, Manila	No	59.00
JJJ Magical Spot Removing Cream	08/2023	-	-	999 Mall Divisoria, Manila	No	7777.00
Erna Whitening Cream	-	-	-	999 Mall Divisoria, Manila	No	4560.33
Jiaoli Miraculous Cream set, 2 creams, cream A	02/2022	-	China	Lazada, Philippines (www.lazada.com.ph)	No	9083.33
Jiaoli Miraculous Cream set, 2 creams, cream B						18,876.67
RDL Cream	03/2025	12WC0090-4	Philippines	Lazada, Philippines (www.lazada.com.ph)	No	47.98

Table C9: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by a Niton XL3t-970 GOLDD XRF, for the products bought in **South Africa**. <LOD means under the detection limit.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Chandni Whitening Cream	07/2020	-	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	28,289.46
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	01/2021	GB111	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	33,082.92
Goree Day and Night Whitening Cream	08/2021	GDN131	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	29,686.28
Sandal Whitening Beauty Cream	02/2020	-	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	26,320.95
Stillman's Skin Bleach Cream	11/2022	ST16117	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	<LOD
Face Fresh	-	-	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	9386.63
Due Whitening Beauty Cream	10/2021	2335	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	15,383.89
Golden Pearl Whitening Beauty Cream	12/2020	04289	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	16,664.79
Faiza	11/2018	42546873	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	4711.69
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	01/2021	GB111	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	5152.27

Goree Whitening Soap	11/2020	-	Pakistan	BidorBuy (www.bidorbuy.co.za)	No	4352.68
						32,504.63

Table C10: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by a Niton XL3t-970 GOLDD XRF, for the products bought in **South Africa**. <LOD means under the detection limit.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
L'abidjanaise	08/2021	221-18/003 CABC/SS	Côte d'Ivoire	Hajat Nana Cosmetics Shop No. L 2 - 226, Kampala	No	<LOD
Chandni Whitening Cream	-	-	Pakistan	Beauty Dream, Shop no. 62, Pioneer Moll, Kampala	No	<LOD
Faiza Beauty Cream	-	12519 972	Pakistan	Gazaland, Shop no. L1601, Kampala	-	6045.23
Parley Beauty Cream	09/2021	1037	Pakistan	Gazaland Shop no. L 14003, Kampala	No	15,984.60
POP Popular Facial Cream Whitening Acne Pimple	08/2021	001	Thailand	Hajat Nana Cosmetics, Shop No. L 2 - 226, Kampala	No	<LOD
Rapid'clair	02/2021	T124	Cameroun	Gazaland, Shop no. L1601, Ground Floor, Kampala	No	<LOD
Rapid' White	12/2021	**PIC OS-0.1**_14:15	Côte d'Ivoire	Hajat Nana Cosmetics, Shop No. L 2 - 226, Kampala	No	<LOD
Sure Deal Ladies Herbal Lightening Cream	09/2021	-	Uganda	Senana Building, Tin no. 10273161, Kampala	No	<LOD
Top Lemon Plus	08/2021		Democratice Republic of Congo	Gazaland Shop no. L 14003, Kampala		<LOD

White Express Cream	02/2021	T20	France	Beauty Dream, Shop no. 62, Pioneer Moll, Kampala	No	<LOD
Quick Z Action Zero, Pimples	03/2021	01741	Uganda	Gazaland, Shop no. L1601, Kampala	No	<LOD

Table C11: Brands, expiration dates, batch numbers, country of origin according to the packaging, shops, indication of mercury (Hg) content on the packaging, and mercury concentrations (ppm), determined by Cold Vapor Atomic Absorption Spectroscopy, for the products bought in the **United States of America**.

Brand	Expir. date	Batch nb.	Country of origin	Web shop or physical shop	Indication of Hg content	Mercury concentration (ppm)
Parley NoMarks	-	-	Pakistan	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	N.D.
Jiaoli Cream Jae whitening Yan Ying 3 in 1 skin care set	-	-	China	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	1,800.00
Kim Whitening Pearl and Snow Lotus Cream	-	549	Thailand	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	19,000.00
White Rose Whitening cream	-	229	Thailand	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	N.D.
Temulawak Beauty Whitening Cream	-	00512	Indonesia, imported via Malaysia	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	0.52
Chandni Whitening Cream	02/2012	T124	Pakistan	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	14,000.00
Sandal Whitening Beauty Cream	01/2022	267	Pakistan	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	21,000.00
Face Fresh	-	-	Pakistan	eBay, USA (https://www.ebay.com/sch/i.html?nkw=ebay+usa)	No	15,000.00

Dangerous, mercury laden and often illegal skin lightening products: Readily available for (online) purchase
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				a/sch/i.html? nkw=e bay+usa)		
Goree Day and Night Whitening Beauty Cream	01/2022	GND140	Pakistan	eBay, USA (https://www.ebay.ca/sch/i.html? nkw=e bay+usa)	No	23,000.00
Due Whitening Beauty Cream	-	-	Pakistan	eBay, USA (https://www.ebay.ca/sch/i.html? nkw=e bay+usa)	No	0.10
Golden Pearl Whitening Beauty Cream	31/2019	-	Pakistan	eBay, USA (https://www.ebay.ca/sch/i.html? nkw=e bay+usa)	No	0.11
Kim Whitening Pearl and Snow Lotus Cream	-	549	Thailand	eBay, USA (https://www.ebay.ca/sch/i.html? nkw=e bay+usa)	No	14,000.00
POP Popular Facial Cream Whitening Acne Pimple	08/2021	-	Thailand	eBay, USA (https://www.ebay.ca/sch/i.html? nkw=e bay+usa)	No	0.04
POP Popular Facial Cream Whitening Acne Pimple	08/2021	-	Thailand	www.ebay.be/	No	0.69
Kim Whitening Pearl and Snow Lotus Cream	-	549	Thailand	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	16,000.00
Mekako Soap	10/2022	29217A	Italy	Amazon USA (https://www.amazon.com/USA/s?k=USA)		0.04
POP Popular Facial Cream Whitening Acne Pimple	08/2021	-	Thailand	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	0.05
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	11/2021	GB114	Pakistan	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	25,000.00
Chandni Whitening Cream	11/2019	-	Pakistan	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	40,00.00
Whitening Ginseng and Pearl Cream	-	888/32	Thailand	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	8700.00

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Whitening Ginseng and Pearl Cream	-	888/32	Thailand	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	8600.00
Chandni Whitening Cream	-	-	Pakistan	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	22,000.00
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	09/2020	GB113	Pakistan	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	26,000.00
Kim Whitening Pearl and Snow Lotus Cream	-	549	Thailand	Amazon USA (https://www.amazon.com/USA/s?k=USA)	No	13,000.00

Annex D: Sampling protocol for the Niton XL3t-970 GOLDD+ Olympus Innov-X Delta

1. **Type of instrument:** Niton XL3t-970 GOLDD+ Olympus Innov-X Delta.

2. **Preparation of analysis**
 - a. The sample preparation was done with sample cup with a film of polypropylene (TF 240 255).
 - b. The sample cups were filled in half, to about 2 cm depth. The diameter of the cup was 3 cm, but window of analysis 8 mm.
 - c. The creams depending on their consistency were steered with a plastic spoon or shaken.
 - d. While placed in the cup, the cup was tapped gently to ensure the cream is evenly distributed.

3. **Analysis**
 - a. The mode used is cosmetics, semi solid (which uses a combination of the algorithm of the soil and plastic mode)
 - b. Time of analysis was 10 seconds and each sample was read once (Niton) . The samples analysed with the Olympus, were 'read' 3 times (pretesting) plus another for testing.

Given the high readings we had with the Olympus instrument, the XRF results were verified by QES[1] (<https://www.qesnet.com/>), a trusted independent testing facility in the Philippines.

Annex E: QACS laboratory methodology

The determination of mercury was assessed with atomic absorption spectrometry.

The apparatus was a Perkin Elmer Model Analyst 800 Atomic Absorption Spectrophotometer; equipped with a 4-inch burner head, mercury electrodeless discharge lamp (EDL). FIAS 100 Flow Injection Analysis System for Hydride generation with a quartz cell.

Parameter settings Hg:

- I. Wavelength 253.7 nm
- II. Lamp current 185.0 mA
- III. Slit 0.7 nm High Slit

2. FIAS

- I. FIAS flow (Argon) 100 ml / min.
- II. Carrier solution 3 % (v/v) HCL
- III. Reducing agent 0.2 % NaBH₄ in 0.05% NaOH
- IV. Sample loop 500 µl
- V. Read time 20s

For the sample preparation

Accurately weigh, to the nearest mg, 0.35 – 0.50 g of sample into a high-pressure resistance PTFE-TFM microwave digestion vessel. Avoid contact with the side of the vessel. Add 8 ml trace grade nitric acid, 1ml of trace grade hydrogen peroxide by using a graduated pipette. If samples contain talcum or pigment add 1ml of trace grade hydrochloric acid.

Close the vessel lid. Leave for about 15 minutes to ensure complete reaction. Digest in microwave digestion system at the specified program (Organic B).

After the digestion procedure has completed, allow the vessel to cool to room temperature before opening and the sample is transferred into a 50 ml volumetric flask and dilute with distilled water. If necessary, additional dilutions can be performed after this step, to bring the concentration of Mercury within the calibration range. 10 ml of the sample solution is transferred into a 20 ml volumetric flask, 0.2 ml of HCl 37% for trace metal and one to two drops of a 5% solution of KMnO₄ are added and the sample is diluted to volume with water.

Standard preparation

Prepare a working stock solution by dissolving 1 ml of the Mercury standard solution 1000g/L ± 0.002 into a 100 ml volumetric flask. 0.1, 0.2, 1.0 and 2.0 ml of the working stock are transferred into 20 ml volumetric flasks. Then 10 ml water are added, followed by 0.2 ml HCl 37% for trace metal and one to two drops of a 5% solution of KMnO₄, the standards are diluted to volume with water.

Blank preparation

Into a 20 ml volumetric flask is placed 15 ml water, 0.5 ml of HCl 37% and one to two drops of 5 % KMnO₄ added and the blank is diluted to volume with water.

Annex F: Enthalpy laboratory methodology

Enthalpy analyzes cream samples for mercury according to the US Environmental Protection Agency (EPA) standard 7471.

METHOD 7471A

MERCURY IN SOLID OR SEMISOLID WASTE (MANUAL COLD-VAPOR TECHNIQUE)

1.0 SCOPE AND APPLICATION

1.1 Method 7471 is approved for measuring total mercury (organic and inorganic) in soils, sediments, bottom deposits, and sludge-type materials. All samples must be subjected to an appropriate dissolution step prior to analysis. If this dissolution procedure is not sufficient to dissolve a specific matrix type or sample, then this method is not applicable for that matrix.

2.0 SUMMARY OF METHOD

2.1 Prior to analysis, the solid or semi-solid samples must be prepared according to the procedures discussed in this method.

2.2 Method 7471, a cold-vapor atomic absorption method, is based on the absorption of radiation at the 253.7-nm wavelength by mercury vapor. The mercury is reduced to the elemental state and aerated from solution in a closed system. The mercury vapor passes through a cell positioned in the light path of an atomic absorption spectrophotometer. Absorbance (peak height) is measured as a function of mercury concentration.

2.3 The typical instrument detection limit (IDL) for this method is 0.0002 mg/L.

3.0 INTERFERENCES

3.1 Potassium permanganate is added to eliminate possible interference from sulfide. Concentrations as high as 20 mg/Kg of sulfide, as sodium sulfide, do not interfere with the recovery of added inorganic mercury in reagent water.

3.2 Copper has also been reported to interfere; however, copper concentrations as high as 10 mg/Kg had no effect on recovery of mercury from spiked samples.

3.3 Samples high in chlorides require additional permanganate (as much as 25 mL) because, during the oxidation step, chlorides are converted to free chlorine, which also absorbs radiation of 253 nm. Care must therefore be taken to ensure that free chlorine is absent before the mercury is reduced and swept into the cell. This may be accomplished by using an excess of hydroxylamine sulfate reagent (25 mL). In addition, the dead air space in the BOD bottle must be purged before adding stannous sulfate.

3.4 Certain volatile organic materials that absorb at this wavelength may also cause interference. A preliminary run without reagents should determine if this type of interference is present.

4.0 APPARATUS AND MATERIALS

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4.1 Atomic absorption spectrophotometer or equivalent: Any atomic absorption unit with an open sample presentation area in which to mount the absorption cell is suitable. Instrument settings recommended by the particular manufacturer should be followed. Instruments designed specifically for the measurement of mercury using the cold-vapor technique are commercially available and may be substituted for the atomic absorption spectrophotometer.

4.2 Mercury hollow cathode lamp or electrodeless discharge lamp.

4.3 Recorder: Any multirange variable-speed recorder that is compatible with the UV detection system is suitable.

4.4 Absorption cell: Standard spectrophotometer cells 10 cm long with quartz end windows may be used. Suitable cells may be constructed from Plexiglas tubing, 1 in. O.D. x 4.5 in. The ends are ground perpendicular to the longitudinal axis, and quartz windows (1 in. diameter x 1/16 in. thickness) are cemented in place. The cell is strapped to a burner for support and aligned in the light beam by use of two 2-in. x 2-in. cards. One-in.-diameter holes are cut in the middle of each card. The cards are then placed over each end of the cell. The cell is then positioned and adjusted vertically and horizontally to give the maximum transmittance.

4.5 Air pump: Any peristaltic pump capable of delivering 1 L/min air may be used. A Masterflex pump with electronic speed control has been found to be satisfactory.

4.6 Flowmeter: Capable of measuring an air flow of 1 L/min.

4.7 Aeration tubing: A straight glass frit with a coarse porosity. Tygon tubing is used for passage of the mercury vapor from the sample bottle to the absorption cell and return.

4.8 Drying tube: 6-in. x 3/4-in.-diameter tube containing 20 g of magnesium perchlorate or a small reading lamp with 60-W bulb which may be used to prevent condensation of moisture inside the cell. The lamp should be positioned to shine on the absorption cell so that the air temperature in the cell is about 10°C above ambient.

4.9 The cold-vapor generator is assembled as shown in Figure 1 of reference 1 or according to the instrument manufacturers instructions. The apparatus shown in Figure 1 is a closed system. An open system, where the mercury vapor is passed through the absorption cell only once, may be used instead of the closed system. Because mercury vapor is toxic, precaution must be taken to avoid its inhalation. Therefore, a bypass has been included in the system either to vent the mercury vapor into an exhaust hood or to pass the vapor through some absorbing medium, such as:

1. equal volumes of 0.1 M KMnO_4 and 10% H_2SO_4 , or
2. 0.25% iodine in a 3% KI solution.

A specially treated charcoal that will adsorb mercury vapor is also available from Barneby and Cheney, East 8th Avenue and North Cassidy Street, Columbus, Ohio 43219, Cat. #580-13 or #580-22.

4.10 Hot plate or equivalent - Adjustable and capable of maintaining a temperature of 90-95°C.

4.11 Graduated cylinder or equivalent.

5.0 REAGENTS

5.1 Reagent Water: Reagent water will be interference free. All references to water in this method refer to reagent water unless otherwise specified.

5.2 Aqua regia: Prepare immediately before use by carefully adding three volumes of concentrated HCl to one volume of concentrated HNO₃.

5.3 Sulfuric acid, 0.5 N: Dilute 14.0 mL of concentrated sulfuric acid to 1 liter.

5.4 Stannous sulfate: Add 25 g stannous sulfate to 250 mL of 0.5 N sulfuric acid. This mixture is a suspension and should be stirred continuously during use. A 10% solution of stannous chloride can be substituted for stannous sulfate.

5.5 Sodium chloride-hydroxylamine sulfate solution: Dissolve 12 g of sodium chloride and 12 g of hydroxylamine sulfate in reagent water and dilute to 100 mL. Hydroxylamine hydrochloride may be used in place of hydroxylamine sulfate.

5.6 Potassium permanganate, mercury-free, 5% solution (w/v): Dissolve 5 g of potassium permanganate in 100 mL of reagent water.

5.7 Mercury stock solution: Dissolve 0.1354 g of mercuric chloride in 75 mL of reagent water. Add 10 mL of concentrated nitric acid and adjust the volume to 100.0 mL (1.0 mL = 1.0 mg Hg).

5.8 Mercury working standard: Make successive dilutions of the stock mercury solution to obtain a working standard containing 0.1 ug/mL. This working standard and the dilution of the stock mercury solutions should be prepared fresh daily. Acidity of the working standard should be maintained at 0.15% nitric acid. This acid should be added to the flask, as needed, before adding the aliquot.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 All samples must have been collected using a sampling plan that addresses the considerations discussed in Chapter Nine of this manual.

6.2 All sample containers must be prewashed with detergents, acids, and reagent water. Plastic and glass containers are both suitable.

7.6 Calculate metal concentrations: (1) by the method of standard additions, (2) from a calibration curve, or (3) directly from the instrument's concentration read-out. All dilution or concentration factors must be taken into account. Concentrations reported for multiphased or wet samples must be appropriately qualified (e.g., 5 ug/g dry weight).

8.0 QUALITY CONTROL

8.1 Refer to section 8.0 of Method 7000.

9.0 METHOD PERFORMANCE

9.1 Precision and accuracy data are available in Method 245.5 of Methods for Chemical Analysis of Water and Wastes.

9.2 The data shown in Table 1 were obtained from records of state and contractor laboratories. The data are intended to show the precision of the combined sample preparation and analysis method.

10.0 REFERENCES

1. Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982, Method 245.5.
2. Gaskill, A., Compilation and Evaluation of RCRA Method Performance Data, Work Assignment No. 2, EPA Contract No. 68-01-7075, September 1986.

6.3 Non-aqueous samples shall be refrigerated, when possible, and analyzed as soon as possible.*

7.0 PROCEDURE

7.1 Sample preparation: Weigh triplicate 0.2-g portions of untreated sample and place in the bottom of a BOD bottle. Add 5 mL of reagent water and 5 mL of aqua regia. Heat 2 min in a water bath at 95°C. Cool; then add 50 mL reagent water and 15 mL potassium permanganate solution to each sample bottle. Mix thoroughly and place in the water bath for 30 min at 95°C. Cool and add 6 mL of sodium chloride-hydroxylamine sulfate to reduce the excess permanganate.

CAUTION: Do this addition under a hood, as Cl_2 could be evolved. Add 55 mL of reagent water. Treating each bottle individually, add 5 mL of stannous sulfate and immediately attach the bottle to the aeration apparatus. Continue as described under step 7.4.

7.2 An alternate digestion procedure employing an autoclave may also be used. In this method, 5 mL of concentrated H_2SO_4 and 2 mL of concentrated HNO_3 are added to the 0.2 g of sample. Add 5 mL of saturated KMnO_4 solution and cover the bottle with a piece of aluminum foil. The samples are autoclaved at 121°C and 15 lb for 15 min. Cool, dilute to a volume of 100 mL with reagent water, and add 6 mL of sodium chloride-hydroxylamine sulfate solution to reduce the excess permanganate. Purge the dead air space and continue as described under step 7.4. Refer to the caution statement in section 7.1 for the proper protocol in reducing the excess permanganate solution and adding stannous sulfate.

7.3 Standard preparation: Transfer 0.0-, 0.5-, 1.0-, 2.0-, 5.0-, and 10-mL aliquots of the mercury working standard, containing 0-1.0 ug of mercury, to a series of 300-mL BOD bottles or equivalent. Add enough reagent water to each bottle to make a total volume of 10 mL. Add 5 mL of aqua regia and heat 2 min in a water bath at 95°C. Allow the sample to cool; add 50 mL reagent water and 15 mL of KMnO_4 solution to each bottle and return to the water bath for 30 min. Cool and add 6 mL of sodium chloride-hydroxylamine sulfate solution to reduce the excess permanganate. Add 50 mL of reagent water. Treating each bottle individually, add 5 mL of stannous sulfate solution, immediately attach the bottle to the aeration apparatus, and continue as described in Step 7.4.

7.4 Analysis: At this point, the sample is allowed to stand quietly without manual agitation. The circulating pump, which has previously been adjusted to a rate of 1 L/min, is allowed to run continuously. The absorbance, as exhibited either on the spectrophotometer or the recorder, will increase and reach maximum within 30 sec. As soon as the recorder pen levels off (approximately 1 min), open the bypass valve and continue the aeration until the absorbance returns to its minimum value. Close the bypass valve, remove the fritted tubing from the BOD bottle, and continue the aeration.

7.5 Construct a calibration curve by plotting the absorbances of standards versus micrograms of mercury. Determine the peak height of the unknown from the chart and read the mercury value from the standard curve. Duplicates, spiked samples, and check standards should be routinely analyzed.

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Digestion & Analysis of Solid Samples for
MERCURY

Cold Vapor Atomic Absorption (CVAA) Methods
EPA 7471A / 7471B

Approved by:	Signature:	Date:
Karla Rodriguez Group Leader		7-11-18
Teresa Morrison QA Director		7/11/18
Reapproved:		
Teresa Morrison QA Director		8/02/19

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Annex G: Samples exceeding 1 ppm mercury

Table G1: Product name, country of purchase, indicated country of origin, physical shop or e-commerce platform, and mercury content (ppm) for samples exceeding 1 ppm mercury.

Product name	Country of purchase	Country of origin*	Shop/e commerce platform	Mercury content (ppm)
Chandni Whitening Cream	Bangladesh	Pakistan	S.D. Enterprise 451/452, New Supermarket, Dhaka (physical shop)	102,233.33
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Bangladesh	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	129,433.33
Goree Day and Night Whitening Beauty Cream	Bangladesh	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	124,566.67
Kim Whitening Ginseng and Pearl Cream	Bangladesh	Thailand	Daraz (e-commerce platform)	17,416.67
Kim Whitening Pearl and Snow Lotus Cream	Bangladesh	Thailand	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	28,610.00
Sandal Whitening Beauty Cream	Bangladesh	Pakistan	Daraz (e-commerce platform)	83,633.33
Parley Herbal Whitening Cream	Bangladesh	Pakistan	Daraz (e-commerce platform)	116,600.00
Stillman's Skin Bleach Cream	Bangladesh	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	49.21
Face Fresh	Bangladesh	Pakistan	New Variety House 248. New Dhaka Market (physical shop)	1214.00
Jiaoli Cream set, cream A	Bangladesh	China	Daraz (e-commerce platform)	9344.33
Jiaoli Cream set, cream B	Bangladesh	China	Daraz (e-commerce platform)	12,513.33
Due Whitening Beauty Cream	Bangladesh	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	92,530.00
Golden Pearl Whitening Beauty Cream	Bangladesh	Pakistan	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	72,513.67
POP Popular Facial Cream Whitening Acne Pimple	Bangladesh	Thailand	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	60.08
Temulawak Beauty Whitening Cream	Bangladesh	Malaysia	S.D. Enterprise 451/452 New Supermarket, Dhaka (physical shop)	32,670.00
Faiza Beauty Cream	Bangladesh	Pakistan	Daraz (e-commerce platform)	21,406.67
Parley Goldie Pearl Shine	Djibouti	Pakistan	Rasasi Perfumes & Cosmetics, Hayabley, Djibouti (physical shop)	19,241.50

Jolié Beauty Cream	Djibouti	Pakistan	Rasasi Perfumes & Cosmetics, Hayabley, Djibouti (physical shop)	9870.96
Faiza Beauty Cream	Djibouti	Pakistan	Perfumerie, Rue de Soleillet, Djibouti (physical shop)	3449.85
Aneeza Gold Beauty Cream	Djibouti	Pakistan	Perfumerie, Rue de Soleillet, Djibouti (physical shop)	17,085.99
Chandni Whitening Cream	Djibouti	Pakistan	Perfumerie, Rue de Soleillet, Djibouti (physical shop)	28,342.04
NOOR Herbal Beauty Cream	Djibouti	Pakistan	Perfumerie, Rue de Soleillet, Djibouti (physical shop)	17,668.86
Faiza Beauty Cream	Djibouti	Pakistan	Rasasi Perfumes & Cosmetics, Hayabley, Djibouti (physical shop)	6213.75
Chandni Whitening Cream	EU	Pakistan	Amazon, UK (e-commerce platform)	11,928.00
Golden Pearl Whitening Beauty Cream	EU	Pakistan	Amazon, UK (e-commerce platform)	10,515.00
Golden Pearl Whitening Beauty Cream	EU	Pakistan	eBay, Belgium (e-commerce platform)	10,338.00
Golden Pearl Whitening Beauty Cream	EU	Pakistan	eBay, Belgium (e-commerce platform)	5266.00
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	EU	Pakistan	eBay, Belgium (e-commerce platform)	12,656.00
JiaoBi Whitening set, make up base	EU	China	eBay, Belgium (e-commerce platform)	20,813.00
JiaoBi Whitening set, Night cream	EU	China	eBay, Belgium (e-commerce platform)	15,404.00
Jiaoli Miraculous Cream set, cream A	EU	China	eBay, Belgium (e-commerce platform)	584.70
Jiaoli Miraculous Cream set, cream B	EU	China	eBay, Belgium (e-commerce platform)	1542.90
Pop Popular Facial Cream Whitening Acne Pimple	EU	Thailand	eBay, Belgium (e-commerce platform)	2.20
Pop Popular Facial Cream Whitening Acne Pimple	EU	Thailand	eBay, Belgium (e-commerce platform)	1.91
White Rose Whitening Cream (super Gold Caviar)	EU	Thailand	eBay, Belgium (e-commerce platform)	6188.00
Aneeza Gold Beauty Cream	India	Pakistan	Amazon, India (e-commerce platform)	54,653.33
Chandni Whitening Cream	India	Pakistan	Shop no. 14, Gaffar market, Delhi (physical shop)	48.17
Due Whitening Beauty Cream	India	Pakistan	Amazon, India (e-commerce platform)	76,333.33
Face Fresh Gold, Whitening Cream Age Spots/Freckle and Scars	India	Pakistan	Amazon, India (e-commerce platform)	97,906.67

Faiza Beauty Cream	India	Pakistan	Shop no. 14, Gaffar market, Delhi (physical shop)	50.08
Golden Pearl Whitening Beauty Cream	India	Pakistan	Shop no. 14, Gaffar market, Delhi (physical shop)	53.10
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	India	Pakistan	Shop no. 14, Gaffar market, Delhi (physical shop)	49.34
Goree Day and Night Whitening Beauty Cream	India	Pakistan	Amazon, India (e-commerce platform)	46.95
Jiaoli Miraculous Cream set, cream A	India	China	Amazon, India (e-commerce platform)	836.43
Jiaoli Miraculous Cream set, cream B	India	China	Amazon, India (e-commerce platform)	10,129.33
Kim Whitening Pearl and Snow Lotus Cream	India	Thailand	Amazon, India (e-commerce platform)	100,500.00
Parley Herbal Whitening Cream	India	Pakistan	Amazon, India (e-commerce platform)	113,833.33
POP Popular Facial Cream Whitening Acne Pimple	India	Thailand	Amazon, India (e-commerce platform)	59.20
Sandal Whitening Beauty Cream	India	Pakistan	Maeena manzil micro factory back gate, Karnataka (physical shop)	100,566.67
Stillman's Skin Bleach Cream	India	Pakistan	Flipkart (e-commerce platform)	62.53
White Rose Whitening Cream	India	Thailand	Amazon, India (e-commerce platform)	48 840
Palmer's Skin Success Fade Milk	Côte d'Ivoire	USA	Kyad Cosmetic Adjame, Bvd. Nangui Abrogoua Forum des marches - Adjamé Abijan (physical shop)	14,120.89
Faiza Beauty Cream	Kenya	Pakistan	Jumia, Kenya (e-commerce platform)	11,313.18
Temulawak Beauty Whitening Cream	Nigeria	Malaysia	Dupe Cosmetics (physical shop)	625.54
Aneeza Gold Beauty Cream	Nigeria	Pakistan	Jumia, Nigeria (e-commerce platform)	20,598.76
Kim Whitening Pearl and Snow Lotus Cream	Nigeria	Thailand	Jiji through Humduke Nig. Ltd. (e-commerce platform)	2584.46
Jiaoli Speckle Dispelling & Whitening Cream	Nigeria	China	Jumia, Nigeria (e-commerce platform)	1154.07
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Philippines	Pakistan	Korean Drugstore & General Merchandise (physical shop)	46.0
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Philippines	Pakistan	Lazada, Philippines (e-commerce platform)	130,666.67

Goree Day and Night Whitening Cream	Philippines	Pakistan	Lazada, Philippines (e-commerce platform)	131,566.67
Aneeza Gold Beauty Cream	Philippines	Pakistan	Lazada, Philippines (e-commerce platform)	40,46.67
Golden Pearl Whitening Beauty Cream	Philippines	Pakistan	Lazada, Philippines (e-commerce platform)	73,953.33
POP Popular Facial Cream Whitening Acne Pimple	Philippines	Thailand	999 Mall Divisoria, Manila (physical shop)	59.00
JJJ Magical Spot Removing Cream	Philippines	-	999 Mall Divisoria, Manila (physical shop)	7777.00
Erna Whitening Cream	Philippines	-	999 Mall Divisoria, Manila (physical shop)	4560.33
RDL Cream	Philippines	Philippines	Lazada, Philippines (e-commerce platform)	47.98
Jiaoli Miraculous Cream set, cream A	Philippines	China	Lazada, Philippines (e-commerce platform)	9083.33
Jiaoli Miraculous Cream set, cream B	Philippines	China	Lazada, Philippines (e-commerce platform)	18,876.67
Chandni Whitening Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	28,289.46
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	33,082.92
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	4352.68
Goree Day and Night Whitening Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	29,686.28
Goree Whitening Soap	South Africa	Pakistan	BidorBuy (e-commerce platform)	32,504.63
Sandal Whitening Beauty Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	26,320.95
Face Fresh	South Africa	Pakistan	BidorBuy (e-commerce platform)	12.385.26#
Due Whitening Beauty Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	16.664.79
Golden Pearl Whitening Beauty Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	4711.69
Faiza Beauty Cream	South Africa	Pakistan	BidorBuy (e-commerce platform)	5152.27
Faiza Beauty Cream	Uganda	Pakistan	Gazaland, Shop no. L1601, Kampala (physical shop)	6045.23
Parley Beauty Cream	Uganda	Thailand	Gazaland Shop no. L 14003, Kampala (physical shop)	15,984.60
Jiaoli Cream Jaoc whitening Yan Ying, skin care set	USA	China	eBay, USA (e-commerce platform)	1800.00
Kim Whitening Pearl and Snow Lotus Cream	USA	Thailand	eBay, USA (e-commerce platform)	19 000

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Chandni Whitening Cream	USA	Pakistan	eBay, USA (e-commerce platform)	14,000.00
Sandal Whitening Beauty Cream	USA	Pakistan	eBay, USA (e-commerce platform)	21,000.00
Face Fresh	USA	Pakistan	eBay, USA (e-commerce platform)	15,000.00
Goree Day and Night Whitening Beauty Cream	USA	Pakistan	eBay, USA (e-commerce platform)	23,000.00
Kim Whitening Pearl and Snow Lotus Cream	USA	Thailand	eBay, USA (e-commerce platform)	14,000.00
Kim Whitening Pearl and Snow Lotus Cream	USA	Thailand	Amazon, USA (e-commerce platform)	16,000.00
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	USA	Pakistan	Amazon, USA (e-commerce platform)	25,000.00
Chandni Whitening Cream	USA	Pakistan	Amazon, USA (e-commerce platform)	3400
Whitening Ginseng and Pearl Cream	USA	Thailand	Amazon, USA (e-commerce platform)	8700
Whitening Ginseng and Pearl Cream	USA	Thailand	Amazon, USA (e-commerce platform)	8600
Chandni Whitening Cream	USA	Pakistan	Amazon, USA (e-commerce platform)	22,000.00
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	USA	Pakistan	Amazon, USA (e-commerce platform)	26,000.00
Kim Whitening Pearl and Snow Lotus Cream	USA	Thailand	Amazon, USA (e-commerce platform)	13,000.00

* According to the packaging

Average of the two readings in Table 9, Appendix G.

Annex H: Same brand but varying mercury content

This annex describes the significant variation in mercury content even among creams of the same brand, as discussed in the text.

The brand **Aneeza Gold Beauty Cream** was found both in local markets and online in the African countries Djibouti and Nigeria and the Asian countries India and the Philippines (see Table G1, Annex G). It was widely available online, but in Djibouti also locally in a physical shop. In the products in the African markets the concentrations of mercury were lower than in the corresponding for the Asian markets, and it was observed that the batch numbers for the samples in Africa were slightly differently composed than the batch numbers for Asia (see Table H1). This brand was not tested in the 2017-2018 study.

Table H1: Product, country of purchase, shop (physical or online), batch number, and mercury content

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Aneeza Gold Beauty Cream	Djibouti	Perfumerie, Rue de Soleillet, Djibouti	26959-62	17,085.99
Aneeza Gold Beauty Cream	India	Amazon, India (www.amazon.in)	27645-56	54,653.33
Aneeza Gold Beauty Cream	Nigeria	Jumia, Nigeria (https://www.jumia.com.ng)	26864	20,598.76
Aneeza Gold Beauty Cream	Philippines	Lazada, Philippines (www.lazada.com.ph)	24720-31	40,146.67

Chandni Whitening Cream is a brand that was first tested by us in 2017⁹ It is still available in the markets, locally or online, in Bangladesh (also in 2017), Djibouti, EU, India, Kenya, South Africa and the USA (see Table G1, Annex G). It was found in physical shops in all countries/regions, except for the EU, South Africa, and the USA; where the product was bought via e-commerce platforms. Highly variable mercury concentrations were detected in this sampling round. While it was non-detectable in a Kenyan sample, and low in an Indian, it was very high in a sample from Bangladesh (see Table H2). The only sample with a batch number was the one available on eBay from the EU.

Table H2: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Chandni Whitening Cream	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	-	102,233.33
Chandni Whitening Cream	Djibouti	Perfumerie, Rue de Soleillet, Djibouti	-	28,342.04
Chandni Whitening Cream	EU (UK)	Amazon UK (www.amazon.co.uk/)	0102196013014	11,928.00

Chandni Whitening Cream	India	Shop no. 14, Gaffar market, Delhi	-	48.17
Chandni Whitening Cream	Kenya	Jumia, Kenya (www.jumia.co.ke)	-	<LOD
Chandni Whitening Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	-	28,289.46
Chandni Whitening Cream	USA	eBay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	-	3400

The **Due Whitening Beauty Cream** was available in Bangladesh, India, South Africa, and the USA, and also tested by us in 2018⁹ in a sample from Bangladesh (see Table 2). In Bangladesh it was bought locally in a physical shop; in India, South Africa and the USA online (see Table G1, Annex G). High, but also highly variable, mercury concentrations were found in all tested samples, except for the USA sample that had a very low mercury concentration (see Table H3).

Table H3: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Due Whitening Beauty Cream	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	B3033	92,530.00
Due Whitening Beauty Cream	India	Amazon, India (www.amazon.in)	-	76,333.33
Due Whitening Beauty Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	2335	16,664.79
Due Whitening Beauty Cream	USA	eBay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	-	0.10

In Bangladesh, the brand **Face Fresh** was available in a local store, and online in South Africa, and the USA (see Table G1, Annex G). Also for this brand, highly variable mercury concentrations were detected (see Table 1 and H4). The sample bought locally had a batch number; not the ones brought online. The mercury concentration was highest in the samples with no batch no. Sometimes a lack of batch number could indicate that it is a counterfeit product (read more below).

Table H4: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Face Fresh	Bangladesh	New Variety House 248. New Dhaka Market	N22980	1214.00
Face Fresh	South Africa	BidorBuy (www.bidorbuy.co.za)	-	12,385.26#
Face Fresh	USA	eBay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	-	15,000

Average of the two readings in Table 9, Appendix F.

Faiza Beauty Cream is brand that is widely available. It was tested by us in 2018⁹ and in this sampling round it was found in Bangladesh, Djibouti, India, Kenya, South Africa, and Uganda, both locally and via e-commerce platforms. In the EU and Kenya, the samples were bought online; in the other countries locally in physical shops. The detected mercury concentrations were highly variable, but generally high (see Tables G1, Annex G, and H5). Only the sample from the Côte d'Ivoire had no detectable mercury (see Table H5). All samples had batch numbers, composed in different ways, sometimes with only numbers; sometimes with a combination of numbers and letters.

Table H5: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Faiza Beauty Cream	Bangladesh	Daraz (www.daraz.com)	39194243	21,406.67
Faiza Beauty Cream	Djibouti	Rasasi Perfumes & Cosmetics, Hayabley, Djibouti	18511517	3449.85
Faiza Beauty Cream	India	Shop no. 14, Gaffar market, Delhi	15XL08	50.08
Faiza Beauty Cream	Côte d'Ivoire	Tapis rouge boutique, Bvd. Nangui Abrogoua Forum des marches – Adjamé, Abijan	17NX12	<LOD
Faiza Beauty Cream	Kenya	Jumia, Kenya (www.jumia.co.ke)	17MX11	11,313.18
Faiza Beauty Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	42546873	5152.27
Faiza Beauty Cream	Uganda	Gazaland, Shop no. L1601, Kampala	12519972	6045.23

The **Golden Pearl Beauty Cream** is a brand that we tested in 2018⁹ and it is still widely available, and high in mercury (see Table 1). In this sampling round, it was found Bangladesh, EU, India, South Africa, and the USA, locally (in the Asian countries) or via e-commerce platforms (in the EU, South Africa, and the USA) (see Table G1, Annex G). It is still available in the market in Bangladesh, where it was also found in 2018. All tested samples, except from the USA, had batch numbers on the packaging, and the concentrations ranged from below the 1 ppm limit to very high values (see Table 1 and H6).

Table H6: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Golden Pearl Beauty Cream	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	19 9214	72,513.67
Golden Pearl Beauty Cream	EU (UK)	Amazon UK (www.amazon.co.uk/)	03006902822	10,515.00
Golden Pearl Beauty Cream	EU (Belgium)	EBay Belgium (www.ebay.be/)	8850107485932 (bar code)	10,338.00
Golden Pearl Beauty Cream	EU (Belgium)	EBay Belgium (www.ebay.be/)	8964001078586 (Bar Code)	5266.00
Golden Pearl Beauty Cream	India	Shop no. 14, Gaffar market, Delhi	181222	53.10
Golden Pearl Beauty Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	04289	4711.69
Golden Pearl Beauty Cream	USA	eBay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	-	0.11

Goree is a brand with three different products tested by us in the 2018⁹ and in this sampling round (see Table 1). They are available locally in physical shops in Bangladesh and the Philippines, and online in the EU India, the Philippines, South Africa, and the USA. Consistently they turned out to violate the Minamata Convention 1 ppm limit, although the concentrations varied widely (see Tables G1, Annex G, and H7). All but two samples, from India and South Africa and bought online, had batch numbers on the packaging.

Table H7: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	GB114	129,433.33
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	EU (Belgium)	eBay Belgium (www.ebay.be/)	GB115	12,656.00

Goree Whitening Beauty Anti-ageing spots pimples removing Cream	India	Shop no. 14, Gaffar market, Delhi	GB114	49.34
Goree Day and Night Whitening Beauty Cream	India	Amazon, India (www.amazon.in)	-	46.95
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Philippines	Korean Drugstore & General Merchandise	GB115	46.0
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	Philippines	Lazada, Philippines (www.lazada.com.ph)	GB111	130,666.67
Goree Day and Night Whitening Cream	Philippines	Lazada, Philippines (www.lazada.com.ph)	GDN131	131,566.67
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	GB111	33,082.92
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	GB111	4352.68
Goree Day and Night Whitening Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	GDN131	29,686.28
Goree Day and Night Whitening Beauty Cream	USA	eBay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	GND140	23,000.00
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	USA	Amazon USA (https://www.amazon.com/USA/s?k=USA)	GB114	25,000.00
Goree Whitening Beauty Anti-ageing spots pimples removing Cream	USA	Amazon USA (https://www.amazon.com/USA/s?k=USA)	GB113	26,000.00

The brand **Jiaoli Miraculous Cream** set was tested by us in 2017⁹ and in this sampling round (see Table 1). It was found via e-commerce platforms this time, in the EU, India and the Philippines (where sample from 2017 also came) (see Table G1, Annex G). The set contains two creams (day and night), both consistently high in mercury, but with a large concentration span (see Tables 1 and H8). The samples bought in Asia had no batch no. on the packaging, but those bought in the EU had,

Table I8: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Jiaoli Miraculous Cream set, cream A	EU (Belgium)	eBay Belgium (www.ebay.be/)	QB/T1857-96	584.70
Jiaoli Miraculous Cream set, cream B	EU (Belgium)	eBay Belgium (www.ebay.be/)	QB/T1857-96	1542.90
Jiaoli Miraculous Cream set, cream A	India	Amazon, India (www.amazon.in)	-	836.43
Jiaoli Miraculous Cream set, cream B	India	Amazon, India (www.amazon.in)	-	10,129.33
Jiaoli Miraculous Cream set, cream A	Philippines	Lazada, Philippines (www.lazada.com.ph)	-	9083.33
Jiaoli Miraculous Cream set, cream B	Philippines	Lazada, Philippines (www.lazada.com.ph)	-	18,876.67

Kim Whitening Ginseng and Pearl Cream is a brand that in this sampling round was purchased in Bangladesh and the USA, in the first case in a physical shop; in the second online (see Table G1, Annex G). The tested creams were all high in mercury, and the Bangladeshi sample had no batch no., whereas the USA samples had (see Tables 1 and H9).

Table H9: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Kim Whitening Ginseng and Pearl Cream	Bangladesh	Daraz (www.daraz.com.bd)	-	17,416.67
Kim Whitening Ginseng and Pearl Cream	USA	Amazon USA (https://www.amazon.com/USA/s?k=USA)	888/32	8700.00
Kim Whitening Ginseng and Pearl Cream	USA	Amazon USA (https://www.amazon.com/USA/s?k=USA)	888/32	8600.00

In Bangladesh, India, Nigeria and the USA, the brand **Kim Whitening Pearl and Snow Lotus Cream** was found in this sampling round, locally in physical shops (Bangladesh) and online (in the rest of the countries) (see Table G1, Annex G). In 2018, it was also tested by us in samples from Thailand⁹. All samples tested so far were still high in mercury, but with a large concentration span (see Tables 1 and H10). None of the packages from Asia and Africa had batch numbers, while those from the US had.

Table H10: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Kim Whitening Pearl and Snow Lotus Cream	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	-	28,610.00
Kim Whitening Pearl and Snow Lotus Cream	India	Amazon, India (www.amazon.in)	-	100,500.00
Kim Whitening Pearl and Snow Lotus Cream	Nigeria	Jiji (https://www.jiji.ng), through Humduke Nig. Ltd.	-	2584.46
Kim Whitening Pearl and Snow Lotus Cream	USA	e-Bay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	549	14,000.00
Kim Whitening Pearl and Snow Lotus Cream	USA	Amazon USA (https://www.amazon.com/USA/s?k=USA)	549	16,000.00
Kim Whitening Pearl and Snow Lotus Cream	USA	Amazon USA (https://www.amazon.com/USA/s?k=USA)	549	13,000.00

The brand **Parley Herbal Whitening Cream** is available from e-commerce platforms in Bangladesh and India (see Table G1, Annex G). The samples had very high mercury contents; the packaging with batch numbers (see Table H11).

Table H11: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Parley Herbal Whitening Cream	Bangladesh	Daraz (www.daraz.com)	1001	116,600.00
Parley Herbal Whitening Cream	India	Amazon, India (www.amazon.in)	103	113,833.33

POP Popular Facial Cream Whitening Acne Pimple is a brand widely available (see Table 1). In Bangladesh, the Philippines and Uganda, the brand could be bought locally in physical shops, while in the EU, India, and the USA, it could be ordered online (see Table G1, Annex G). The sample from Uganda had no detectable mercury, and the three USA samples were low in mercury, while the remaining samples were high (see Table H12). Batch no. were missing in the packaging of the samples from India, and the USA (see Table H12).

Table H12: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
POP Popular Facial Cream Whitening Acne Pimple	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	011	60.08
POP Popular Facial Cream Whitening Acne Pimple	EU (Belgium)	e-bay Belgium (www.ebay.be/)	8853318000 741 (bar code)	2.20
POP Popular Facial Cream Whitening Acne Pimple	EU (Belgium)	e-bay Belgium (www.ebay.be/)	8853318000 741 (bar code)	1.91
POP Popular Facial Cream Whitening Acne Pimple	India	Amazon, India (www.amazon.in)	-	59.20
POP Popular Facial Cream Whitening Acne Pimple	Philippines	999 Mall Divisoria, Manila	001	59.00
POP Popular Facial Cream Whitening Acne Pimple	Uganda	Hajat Nana Cosmetics, Shop No. L 2 – 226, Kampala	001	<LOD
POP Popular Facial Cream Whitening Acne Pimple	USA	e-Bay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	-	0.04
POP Popular Facial Cream Whitening Acne Pimple	USA	e-Bay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	-	0.69
POP Popular Facial Cream Whitening Acne Pimple	USA	Amazon USA (https://www.amazon.com/USA/s?k=USA)		0,05

The brand **Sandal Whitening Beauty Cream** is available in Bangladesh, India, South Africa and the USA. In India and the USA, it was bought in a physical shop; in the other two countries from e-commerce platforms (see Table G1, Annex G). The samples were all high in mercury, and varied from the same batch (see Table H13). Batch numbers were on all packaging (see Table H13).

Table I13: Product, country of purchase, batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Sandal Whitening Beauty Cream	Bangladesh	Daraz (www.daraz.com.bd)	267	83,633.33
Sandal Whitening Beauty Cream	India	Maeena manzil micro factory back gate, Karnataka	-	100,566.67
Sandal Whitening Beauty Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	-	26,320.95
Sandal Whitening Beauty Cream	USA	e-Bay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	267	21,000

Stillman's Skin Bleach Cream is a brand that was bought in Bangladesh, India, and South Africa. In Bangladesh the cream is available locally in physical shops, while it was bought online in India and South Africa (see Table G1, Annex G). All Asian samples were high in mercury, but no detectable mercury was found in the South African sample (see Table H14). Only the Indian sample had no batch number (see Table I14).

Table H14: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Stillman's Skin Bleach Cream	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	LOTST0254	49.21
Stillman's Skin Bleach Cream	India	e-bay Belgium (www.ebay.be/)	-	62.53
Stillman's Skin Bleach Cream	South Africa	BidorBuy (www.bidorbuy.co.za)	ST16117	<LOD

The **Temulawak Beauty Whitening Cream** brand was first tested by us in 2018, when a sample of this brand from Bangladesh was analyzed⁹ This sampling round showed that it is still available locally in physical shops in Bangladesh, and can be ordered online in Nigeria, as well as in the USA (see Table G1, Annex G). The Asian samples are all high in mercury, both in the present and the 2018 sampling round, while low in the USA sample (see Table H15). The intra-batch variation in the mercury concentration was very large (see Table H15). Batch numbers were found on all sample packages (see Table G1).

Table H15: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
Temulawak Beauty Whitening Cream	Bangladesh	S.D. Enterprise 451/452 New Supermarket, Dhaka	00512	32,670.00
Temulawak Beauty Whitening Cream	Nigeria	Dupe Cosmetics	00512	625.54
Temulawak Beauty Whitening Cream	USA	e-Bay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	00512	0.52

In 2018, a Thai sample of the brand **White Rose Whitening Cream** was tested by us and found to be very high in mercury, and so also in the Indian sample from this sampling round (see Table G1, Annex G). A sample was also bought online from the EU and the US, respectively, but tested negative (see Tables G1, Annex G, and H16) Batch numbers were found on all sample packages.

Table H16: Product, country of purchase, shop (physical or online), batch number, and mercury content. <LOD or N.D. implies below the detection limit.

Product	Country of purchase	Shop	Batch no.	Mercury content (ppm)
White Rose Whitening Cream	EU (Belgium)	e-bay Belgium (www.ebay.be/)	8850107485 291	6188.00
White Rose Whitening Cream	India	Amazon, India (www.amazon.in)	-	48,840,00
White Rose Whitening Cream	USA	e-Bay, USA (https://www.ebay.ca/sch/i.html?_nkw=ebay+usa)	299	N.D.

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- ¹⁷ A “detention list” is a list of products that have been found to be non-compliant with national or international legislation. It could be used by the national customs service to stop the import of a listed product until the importer or supplier verifies that the product is in compliance.