

Skin Lighteners Still Online Despite Mercury Findings

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This report is dedicated to our friend, colleague and mentor,
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Executive summary

Context

The Zero Mercury Working Group (ZMWG) has been investigating mercury-added skin lightening products (SLPs) for several years, primarily due to their health risks, their illegality under many national laws, and the prohibition by the Minamata Convention on Mercury against the manufacture and trade of mercury-added SLPs, which generally became effective in 2021. Between 2017 and 2022, our three separate investigations confirmed continued worldwide availability of illegal SLPs containing high mercury concentrations, as well as the urgent need for legal and programmatic reforms to better protect consumers and their families from unsafe, illegal and counterfeit products.

Despite substantial health risks, mercury compounds are frequently added to SLPs because mercury lightens the skin by suppressing the production of melanin. SLPs have received significant attention in the scientific literature—with countless studies outlining their negative impacts on health and well-being. The World Health Organization has also recognized that mercury—added to some SLPs—is a “major public health concern.”

The regular use of SLPs containing mercury can lead to rashes, skin discoloration and blotching. Long-term exposure may also damage the eyes, lungs, kidneys, digestive, immune and nervous systems. An adult’s use of SLPs laden with mercury can also expose other family members, such as through close contact, and may even require decontamination of the home.

The widespread use of SLPs – with or without mercury – is particularly concerning because they are a symbol of societies grappling with internalized racism and colorism. The global market for SLPs is estimated at USD 8.8 billion in 2022 and is projected to reach USD 11.8 billion by 2026. In some populations, more than 50% of individuals use SLPs regularly, and one analysis estimated that 27.7% of individuals *globally* have used them at one time or another.

SLPs containing mercury are sold through local markets and online. The importance of e-commerce is particularly concerning, given the growing market share of e-commerce generally, and the challenges of regulating online sales especially where the seller is outside the country. Violations of health and safety laws facilitated by e-commerce sites not only threaten public health, but also create an uneven playing field since “brick and mortar” stores must comply with domestic laws that may be evaded by non-domestic sellers.

In 2017 and 2018, ZMWG purchased 338 SLPs from local shops in 22 different countries. These products were analyzed and 10% were found to contain mercury levels above 1 ppm (part per million), the limit established by the Minamata Convention and followed by an increasing number of governments. A follow-up study was conducted by ZMWG in 2019, targeting again the high-mercury products identified during the 2017-2018 study, as well as others identified by additional government agencies and researchers. Of the 166 samples analyzed, 56% had mercury concentrations over 1 ppm.

Following publication of the 2019 ZMWG study, most of the 13 online platforms selling high-mercury SLPs were asked to take down the products in question. Some did so, while others did not respond or claimed that they had no legal obligations to ensure that the products on their platforms were compliant with national or international law. Even in cases where high-mercury products were initially taken down, the products sometimes reappeared later on the same e-commerce platforms.

Findings

The 2020-2022 ZMWG investigation of SLPs offered by over 40 online platforms, and accessed in 17 countries by our partner NGOs,¹ confirmed yet again that high-mercury SLPs are widely available from a range of popular e-commerce platforms globally. Of the 271 SLPs tested, 129 were found to have mercury levels over 1 ppm.

The following table lists all of the SLPs offered online and found to contain more than 1 ppm mercury, and also lists the countries where these products were purchased.

Table a: SLPs with mercury exceeding 1 ppm

Brand name	Product name	Country of purchase
Aneeza Gold	Beauty Cream; Beauty Cream with Avocado & Aloe Vera	Kenya, India, Nigeria, South Africa, Thailand, Uganda
Arché	Formula AA Pearl Cream	Belgium, USA
CCM Special Cream	Anti-Melasma Dark-Spots Cream	USA
Chandni	Whitening Cream	Kenya, Uganda
Cleo Me'	White - Lemon Formula	Thailand
Collagen Plus - Vit E	Night Cream	Bangladesh, Belgium, India, Indonesia, Mexico, Nepal, Philippines
Dr. Japan	Nano	Kenya, Thailand, Uganda
Due	Beauty Cream	Belgium, Indonesia, Côte d'Ivoire
Egg White & Cherry	7 Days Specific Eliminating Freckle Whitening Cream	Bangladesh, India
Erna	Whitening Cream	Indonesia
Face Fresh	Beauty Cream	Belgium, India, South Africa, Thailand, USA
Face Fresh Plus	Gold Beauty Cream	South Africa
Faiza	Beauty Cream	India, Indonesia, Kenya, Thailand, Uganda, USA
Gluta White	Skin Whitening Cream - Advanced Glutathione Formula	India
Golden Pearl	Beauty Cream	Bangladesh, India, Kenya, Philippines, Thailand
Goree	Beauty Cream with Lycopene; Day & Night Whitening Cream	Bangladesh, India, Indonesia, Mexico, Nigeria, Philippines
Green Tea	Seven-Day - Whitening Anti-Freckle Cream	Bangladesh

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Brand name	Product name	Country of purchase
Jiaobi	Whitening & Moisturizing Set: <ul style="list-style-type: none"> Whitening Day Cream Whitening Make-up Base Whitening Night Cream 	Bangladesh, Belgium, India, Indonesia, Philippines, Thailand
Jiaoli	Bird's Nest - Whitening Spot-Removing Scheme Suit; HuiChuSu Face Cream 7 Days Specific Eliminating Freckle: <ul style="list-style-type: none"> Day Night Miraculous Day and Night Cream: <ul style="list-style-type: none"> Day Cream Night Cream Speckle Dispelling & Whitening Cream	Belgium, Philippines, Thailand
Jolié	Beauty Cream	Belgium
Kim	Whitening Anti-Spot Night Cream; Whitening Ginseng and Pearl Cream; Whitening Pearl and Snow Lotus Cream	Bangladesh, Mexico, Nigeria, Thailand
La Crema de Rebeca	Crema Facial	Mexico
La Tia Mana	Crema Limpiadora y Curativa	Antigua & Barbuda, Mexico
Natural 99	Vitamin E Plus: <ul style="list-style-type: none"> White canister Yellow canister 	Indonesia, Philippines
New Face	Whitening Cream	Belgium and India
Noor	Herbal Beauty Cream; Herbal Whitening Cream	Bangladesh, India, Côte d'Ivoire, Kenya
Noor Gold	Beauty Cream	Uganda
Nunn Care	Crema Limpiadora	Bahrain, Mexico
O White Extra	Whitening Cream	Mexico
Papaya	Whitening & Freckle-Eliminating package	USA
Parley	Beauty Cream; Goldie Advanced Beauty Cream; Goldie Pearl Shine; Herbal Beauty Cream with Avocado	Belgium, Philippines, Thailand, Uganda, USA
RDL	Whitening cream - Night Cream	Indonesia
Sakura	Gluta Speed White	Thailand
Sandal	Whitening Beauty Cream	Belgium, India, Thailand
Temulawak	Day & Night Cream - Beauty Whitening Cream - Night Cream	Indonesia, Thailand
Yinni - Green Tea	Quickacting Whitener and Speckle Remover	USA

The following two tables identify all countries and e-commerce platforms where SLPs were purchased during the 2020-2022 ZMWG investigation, as well as showing products in relation to the 1 ppm mercury threshold. As discussed in the body of the report, these tables are presented separately due to the different testing methods employed in different regions.

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Table b.1: Mercury content (according to lab test results) of SLPs purchased on various platforms in Europe, North America and Latin America & the Caribbean

	Country of purchase	E-commerce platform	Mercury content in relation to the 1 ppm threshold
EUROPE	Belgium	amazon.fr	Below 1 ppm
		befr.ebay.be	Below & above 1 ppm
		best.aliexpress.com	Below & above 1 ppm
		bol.com	Below 1 ppm
NORTH AMERICA	United States	amazon.com	Below 1 ppm
		ebay.com	Below & above 1 ppm
LATIN AMERICA and THE CARIBBEAN	Antigua & Barbuda	amazon.com	Below & above 1 ppm
	Brazil	produto.mercadolivre.com.br	Below 1 ppm
		shopee.com.br	Below 1 ppm
	Mexico	aliexpress.com	Below or above 1 ppm
		amazon.com.mx	Below 1 ppm
		articulo.mercadolibre.com.mx	Below & above 1 ppm
	ebay.com	Above 1 ppm	
	wish.com	Below 1 ppm	

Table b.2: Mercury content (according to XRF test results) of SLPs purchased on various platforms in Africa, Asia and the Middle East

	Country of purchase	E-commerce platform	Mercury content in relation to the 1 ppm threshold
AFRICA	Côte d'Ivoire	jumia.ci	Below 1 ppm
		ubuy.ci	Above 1 ppm
	Kenya	jiji.co.ke	Below & above 1 ppm
		jumia.co.ke	Below & above 1 ppm
		kilimall.co.ke	Above 1 ppm
		sky.garden	Below 1 ppm
	Nigeria	jiji.ng	Below & above 1 ppm
		jumia.com.ng	Below 1 ppm
	South Africa	bidorbuy.co.za	Above 1 ppm
Uganda	jiji.ug	Below & above 1 ppm	
ASIA	Bangladesh	ajkerdeal.com	Above 1 ppm
		apsarah.com	Above 1 ppm
		clickbd.com	Below & above 1 ppm
		daraz.com.bd	Below & above 1 ppm
		Kablewala.com.bd	Above 1 ppm
		vinnobd.com	Above 1 ppm

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	Country of purchase	E-commerce platform	Mercury content in relation to the 1 ppm threshold
	India	amazon.in	Below & above 1 ppm
		flipkart.com	Below & above 1 ppm
	Indonesia	bukalapak.com	Below & above 1 ppm
		shopee.co.id	Below & above 1 ppm
		tokopedia.com	Below & above 1 ppm
	Nepal	daraz.com.np	Below & above 1 ppm
	Philippines	lazada.com.ph	Below & above 1 ppm
		shopee.ph	Below & above 1 ppm
	Thailand	aliexpress.com	Below & above 1 ppm
		desertcart.co.th	Above 1 ppm
		ebay.com	Below & above 1 ppm
		lazada.co.th	Below & above 1 ppm
		shopee.co.th	Below & above 1 ppm
		ubuy.co.th	Below & above 1 ppm
MIDDLE EAST	Bahrain	ubuy.com.bh	Below & above 1 ppm

This investigation confirmed that most e-commerce platforms are not sufficiently motivated to verify the legality of products sold. When these platforms were notified in the past of sales of illegal high-mercury products, a common response was that they voluntarily removed those products from sale, and that they put more filters in place as a deterrent. Yet in most cases those measures did little to deter online sellers. As noted in the 2019 ZMWG report, follow-up investigations during 2018 showed that the same brands were found to contain high mercury concentrations on several consecutive sampling occasions in both physical shops and via e-commerce platforms.

To better understand this phenomenon, our 2020-2022 investigation included regular monitoring over 13 months of e-commerce platforms in 15 countries to assess the ongoing availability of many of the high-mercury SLPs identified. We found that more of the targeted high-mercury SLPs were regularly available on eBay (Belgium, Mexico, Thailand, United States), Ubuy (Bahrain, Thailand), Shopee (Philippines) and Flipkart (India).

Worse yet, nearly all of the SLPs listed in our 2019 report with mercury levels over 1 ppm continue to be available from over three times as many e-commerce platforms as those targeted in 2019.

Policy Implications

The current legal regulatory framework in most countries fails to adequately protect consumers from hazardous, counterfeit and illegal products sold online. A primary reason for this failure is that national laws in many countries allow online platforms to evade responsibility for the products sold on their platforms. This lack of accountability removes incentives for platforms to ensure product safety and produces, at best, voluntary episodic efforts to remove illegal products from a platform – efforts which are short-lived and ineffective at protecting consumers. The safety risks of online platforms have been well documented, and extend well beyond mercury-added SLPs. Consequently, policymakers and the courts are increasingly challenging a legal framework where consumers are left inadequately protected.

Furthermore, the illegal production and trade of mercury-added SLPs continues unimpeded because of weak enforcement, insufficient international cooperation and inadequate resources devoted to this issue. Our research confirms that the global availability of mercury-added SLPs remains robust, whether purchased online or in local markets.

Policy Recommendations

A. Online platforms

Simply stated, national governments should ensure that sales of products prohibited in stores are also prohibited online; and online platforms should bear the legal responsibility for ensuring that products sold on their platforms fully comply with health and safety laws. The platforms act very much like stores in that they profit from each sale, dictate the terms of the sales transactions, control the website content, influence the price of the products, and often distribute the products themselves. Moreover, in cases where the third-party seller on the platform is located outside the country, the online platform is typically the only option for a consumer seeking legal redress for injuries incurred from an unsafe product. The same may be true for regulatory agencies enforcing health and safety laws.

Online legal reforms should adhere to the following principles in order to better protect consumers:

1. Clear liability rules should be established by national governments to cover violations of consumer product, health and safety laws for products sold over e-commerce platforms, with fines and penalties comparable to those imposed for sales in stores. Liability for consumer injuries and lack of contract performance should be similarly established.
2. As a consequence of liability reform, e-commerce platforms should be required to screen and vet sellers and their products. Evidence of health and safety law compliance should be provided by the seller to the internet platforms, including proof that the product is genuine as labelled, disclosure of ingredients, and certifications of compliance with content requirements. Repeat violators should be prevented from re-joining or remaining on the platform. And online platforms

should be required to share an infringing seller's information with law enforcement.

3. E-commerce platforms should publish their compliance measures in a place where these can be independently verified by regulators, including the establishment of a timeline for compliance.
4. Consumers should have access to the same information online as is required for sales in stores, including labelling information.
5. Online platforms should be required to verify foreign third-party sellers, including name, geographic location and other identifying data. Third-party sellers should also be obligated to consent to the jurisdiction of the platform country's courts, and to appoint home-country legal representatives who would be authorized to act on behalf of the supplier in the case of regulatory proceedings or lawsuits from injured consumers.
6. Online platforms should be held responsible for ensuring compliance with third-party seller verification, and information/ingredient disclosure requirements.

B. Illegal production and trade

Here we reiterate and expand upon our recommendations in the ZMWG 2018 and 2019 Testing Reports and the 2019 Enforcement Report. To address illegal production and trade, a strong program for controlling the legal trade of mercury-added products, including SLPs, is required so that violations of law can be clearly established and prosecuted. Once the enforcement infrastructure is in place, detection and investigation strategies can be implemented, in collaboration with all relevant government agencies, civil society and international partners. Regional collaboration and global coordination will facilitate enforcement. The essential elements include:

1. Licensing/registration requirements to import/use mercury or mercury compounds. Note the import and use approval authority must cover mercury compounds, not just elemental mercury, since mercury compounds are more often used to produce mercury-added SLPs. Fees associated with licensing and registration may be a source of revenue for supporting the surveillance program.
2. Labeling requirements for cosmetics requiring full disclosure of ingredients. All cosmetics should be labelled according to national regulations where SLPs are destined, with accurate information on the ingredients, producer, address and country of manufacture. The labeling language must be understandable in the destination country.
3. Severe fines and penalties imposed for illegal uses of mercury in products, lack of compliance with licensing/registration or labeling requirements, and/or providing false information, including confiscation of illegal profits, transferring prosecution and seized goods storage costs to the defendants upon conviction, and imprisonment.

4. Capacity building of customs agencies, including training, materials (quick reference guide/checklist/manual), purchase of field detection equipment (see below), technical support, risk profiling (scrutinize free trade zones), management of seized goods, and coordination with the licensing/registration system administrator.
5. Cross-border collaborations with countries exporting SLPs to your country. Collaboration between countries is essential and can help leverage limited resources to share costs and technical expertise, e.g., for market surveillance and enforcement, information-sharing, product inspection and analysis, and training.
6. Detection and measurement capabilities, both in the field and supported by certified laboratory access as needed for confirmatory evidence. Field measurements of SLPs are typically performed using an X-ray fluorescence (XRF) spectrometer. This is essentially a hand-held “point and shoot” device that measures the presence of metals in solids and liquids. Training is required to use this device, both to use it accurately and to ensure the safety of the person(s) using the device, which is a source of radiation. Laboratory support may be necessary to obtain precise measurements or to calibrate XRF results, such as when mercury crystals or salts are observed in an SLP, indicating that the product is non-homogeneous.
7. Collaboration with legal SLP producers and NGOs on program implementation, and education/outreach to the general public.
8. Regional and global information sharing and cooperation, such as product alert or detention mechanisms, market investigations and capacity building. Regional alert systems, such as the EU RAPEX system, can be used to rapidly share information among collaborating countries about non-compliant products. Market investigation cooperation, such as “Operation Pangea” coordinated by organizations such as INTERPOL, the World Customs Organization (WCO), and the Permanent Forum of International Pharmaceutical Crime (PFIPC), etc., can enhance enforcement efforts.

Finally, priority attention to this issue will be required from the various subsidiary bodies of the Minamata Convention on Mercury. Convention resources should be devoted to creating an information exchange platform, developing materials and resources such as a training manual for customs and enforcement officers, capacity building to promote and support regional collaboration, and XRF group purchasing and training. The Implementation and Compliance Committee of the Minamata Convention should target this issue as a Convention priority need, and should develop immediate and longer term strategies for addressing this issue, including quantifying resource needs. In addition, the Conference of the Parties should initiate activities to “evaluate whether the trade in specific mercury compounds compromises the objective of this Convention and consider whether specific mercury compounds” should be subject to trade restrictions, in accordance with Article 3, Paragraph 13 of the Convention. The first step of this process may be an assessment of the global supply, trade and use of mercury compounds, comparable to studies previously published on elemental mercury.

1 Overview

1.1 Background

Depending on the region of the world, cosmetics used for lightening or bleaching the skin may be referred to by different names. When promoting products in Bangladesh, Pakistan and India, marketers often use the word “lightening,” but in China, Korea, Singapore, Japan and Malaysia, “whitening” is more common.² In this report we use the term “skin lightening products” (SLPs) to include a range of products that may take the form of a cream, soap, cleanser, oil or serum. SLPs include both mainstream, higher-end products that generally have legal ingredients, as well as lower-end products that are often illegal when laced with mercury or other hazardous substances.³

Apart from the common use of SLPs to lighten dark spots on the skin, the practice of lightening the face or other parts of the body is often an indication of societies over time grappling with internalized racism and colorism, and has a range of cultural origins.⁴ According to Sheridan Prasso and Vernon Silver, writing on SLPs in Asia:

“The modern mercury whitening problem is deeply tied to historic cultural issues, from class to colonialism, that vary by country and continent. Skin lightening is particularly valued in societies with historical class distinctions between those who toiled in the fields and the elite who could afford to stay out of the sun. Colonialism made it worse.”⁵

Mercury is well known to local, national and international agencies because it presents a serious risk to human health and the environment. It is on the World Health Organisation’s list of top ten chemicals, or groups of chemicals, of major public health concern.⁶

Nevertheless, mercury compounds have long been used as active ingredients in SLPs and, despite being banned in many countries and internationally, high-mercury SLPs continue to be sold in markets worldwide, including via the internet. This use of mercury is of particular concern due to the widespread and frequent use of these SLPs, and the health and safety effects due to high levels of added mercury.

1.2 Health concerns and government restrictions

SLPs containing mercury have been shown to have profound negative impacts on health and well-being.^{7,8,9} Their regular use reduces the skin’s resistance to bacterial and fungal infections and can lead to rashes, skin discoloration and blotching. Long-term exposure may also damage the eyes, lungs, kidneys, digestive, immune and nervous systems.^{10,11,12,13,14} Some symptoms associated with mercury exposure are not unique to mercury, so it is difficult to identify or diagnose the source of health effects without identifying SLPs as a possible cause, and then testing the suspect products.¹⁵ An adult’s use of SLPs laden with mercury can also expose other family members, such as through close contact,^{16,17} and may even require decontamination of the home.^{18,19,20}

Such dangers are especially worrisome because “the phenomenon of skin lightening is decidedly global in scope,”²¹ as researchers in many countries have found.^{22,23,24,25,26,27} Globally, the demand for SLPs continues to climb, especially in Asia, the Middle East and Africa.²⁸ In some populations more than 50% of individuals use SLPs regularly.^{29,30,31} One meta-analysis estimated that 27.7% of individuals globally attempt at some point to lighten their skin.³²

From the end of 2020, the Minamata Convention generally prohibits the manufacture, import and export of cosmetics (including SLPs)³³ containing more than one part per million (1 ppm or 1 µg/g) mercury.³⁴ Even before the end of 2020, however, many countries had already taken measures to ban or restrict mercury concentrations in cosmetics, including SLPs.³⁵

1.3 Markets and liability issues

The global market for SLPs is estimated at USD 8.8 billion in 2022, and is projected to reach USD 11.8 billion by 2026.³⁶ The Asia-Pacific region is the most lucrative market for SLPs, according to Future Market Insights.³⁷ Women account for an estimated 80 percent of SLP sales worldwide.³⁸

SLPs containing mercury are sold through local markets and online. However, online sales of SLPs are expanding rapidly, further accelerated by the Covid-19 pandemic spurring online sales generally.³⁹

Internet sales are a particular challenge for countries regulating toxic substances. E-commerce is often multinational, where liability rules for e-commerce sites or “platforms” often lead to an uneven playing field. Physical “brick and mortar” stores must comply with domestic laws, while e-commerce companies are often not easily traced, identified or held accountable when a product does not meet applicable health or safety standards, particularly when the seller is located in another country.

Counterfeit cosmetic products further add to the complexity of regulating multinational e-commerce,^{40,41,42} and SLPs are often targeted for counterfeiting.⁴³ According to the Organisation for Economic Co-operation and Development, the market in counterfeit cosmetics was worth USD 5.4 billion in 2016, and the cosmetics industry was among the top 20 industries most vulnerable to counterfeit activities.⁴⁴ Not only do counterfeits undermine responsible merchants who sell safe and legally compliant products, but they also take market share from companies playing by the rules.

1.4 Targeting illegal SLPs

1.4.1 Previous ZMWG investigations

The Zero Mercury Working Group (ZMWG) previously analyzed the mercury content of SLPs. In 2017 and 2018, 338 SLPs were purchased in 22 different countries, and mercury concentrations in 34 of those products (10% of the total) were above 1 ppm, the legal limit in the Minamata Convention.⁴⁵ The products targeted in 2017 were well-known

brands in selected countries, identified via questionnaires, mainly purchased from physical shops (i.e., not e-commerce). The 2018 investigation targeted brands previously found to contain high mercury concentrations, as well as others confirmed by government or state agencies to contain mercury, focusing mainly on informal smaller stores and markets.

A follow-up study conducted in 2019 targeted the high-mercury products from the 2017-2018 study, as well as other SLPs found by governments or researchers to contain over 1 ppm mercury. For the most part e-commerce platforms were targeted, although a few products were bought in physical shops. Of the 166 samples analyzed in 2019, 93 (56%) were found to have mercury concentrations above 1 ppm.⁴⁶

1.4.2 Responses from e-commerce platforms

Among others, SLPs with over 1 ppm mercury identified by ZMWG in 2019 were purchased from Amazon, eBay and Flipkart, which is majority-owned by Walmart; from South Africa's Bidorbuy; from Nigeria's Jumia; and from Lazada and Daraz, both of which are part of the Alibaba Group and operate in South- and Southeast Asia.⁴⁷

Soon after our 2019 report was published, The Wall Street Journal reported that Amazon.com Inc. had removed mercury-laced skin lightening creams from its U.K. and U.S. websites and eBay Inc. was reviewing products on its platform.⁴⁸ Amazon UK stated: "All marketplace sellers must follow our selling guidelines and those who don't will be subject to action, including potential removal of their account. The products in question are no longer available."⁴⁹

Indicative of the lack of regulatory guidance, however, Amazon India claimed that responsibility for sales on its marketplace rests solely with the third-party seller:

"The products offered for sale on the Marketplace are always owned and/or sold by the seller at any point of time (and not by Amazon.) Each and every seller owns the products and independently offers them for sale on the Marketplace in their own right...The sellers are themselves responsible for ensuring all compliance under applicable laws."⁵⁰

An eBay spokesperson confirmed removal of the products in question and "was taking enforcement action against the sellers."⁵¹ eBay spokeswoman Ashley Settle said, "We have key partnerships and processes in place with product manufacturers and regulators to ensure a safe shopping experience."⁵²

In December 2019, Ebay also told Chemical Watch that it had removed from sale the non-compliant products identified in the report. A spokesperson for Lazada's Philippines branch, where the products were purchased, also said the company had removed them: "The sale of products that contain hazardous substances is strictly prohibited on the Lazada platform. Product listings which violate existing policies will be removed once identified." Daraz CEO and founder Bjarke Mikkelsen confirmed this: "Daraz prohibits the sale of illegal and hazardous products ... any violations are dealt with strict measures, including product delisting, financial penalties and even permanent blacklisting."⁵³

Despite these claims, a review by Reuters in mid-2020 showed at least 19 listings of the high-mercury products on different country sites run by all seven e-commerce platforms, including Amazon, Ebay and Alibaba. After Reuters raised the issue, the platforms removed most of the specific SLPs or promised to do so.⁵⁴

In June 2020, Jumia informed us that it was taking this topic very seriously and would ensure that the identified mercury-containing SLPs from the 2019 study would no longer be sold on the Jumia platform.⁵⁵ NGOs from various African countries subsequently reported that the previously identified high-mercury SLPs had become less available on the Jumia platform.

As of July 2020, however, high mercury brands cited by ZMWG were still available on Daraz, Amazon, and eBay.⁵⁶

1.4.3 ZMWG's 2020-2022 investigation

Our latest report presents the protocols, test results and conclusions drawn from the ZMWG 2020-2022 investigation of a broad range of suspect SLPs purchased online by our NGO partners in 17 countries. It included follow-up testing of the same high-mercury brands tested in 2019, as well as other SLPs subsequently identified. The findings confirm once again that high-mercury SLPs remain widely available from an even broader range of popular e-commerce platforms worldwide.

2 Sampling and analysis of SLPs

2.1 Sampling process and limitations

The scope of this study once again covers a significant number of countries, targets a greatly expanded number of SLPs available online, and includes a broader range of potentially "high-mercury" products previously identified by governments and researchers. As the SLPs identified and purchased for testing have not been selected randomly, this investigation is not a statistically representative sample of the SLP market.

About 80 SLPs considered to be potentially "high-mercury" products (containing at least 1 ppm mercury) comprised the "target list" for this investigation, which can be found in [Annex A](#). Partner NGOs in Africa, Asia, Europe, Latin America & the Caribbean, the Middle East and North America acquired and logged these SLPs according to the protocol in [Annex B](#).

The initial step was to check the availability of the "target list" SLPs on the major e-commerce platforms in the respective countries. 271 samples were then purchased by NGOs in 17 countries⁵⁷, including Antigua and Barbuda (6); Bahrain (3); Bangladesh (20); Belgium (23); Brazil (3), India (25); Indonesia (26); Côte d'Ivoire (10); Kenya (18); Mexico (18); Nepal (2); Nigeria (8); the Philippines (28); South Africa (3); Thailand (32); Uganda (20); and the United States of America (USA) (26). Of those samples, 255 were identified as creams or milk creams, 12 were serums/cleansers/oils, and 4 were soaps.

[Annex H](#) lists all of these samples, including the brand and name of each product, the country of purchase, the e-platform where it was purchased, the country of origin or manufacture according to information on the packaging, and the mercury concentration determined after analysis.

The mercury concentration was determined by XRF or laboratory based Atomic Absorption Spectrophotometer (AAS) analysis, or both. Direct analysis of samples via XRF is recognized as the fastest, most straightforward and generally reliable method to assess the mercury content of SLPs. However, while most SLP samples are fairly homogeneous, “some may contain flakes or chunks of mercury salts, which may compromise the accuracy and reproducibility of an XRF test that generally involves only minimal manipulation of the sample.”⁵⁸ An AAS analysis may be relied upon to provide an accurate and reproducible reading.

SLPs purchased in the European Union and the United States were analyzed by the Quality Assurance and Control Systems (QACS) Lab in Greece. The laboratory used a Perkin Elmer AAnalyst™ 800 Atomic Absorption Spectrometer (AAS) according to the methodology in [Annex D](#).

The mercury contents of the rest of the SLPs purchased from around the world were screened at three regional ZMWG hubs (see below) using XRF analyzers according to the protocols in [Annex E](#) (for purchases in Africa), [Annex F](#) (for purchases in Latin America and the Caribbean) and [Annex G](#) (for purchases in Asia):

- In Côte d'Ivoire (for Africa) the hub is run by the Centre Africain pour la Santé Environnementale (CASE), and a Niton XL3t-970 GOLDD+ SDD XRF Analyzer was used;
- In Antigua and Barbuda (for Latin America and the Caribbean) with the assistance of the Integrated Health Outreach, the samples were analysed by the Department of Analytical Services of the Ministry of Agriculture of Antigua and Barbuda with a Bruker S1 Titan II Model 600 Handheld XRF;
- In the Philippines (for Asia), the hub is run by BAN Toxics and the testing was carried out by the Philippines Nuclear Research Institute (PNRI). A Shimadzu EDX-7000 Dispersive X-ray fluorescence (XRF) spectrometer was used.

The high-mercury samples detected in the Latin American and Caribbean Region, as well as six high-mercury samples from Africa and eight from Asia (representing 10% of the samples analysed), which had initially been screened with XRFs (see above), were subsequently sent to the accredited Quality Assurance and Control Systems (QACS) Lab in Greece for quality assurance analysis.

2.2 Results of analyses

All test results (brand name and mercury concentration) are presented in [Annex H](#). Some products of the same brand were purchased in different countries and through different e-commerce platforms. NGOs from different countries sometimes used the same e-commerce platform but with different access (e.g., Amazon India vs. Amazon France). Figure 1 and Table 1 provide an overview of the countries and e-commerce platforms where samples were purchased.

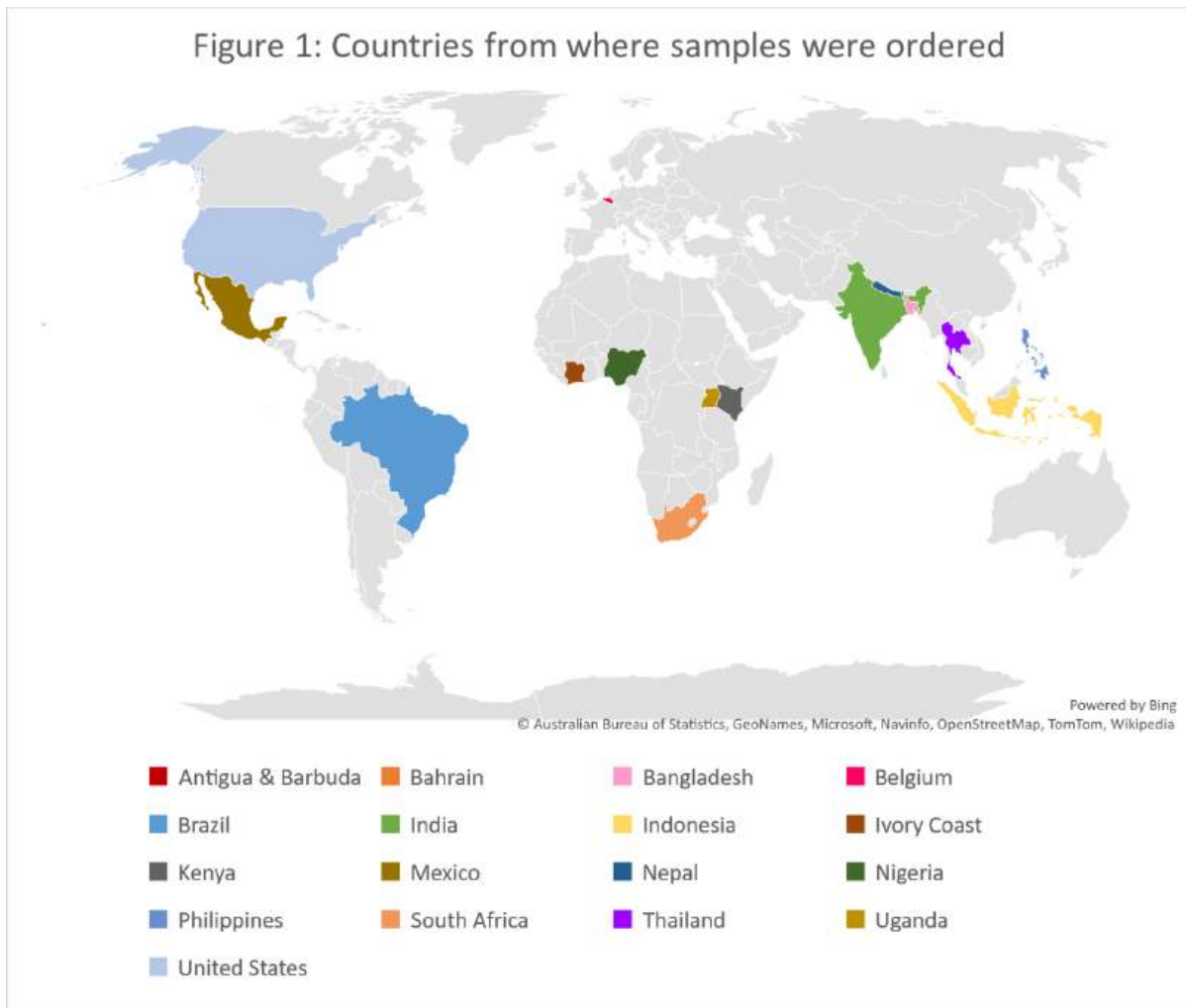


Table 1: Countries where samples were ordered/purchased from e-commerce platforms

Countries where NGOs are based and where samples were ordered	E-commerce platforms where samples were purchased (Platforms in bold indicate at least one high-mercury SLP found)
Antigua & Barbuda	Amazon (.com)
Bahrain	Ubuy (.bh)
Bangladesh	Ajkerdeal; Apsarah; Clickbd; Daraz (.bd); Kablewala; Vinnobd
Belgium	Aliexpress; Amazon (.fr); eBay (.be); Bol
Brazil	Mercadolivre (Brazil); Shopee (.br)
India	Amazon (.in); Flipkart
Indonesia	Bukalapak; Shopee (.id); Tokopedia
Côte d'Ivoire	Jumia (.ci); Ubuy (.ci)
Kenya	Jiji (.ke); Jumia (.ke); Kilimall (.ke); Sky Garden
Mexico	Aliexpress; Amazon (.mx); eBay (.com); Mercadolibre (mx); Wish
Nepal	Daraz (.np)
Nigeria	Jiji (.ng); Jumia (.ng)
Philippines	Lazada (.ph); Shopee (.ph)
South Africa	Bidorbuy
Thailand	Aliexpress; Desertcart (.th); eBay (.com); Lazada (.th); Shopee (.th); Ubuy (.th)
Uganda	Jiji (.ug)
USA	Amazon (.com); eBay (.com)

3 Findings

3.1 Ongoing availability of high-mercury SLPs

The 2020-2022 ZMWG investigation of SLPs sold on over 40 e-commerce platforms accessed in 17 countries by our partner NGOs confirmed yet again that high-mercury SLPs are widely available all over the world.

25 of the 38 high-mercury SLPs previously identified in the 2019 ZMWG report were still found to contain mercury over 1 ppm in this 2020-2022 investigation. Furthermore, 18 products that had not been identified during the previous 2018-2019 testing were also found to contain mercury concentrations over 1 ppm. Overall, 6.6% of the high-mercury SLPs uncovered in the 2020-2022 investigation had not previously been identified by ZMWG. For all of the SLPs with more than 1 ppm mercury, test results are shown in [Annex C](#).

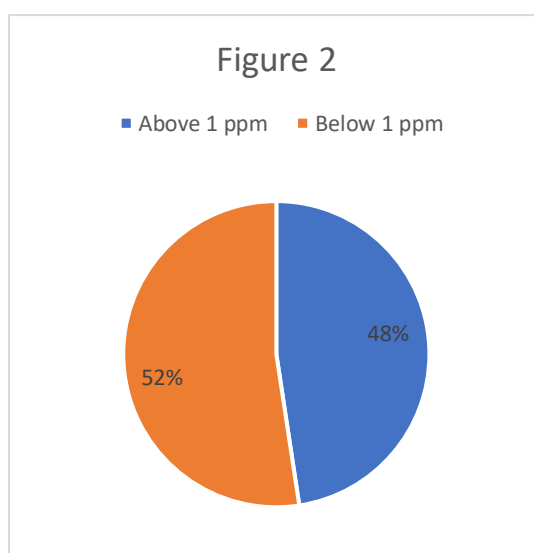
Most of the high-mercury products found in multiple countries in 2019 continue to be available online worldwide, and accessed from more countries than in 2019. A few SLP brands that stand out in particular include, but are not limited to the following:

- **Aneeza Gold Beauty cream** continues to be available in India and Nigeria, and has also been found to be available in South Africa, Thailand and Uganda.
- **Chandni Whitening cream** continues to be available for Kenyans, and has also been found to be available in Uganda.
- **Due Beauty cream** was previously available in Bangladesh, India and South Africa, and has also been found to be available in Belgium, Indonesia and the Côte d'Ivoire.
- **Faiza Beauty cream**, available in 2019 in Bangladesh, Djibouti, India, Kenya, South Africa and Uganda, has also been found to be available in India, Indonesia, Kenya, Thailand, Uganda and the USA.
- **Goree creams** continue to be available in Bangladesh, India and the Philippines, and they have also been found to be available in Indonesia, Mexico and Nigeria.
- **Kim Whitening creams** continue to be available in Bangladesh and Nigeria, and they have also been found to be available in Thailand and Mexico.

With regard to our target list of high-mercury SLPs, in a number of cases the same skin-lightening brands/products were purchased from different platforms in different countries. As summarized in [Annex C](#) (Table C6), while not all samples of the same product were found to contain mercury, our investigation confirmed that there is a high probability that mercury is a common ingredient in most SLPs carrying the same brand/product name.

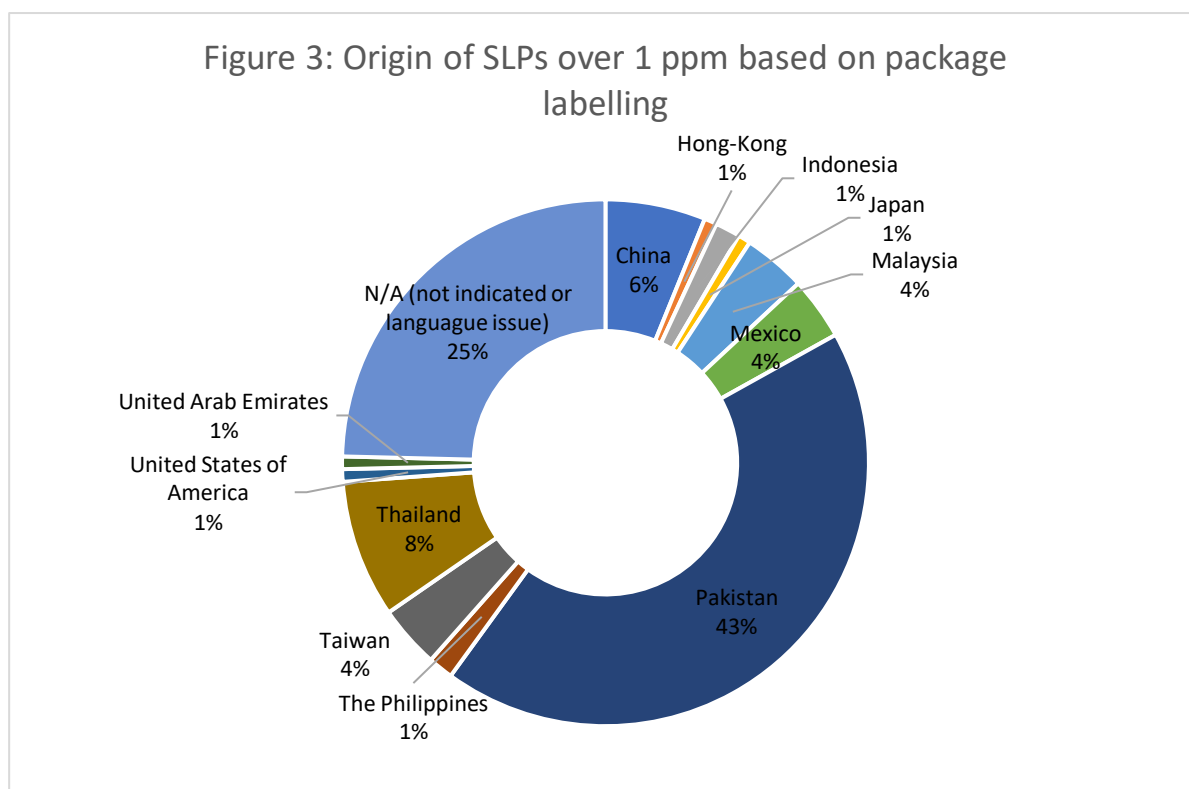
3.1.1 Mercury content of the products tested

The SLPs with more than 1 ppm mercury (see [Annex C](#)) represented 47,6% of the 271 samples purchased online from 17 countries, as shown in Figure 2.⁵⁹



3.1.2 Sources of high-mercury products

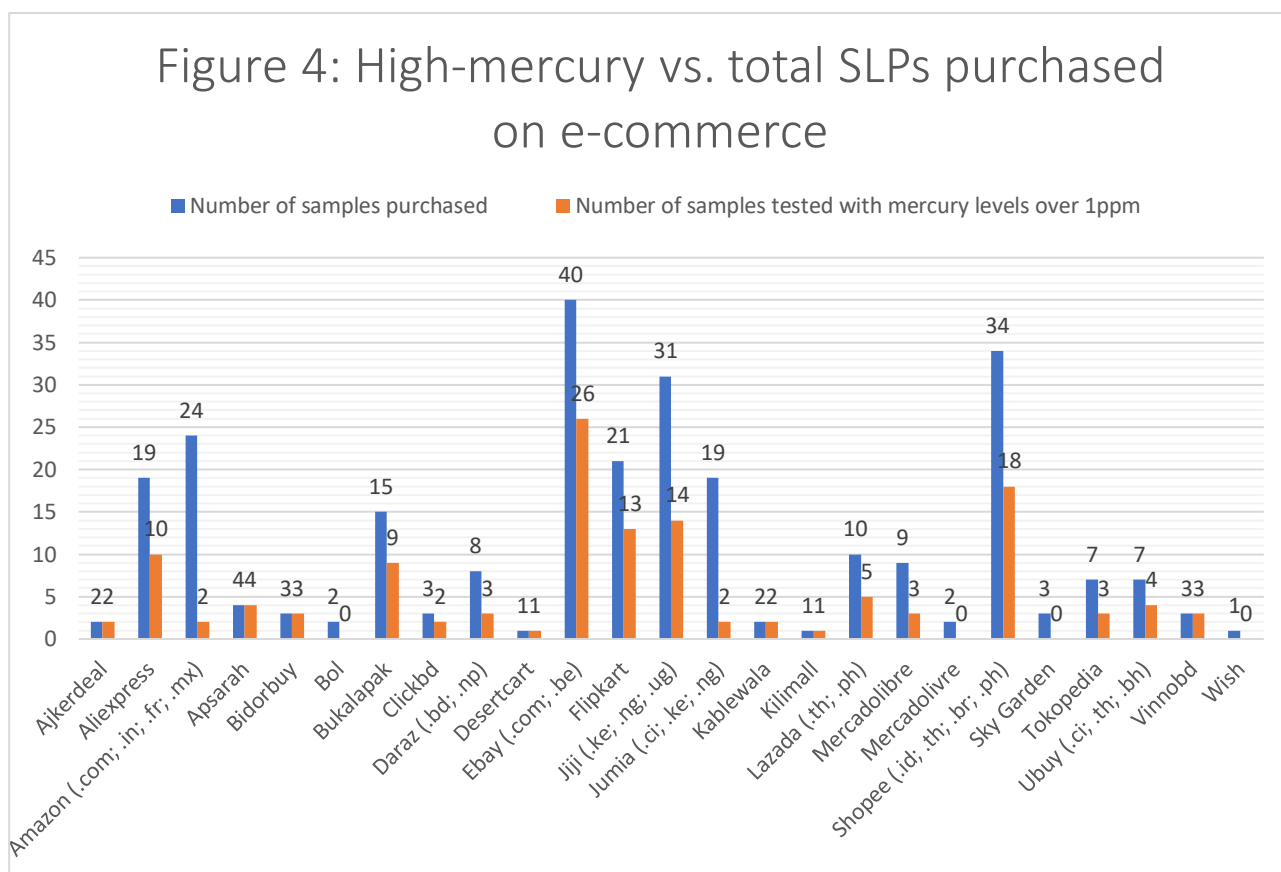
As observed in our 2019 study,⁶⁰ most high-mercury SLPs appear to have been manufactured or distributed from Pakistan, Thailand or China. As summarized in Figure 3, and based solely on the information available on the packaging,⁶¹ 56 of the high-mercury SLPs were manufactured in or distributed from Pakistan (43%), 11 from Thailand (8%) and 8 from China (6%). For 25% of the high-mercury SLPs purchased, the country of origin was not indicated or not recorded.



3.1.3 E-platforms selling high-mercury products

Compared to our 2019 investigation, where 7 e-platforms were found to be selling high-mercury products, 14 additional platforms were investigated in 2020-2022. If one further differentiates between parent and subsidiary e-commerce platforms (e.g., Amazon.com and Amazon India), a total of more than 40 e-platforms were screened, as in Table 1 above.

Figure 4 shows the number of samples purchased on each e-commerce platform, and the number of samples with mercury levels over 1 ppm.



More than half of the 40 samples purchased on eBay platforms were found to contain mercury concentrations over 1 ppm. On Shopee, 34 samples were purchased and 18 of them had mercury over 1 ppm. On Jiji and Flipkart, 31 and 21 samples were purchased respectively, and 14 and 13 from each respective platform contained mercury over 1 ppm.

3.1.4 Common brands of high-mercury products

[Annex C](#) presents all products with more than 1 ppm mercury. As in earlier investigations and shown in Table 2, similar products were often found to contain high mercury concentrations in more than one country. In regions investigated by ZMWG for the first time, SLPs found to contain mercury levels over 1 ppm were purchased in the Middle East as well as Latin America and the Caribbean.

Table 2: Same high-mercury products ordered in more than one country

Brand name	Product name	Countries where the samples were ordered
Aneeza Gold	Beauty Cream with Avocado & Aloe Vera	India, Nigeria, South Africa, Thailand, Uganda
Arché	Formula AA Pearl Cream	Belgium, USA
Chandni	Whitening Cream	Kenya, Uganda
Collagen Plus - Vit E	Night Cream	Bangladesh, Belgium, India, Indonesia, Mexico, Nepal, Philippines,
Dr. Japan	Nano	Kenya, Thailand, Uganda

Skin lighteners still available online despite mercury findings
March 2022

Brand name	Product name	Countries where the samples were ordered
Due	Beauty Cream	Belgium, Indonesia, Côte d'Ivoire
Egg White & Cherry	7 days specific eliminating freckle whitening cream	Bangladesh, India
Face Fresh	Beauty Cream	Belgium, India, Thailand, USA, South Africa
Faiza	Beauty Cream	India, Indonesia, Kenya, Thailand, Uganda, USA
Golden Pearl	Beauty Cream	Bangladesh, India, Kenya, Philippines, Thailand
Goree	Beauty Cream with Lycopene	Bangladesh, India, Indonesia, Mexico, Nigeria
Goree	Day & Night Whitening Cream	India, Indonesia, Philippines
Jiaobi	Whitening & Moisturizing set - Whitening Make-up Base	India, Indonesia, Thailand
Jiaobi	Whitening & Moisturizing set - Whitening Night Cream	Bangladesh, Belgium, India, Indonesia, Philippines, Thailand
Jiaoli	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Day Cream	Belgium, Philippines
Jiaoli	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Night Cream	Belgium, Philippines
Kim	Whitening Ginseng and Pearl Cream	Bangladesh, Thailand
Kim	Whitening Pearl and Snow Lotus Cream	Bangladesh, Mexico, Nigeria, Thailand
La Tia Mana	Crema Limpiadora y Curativa	Antigua & Barbuda, Mexico
Natural 99	Vitamin E Plus (White canister)	Indonesia, Philippines
Natural 99	Vitamin E Plus (Yellow canister)	Indonesia, Philippines
New Face	Whitening Cream	Belgium, India
Noor	Herbal Beauty Cream	Côte d'Ivoire, Kenya
Noor	Herbal Whitening Cream	Bangladesh, India
Nunn Care	Crema Limpiadora	Bahrain, Mexico
Parley	Beauty Cream	Philippines, Thailand, Uganda
Parley	Herbal Beauty Cream with Avocado	Belgium, USA
Sandal	Whitening Beauty Cream	India, Thailand, Belgium
Temulawak	Day & Night Cream - Beauty Whitening Cream - Night Cream	Indonesia, Thailand

As in previous investigations by ZMWG, sometimes there was a significant variation in mercury concentration between different batches of the same product, or even in the same batch (although purchased on different platforms), as seen in [Annex I](#). There could be a number of explanations for these differences, including inconsistent formulation, uneven mixing of batches, possible counterfeiting, etc.

4 Monitoring the availability of high-mercury SLPs

4.1 Monitoring method and purpose

In addition to testing SLPs for their mercury content, more than 40 e-commerce platforms were monitored regularly by NGO partners in fifteen countries from December 2020 until the end of 2021, in order to document the availability of the target list of (potentially) high-mercury SLPs. This monitoring exercise served to:

1. provide a better understanding of which high-mercury products might be more commonly available on which e-platforms;
2. identify the e-commerce platforms routinely carrying the largest number of our priority (potentially) high-mercury SLPs;
3. provide evidence for reaching out to governments and e-commerce platforms when products from the priority (potentially) high-mercury SLP list were found repeatedly on the platforms.

The methodology for this monitoring exercise is presented in [Annex J](#), and the results are summarized below.

4.2 Monitoring observations

[Annex K](#) presents the results of the 2020-2021 monitoring exercise. Across all of the e-commerce platforms monitored, the top 10 most often available SLPs with high mercury concentrations, in order of availability, included:

- Collagen Plus Vit E
- Arché Formula AA Pearl Cream
- Goree Beauty Cream
- Golden Pearl Whitening Beauty Cream
- JiaoBi Whitening set
- Faiza Beauty Cream
- Chandni Whitening Cream
- Goree Day and Night Whitening Cream
- Noor Herbal Beauty Cream
- Due Beauty Cream

To better interpret the above information, at the top of the list “Collagen Plus Vit E” appeared 126 times in 2815 total “looks,” while “Due Beauty Cream,” was 10th on this list, appearing 64 times in 2815 total “looks.”

Of the new and global e-commerce platforms monitored, eBay had the greatest number of repeat occurrences of products on our target list of (potentially) high-mercury SLPs. Ubuy (Bahrain, Thailand), Shopee (Philippines) and Flipkart (India) also had relatively high numbers of (potentially) high-mercury SLPs available throughout the monitoring

period. Further details may be consulted in Table K-3 of [Annex K](#), while the full raw data from the monitoring exercise are presented in [Annex L](#).

4.3 Possible counterfeit products

Counterfeiting of SLPs exists, and it can be hard to identify which products are counterfeit.⁶² However, a claim of counterfeiting may be used by some producers to avoid responsibility for the ingredients of their SLPs. This is one reason online platforms must do a better job of seller and product verification. And it further reinforces the need for testing capacity in countries where SLPs are produced and/or imported, as the following case illustrates.

A journalist investigating the sale of mercury in skin lightening creams in South Africa bought a tub of Noor Gold skin lightening cream in Durban. The sample was sent for independent chemical analysis and the laboratory result showed that it contained 82 ppm mercury. The journalist contacted Noor Gold cosmetics for comments and received the following reply from Mr. Muhammad Kashif: "Hi Our products are according to international quality standards and does not contain hazards contents. But some people make copy of our products for making big profit."⁶³

In an earlier case, a 2019 Bloomberg article stated that Mr. Arslan Tariq, general manager for technology and business development at Goree Cosmetics Pvt. in Lahore, Pakistan, had claimed that authentic Goree products don't contain mercury, and that the Goree-labelled products tested by EcoWaste in Manila were "100% fake." Mr. Tariq suggested that counterfeiting of Goree products was rampant and said the company had lodged a complaint with Pakistan's Federal Investigation Agency.⁶⁴

The Bloomberg article then stated that Mr. Tariq had said he couldn't vouch for Goree-labelled products not bought directly from the company. The best Chinese counterfeits are so convincing, he said, that "even we cannot tell sometimes." To support his case, Mr. Tariq's company made available the results of a test carried out by the government-run Pakistan Council of Scientific and Industrial Research, showing that Goree Beauty Cream with Lycopene had passed the test. "Tariq also shipped what he called authentic samples to Bloomberg's Hong Kong office. They were tested by the Hong Kong Standards and Testing Centre. The Goree products failed: Goree Beauty Cream with Lycopene contained 5,430 ppm of mercury; Day & Night Whitening Cream had 43 ppm. Tariq said those findings were "impossible" and disputed the test results."⁶⁵

Our sampling of Goree creams consistently showed high mercury content when tested during our 2019 and 2021 sampling rounds:

- During our 2019 investigation, 8 samples of Goree Beauty Cream with Lycopene were purchased from different platforms/countries and tested. All but one showed high mercury content. Five samples of Goree Day & Night Whitening Cream were purchased from different platforms/countries, and all but one showed high mercury content.
- In our 2021 investigation, 8 samples of Goree Beauty Cream with Lycopene were purchased from different platforms/countries and tested. All but one showed

high mercury content. Three samples of Goree Day & Night Whitening Cream were purchased from three different countries/platforms and all showed high mercury content.

Below are pictures of some of the samples tested in 2019 and 2021.



4.4 Regulating producers and sellers of SLPs

As in the 2019 sampling exercise, most of the high-mercury products appear to originate in three countries – namely Pakistan, Thailand and China. However, this information is difficult to confirm due to the often illegal nature of the business, the challenge of identifying the individuals responsible and their methods, and the possible role of counterfeit products.

Pakistan has a substantial beauty products industry, including the probable illegal production of mercury-added SLPs. According to a 2018 joint report by the Ministry of Climate Change and the Sustainable Development Policy Institute (Islamabad), "... assessment of the quality of 59 local and international brand products revealed only three manufacturers were using standard mercury quantities, while the remaining 56 included excessive amounts ... in their products compared to the permissible 1ppm limit. The majority of manufacturing units are unauthorized and working illegally on a large scale."⁶⁶

Subsequently, the authorities in Sindh province announced that they were taking steps to curtail the production of illegal SLPs. A Pakistan government report highlighted this initiative and strongly recommended that other provinces take similar measures:

“Last year, the ‘Public Notice’ [see below, as published in local newspapers] for general awareness and the action against Skin Cream manufacturers, by Pakistan Standards & Quality Control Authority (PSQCA), Karachi, Sindh province is appreciated and is a right step in the right direction and the same is most strongly recommended to be followed by the other provinces, GB & AJ&K governments (PSQCA, 2017/Annex 4).”⁶⁷

Annex 4: Public Notice for General Awareness and the Action against Skin Cream Manufacturers, by PSQCA

BUSINESS RECORDER
Simultaneously published from Karachi, Lahore & Islamabad
Founded by M.A. Zubari

**Public Notice
Skin Cream Manufacturers**

This is to advise for Manufacturers of Skin Cream and general public that in exercise of the power under section 14 of the Pakistan Standards & Quality Control Authority (PSQCA) Act-VI 1996, the Government of Pakistan has empowered PSQCA to prohibit the Manufacturing, storage & sale of the following if they did not conform to the relevant Pakistan Standard Specifications (PSS) as follows:

SRO No.	Dated	PSS No.	PSS Title
48(KE)/2017	10-05-2017	PS-3228/2017	Skin Cream

In order to avoid any penal action, all the manufacturers are advised, to their own interest to get their product registered / Certified with PSQCA within 15 days of Publication of this Public Notice. The details are available at web site or call at Toll free Number of PSQCA - 9930 80000.

SAY NO TO SUB-STANDARD PRODUCTS
A sign of safety, reliability and satisfaction

Pakistan Standards & Quality Control Authority
Ministry of Science & Technology, Government of Pakistan

Secretary PSQCA Pak-Scott Block No. 77, Saddar, Karachi. Tel: 021-99206519	Director CA-North 308 Millium Heights, Hafiz Road P-11-1, Islamabad. Tel: 011-2224854	Director CA-South PSQCA Division, 7A, Block 3, Saddar, CA Division-4 E-Block, Karachi. Tel: 021-99281587	Deputy Director CA-North, Director CA-Control P14 7th/32, Sector B-II, Phase V, Islamabad. Pakistan. Tel: 079-8227382	Director CA-Lahore Kasb Larkhan, Lahore. Tel: 041-5523500
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Public Notice for General Awareness and the Action against Skin Cream Manufacturers, by PSQCA

Cosmetics Europe has suggested that the lack of basic information, e.g., on manufacturer, country of origin and/or batch number may be indicative of counterfeiting.⁶⁸ In this study, some of the products lacked such basic information on the packaging. 25% of the high-mercury products lacked information about the country of origin, or it was not recorded by the NGOs or not decipherable due to a language barrier; and many provided no batch number, or it was not recorded or not identifiable. Unfortunately, the scope of this investigation did not permit us to determine which products may have been counterfeits.

Although many countries such as Thailand⁶⁹ and China have ingredient disclosure requirements, none of the 19 high-mercury creams that indicated Thailand or China as the country of manufacture mentioned mercury in their ingredient lists. In fact, virtually all producers of mercury-added SLPs violate labelling and ingredient disclosure requirements as, during this investigation, mercury was not listed by any of the high-mercury SLPs where we checked the ingredients.

5 Policy implications

The current legal regulatory framework in most countries fails to adequately protect consumers from hazardous, counterfeit and illegal products sold online. A primary reason for this failure is that national laws in many countries allow online platforms to evade responsibility for the products sold on their platforms. This lack of accountability removes incentives for platforms to ensure product safety and produces, at best, voluntary episodic efforts to remove illegal products from a platform – efforts which are short-lived and ineffective at protecting consumers. The safety risks of online platforms have been well documented, and extend well beyond mercury-added SLPs. Consequently, policymakers and the courts are increasingly challenging a legal framework where consumers are left inadequately protected.

Furthermore, the illegal production and trade of mercury-added SLPs continues unimpeded because of weak enforcement, insufficient international cooperation and inadequate resources devoted to this issue. Our research confirms that the global availability of mercury-added SLPs remains robust, whether purchased online or in local markets.

6 Policy recommendations

6.1 Online platforms

Simply stated, national governments should ensure that sales of products prohibited in stores are also prohibited online; and online platforms should bear the legal responsibility for ensuring that products sold on their platforms fully comply with health and safety laws. The platforms act very much like stores in that they profit from each sale, dictate the terms of the sales transactions, control the website content, influence the price of the products, and often distribute the products themselves. Moreover, in cases where the third-party seller on the platform is located outside the country, the online platform is typically the only option for a consumer seeking legal redress for injuries incurred from an unsafe product. The same may be true for regulatory agencies enforcing health and safety laws.

Online legal reforms should adhere to the following principles in order to better protect consumers:

1. Clear liability rules should be established by national governments to cover violations of consumer product, health and safety laws for products sold over e-commerce platforms, with fines and penalties comparable to those imposed for sales in stores. Liability for consumer injuries and lack of contract performance should be similarly established.
2. As a consequence of liability reform, e-commerce platforms should be required to screen and vet sellers and their products. Evidence of health and safety law compliance should be provided by the seller to the internet platforms, including proof that the product is genuine as labelled, disclosure of ingredients, and certifications of compliance with content requirements. Repeat violators should be prevented from re-joining or remaining on the platform. Online platforms should be required to share an infringing seller's information with law enforcement.
3. E-commerce platforms should publish their compliance measures in a place where these can be independently verified by regulators, including the establishment of a timeline for compliance.
4. Consumers should have access to the same information online as is required for sales in stores, including labelling information.
5. Online platforms should be required to verify foreign third-party sellers, including name, geographic location and other identifying data. Third-party sellers should also be obligated to consent to the jurisdiction of the platform country's courts, and to appoint home-country legal representatives who would be authorized to act on behalf of the supplier in the case of regulatory proceedings or lawsuits from injured consumers.
6. Online platforms should be held responsible for ensuring compliance with third-party seller verification, and information/ingredient disclosure requirements.

6.2 Illegal production and trade

Here we reiterate and expand upon our recommendations in the 2019 Enforcement Report⁷⁰. To address illegal production and trade, a strong program for controlling the legal trade of mercury-added products, including SLPs, is required so that violations of law can be clearly established and prosecuted. Once the enforcement infrastructure is in place, detection and investigation strategies can be implemented, in collaboration with all relevant government agencies, civil society and international partners. Regional collaboration and global coordination will facilitate enforcement. The essential elements required to address illegal production and trade include:

1. Licensing/registration requirements to import/use mercury or mercury compounds. Note the import and use approval authority must cover mercury compounds, not just elemental mercury, since mercury compounds are more often used to produce mercury-added SLPs. Fees associated with licensing and registration may be a source of revenue for supporting the surveillance program.

2. Labeling requirements for cosmetics requiring full disclosure of ingredients. All cosmetics should be labelled according to national regulations where the product is destined, with accurate information on the ingredients, producer, address and country of manufacture. The labeling language must be understandable in the destination country.
3. Severe fines and penalties for illegal uses of mercury in products, lack of compliance with licensing/registration or labeling requirements, and/or providing false information, including confiscation of illegal profits, transferring prosecution and seized goods storage costs to the defendants upon conviction, and imprisonment.
4. Customs agency capacity building, including training, materials (quick reference guide/checklist/manual), purchase of field detection equipment (see below), technical support, risk profiling (scrutinize free trade zones), management of seized goods, and coordination with the licensing/registration system administrator.
5. Cross-border collaborations with countries exporting SLPs to your country. Collaboration between countries is essential and can leverage limited resources to share costs and technical expertise, e.g., for market surveillance and enforcement, information-sharing, product inspection and analysis, and training.
6. Detection and measurement capabilities, both in the field and supported by certified laboratory access as needed for confirmatory evidence. Field measurements of SLPs are typically performed using an X-ray fluorescence (XRF) spectrometer. This is essentially a hand-held “point and shoot” device that measures the presence of metals in solids and liquids. Training is required to use this device, both to use it accurately and to ensure the safety of the person(s) using the device, which is a source of radiation. Laboratory support may be necessary to obtain precise measurements or to calibrate XRF results, such as when mercury crystals or salts are observed in an SLP, indicating that the product is non-homogeneous.
7. Collaboration with legal SLP producers and NGOs on program implementation, and education/outreach to the general public. In low- and middle-income countries with limited resources, NGOs with access to reliable analytical instruments could support the authorities identification of non-compliant products.
8. Regional and global information sharing and cooperation, such as product alert or detention mechanisms, market investigations and capacity building. Regional alert systems, such as the EU RAPEX system, can be used to rapidly share information among collaborating countries about non-compliant products. Market investigation cooperation such as “Operation Pangea,” coordinated by organizations such as INTERPOL, the World Customs Organization (WCO), and the Permanent Forum of International Pharmaceutical Crime (PFIPC), can enhance enforcement efforts.⁷¹

Finally, priority attention to this issue will be required from the various subsidiary bodies of the Minamata Convention on Mercury. Convention resources should be devoted to

creating an information exchange platform, developing materials and resources such as a training manual for customs and enforcement officers, capacity building to promote and support regional collaboration, and XRF group purchasing and training. The Implementation and Compliance Committee of the Minamata Convention should target this issue as a Convention priority need, and should develop immediate and longer term strategies for addressing this issue, including quantifying resource needs. In addition, the Conference of the Parties should initiate activities to “evaluate whether the trade in specific mercury compounds compromises the objective of this Convention and consider whether specific mercury compounds” should be subject to trade restrictions, in accordance with Article 3, Paragraph 13 of the Convention. The first step in this process may be an assessment of the global supply, trade and use of mercury compounds, comparable to studies previously published on elemental mercury.

Endnotes

¹ BAN Toxics, the Philippines; Bio Vision Africa, Uganda; Casa Cem, Mexico; Center for Public Health and Environment (CEPHED), Nepal; Center for Environment Justice and Development (CEJAD), Kenya; Centre Africain pour la Santé Environnementale (CASE), Côte d'Ivoire; Earth, Thailand; Environmental and Social Development Organization (ESDO), Bangladesh; Environment Friends Society, Bahrain; European Environmental Bureau (EEB), Belgium; groundWork (gW), South Africa; Integrated Health Outreach (IHO), Antigua and Barbuda; Mercury Policy Project (MPP), USA; NEXUS3Foundation, Indonesia; Sustainable Research and Action for Environmental Development (SRADev), Nigeria; Toxics Link, India; and Taxisphera Environmental Health Association (TEHA), Brazil.

² Despite health warnings, skin-lightening products persist. Daneese Rao, News Decoder, 16 December 2021. <https://news-decoder.com/despite-health-warnings-skin-lightening-products-persist/>

³ Ibidem

⁴ Skin whitening: what is it, what are the risks and who profits? Meera Senthilingam, Pallabi Muni and Vanessa Offiong, CNN, 25 January 2022. <https://www.cnn.com/2022/01/25/world/as-equals-skin-whitening-global-market-explainer-intl-cmd/index.html>

⁵ No One Knows How Many of the World's Skin-Lightening Creams Are Tainted With Mercury. Sheridan Prasso and Vernon Silver, Bloomberg, 28 August 2019. <https://www.bloomberg.com/news/features/2019-08-28/mercury-taints-unknown-number-of-skin-lightening-beauty-creams>

⁶ Exposure to Mercury: a major public health concern, second edition: Preventing disease through healthy environments. Chemical Safety and Health Unit, World Health Organization, 8 April 2021: <https://www.who.int/publications/i/item/9789240023567>

⁷ Goeckermann WH (1922). Peculiar discoloration of skin. Journal of the American Medical Association 79, 605-607.

⁸ Aberer W (1991). Topical mercury should be banned – dangerously outmoded, but still popular. Journal of the American Academy of Dermatology 24, 1550-151.

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Annex A—ZMWG priority list of suspect SLPs

The priority list of SLPs was compiled from products tested by the ZMWG 2017-2019, and found to contain more than 1 ppm mercury, or that were on the government or organization detention and alert lists in Annex A of 2019 ZMWG report,¹ as well as the State of California list 2020.²

Table 1: Priority list of suspect SLPs and images of the products/packaging

Product	Image
Aneeza Gold Beauty Cream	
Aranda Balsamo Blanco	

¹ Mercury-Added Skin-Lightening Creams Campaign. Zero Mercury Working Group.

<https://www.zeromercury.org/mercury-added-skin-lightening-creams-campaign/>

² Face Creams Containing Mercury. Environmental Health Investigations Branch, California Department of Public Health.

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Product	Image
Best	
Block & White, Radiance SPF 15 Whitening Face Powder	
CCM special cream anti-melasma dark, spots cream	
Chandni Whitening Cream	

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Product	Image
Clara Luna	
Cleo me' White	
Collagen Plus Vit E	
Crema Aquamary	





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Product	Image
Crema Blanqueadora Whitening Cream Lisso	 A green and white box for 'Crema Blanqueadora Whitening Cream Lisso'. The text on the box includes 'Crema Blanqueadora' in red script, 'Whitening Cream' in green, 'Lisso' in large black letters, and 'NET. WT. 2 OZ.' at the bottom. A red circular sticker on the right side says 'Nueva Presentación'.
Crema de Casa	 A small, clear glass jar containing a light-colored, thick cream. The jar has a white lid.
Crema Esparza	 A small, clear glass jar containing a light-colored, thick cream. The jar has a white lid.
Crema Jimena	 A small, clear glass jar containing a light-colored, thick cream. The jar has a white lid.
Crema Piel de Seda	 A white plastic jar with a blue label. The label features a silhouette of a person and the text 'Crema PIEL DE SEDA'. Below that, it says 'Elimina manchas, acné y más...' and 'Crema para cuerpo y rostro'.

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Product	Image
Delicate Cream	
Dr. Japan, Nano	
Due Beauty Cream	
Egg White and Cherry 7 Days Specific Eliminating Freckle Whitening Cream	
Erna Whitening Cream	





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Product	Image
Formula AA Arché Pearl Cream	 A decorative floral-patterned sachet of Formula AA Arché Pearl Cream stands next to its open, round, light-colored jar. The jar lid and sachet both feature the Thai text 'อาร์เช่' and 'FORMULA A.A. ARCHE PEARL CREAM'.
Freckle Killer #2	 A green and white tube of Freckle Killer #2 cream is positioned next to its yellow and black cardboard box. The box has the Chinese characters '雀斑2号' (Freckle Killer #2) printed on it.
Garnier SkinActive Aclarante	 A white plastic jar with a yellow lid of Garnier SkinActive Aclarante cream. The label features the Garnier logo, 'SKINACTIVE', and 'Aclarante' along with a sunflower illustration.
Gluta Speed White Sakura	 A gold-colored jar of Gluta Speed White Sakura cream sits on top of its orange and white cardboard box. The box features a woman's face and the text 'Gluta Speed White' and 'NEW & Improved'.

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Product	Image
<p>Glutathione Grapeseed Extract Whitening Anti-Aging Night</p>	
<p>Golden Pearl Whitening Beauty Cream</p>	
<p>Goree Day and Night Whitening Cream</p>	
<p>Goree Beauty Cream</p>	
<p>Goree Whitening Soap</p>	

Skin lighteners still available online despite mercury findings
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Product	Image
Green Tea Whitening Anti-freckle Cream	 The image shows the packaging and a jar of Green Tea Whitening Anti-freckle Cream. The box is green and white, featuring a green tea leaf and the text "Green Tea", "seven-day", and "Green Tea Whitening Anti-freckle cream". The jar is white with a green lid and has the brand name "Hana Skin Care" and "Green Tea Whitening Anti-freckle cream" on it.
Hoori Whitening Cream	 The image shows the packaging of Hoori Whitening Cream. The box is yellow and white, featuring a woman's face and the text "Hoori Whitening Cream". It also mentions "Exfoliate Acne pimples wrinkles & dark spots" and "100% COSMETICALLY TESTED".
EHuayenong - Bird's Nest Cosmetology	 The image shows the packaging and a jar of EHuayenong - Bird's Nest Cosmetology. The box is yellow and white, featuring a bird's nest and the text "bird's nest". The jar is purple and gold, with the brand name "EHuayenong" and "Bird's Nest Cosmetology" on it.
Jalea Real Grisi	 The image shows a jar of Jalea Real Grisi. The jar is gold and white, with the text "Jalea Real GRISI" and "anti-age" on it.

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Product	Image
JiaoBi Whitening set	 <p>The image shows an advertisement for the JiaoBi '4 in 1 Skin Care' set. It features a woman's face in the upper right corner. The text lists the products: Whitening Day Cream, Whitening Night Cream, Whitening Makeup Base, and Whitening Freckle Cleanser. Below the text are images of the product packaging, including three jars and a tube.</p>
JiaoLi 10 days anti freckle cream (Jiaulihuic Hunsu Jioli Miraculous Day and Night Cream)	 <p>The image shows the packaging for JiaoLi 10 days anti freckle cream. The box is black with a woman's face and the text '10天祛斑' (10 days freckle removal) and '使用前' (before use).</p>
Jiaoli Cream Jaoc whitening Yan Ying, skin care set	
JiaoLi HuiChunSu Face Cream 7 Day Specific Eliminating Freckle	 <p>The image shows the packaging for JiaoLi HuiChunSu Face Cream. It includes a blue box, a white tube, and two jars. The text on the packaging includes '7天特效美白祛斑霜' (7-day specific whitening and freckle removal cream).</p>

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Product	Image
JiaoLi HuiChunSu Miraculous Cream	 Two white jars with black lids are shown on top of a blue box. The jars are labeled '娇丽回春素 (法 班1号)' and '娇丽回春素 (法 班2号)'. The box features a 'before and after' image of a woman's face and the text '套装祛斑' (Set for freckle removal).
JiaoLi HuiChunSu, 10-Days Eliminating Freckle Day & Night	 A collection of JiaoLi HuiChunSu products is displayed. It includes two jars, a box with 'HUICHUNSU' and '10-DAYS ELIMINATING FRECKLE DAY & NIGHT', and another box with '新黛黛 XINJIAOLI' and '10天强力祛斑增白王' (10-day powerful freckle removal and whitening king). A watermark 'Skin Perfect Essentials' is visible across the image. The website 'www.skinperfectessentials.com' is printed at the bottom.
JiaoLi HuiChuSu, Whitening Speckles Removed Cream AB Set	 A blue box and two white jars with blue lids are shown. The box features a 'before and after' image and the text '十天强力祛斑增白王'. A coin is placed next to the jars for scale.

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Product	Image
Jiaoli Speckle Dispelling & Whitening Cream	 The image shows a yellow jar with a black lid and a white box for 'JIAOLI' cream. The jar is labeled 'JIAOLI Net - 25g'. The box features the brand name in Chinese characters '嬌麗' and 'JIAOLI', and the product name '祛斑真白王' (Speckle Dispelling & Whitening Cream). It also includes a '10-day speckle removal' claim and two small photos of a woman's face.
JJJ Magic Spot Removing Cream	 The image displays two jars of 'JJJ Magic Spot Removing Cream' (one Day Cream and one Night Cream) sitting on their retail box. The jars have green lids and white bodies with 'JJJ' branding. The box is labeled 'New JJJ Golden package Magic spots-removing cream' and includes the text 'Spots Removing Cream'.
Jolié Beauty Cream	 The image shows the packaging for 'Jolie' Beauty Cream. It features a woman's face on the box and text including 'Jolie' Beauty Cream, '5 DAYS WHITENING PLAN', 'Multi vitamins', 'Papaya Extract', and 'ADVANCE ACTION'. A small red tag on the top right corner says 'Ezart Pack'.
Kim Whitening Ginseng and Pearl Cream	 The image shows a dark red jar of 'Kim Whitening Ginseng and Pearl Cream' on its packaging. The box is red and white with Thai text and images of ginseng and pearls.

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Product	Image
Kim Whitening Pearl and Snow Lotus Cream	 The image shows the packaging and a jar of Kim Whitening Pearl and Snow Lotus Cream. The box is white with gold and green accents, featuring a lotus flower and the text 'ครีมขี้มุก' and 'ผสมบัวทิพย์'. The jar is white with a gold band and a white lid. The text on the jar includes 'ครีมขี้มุก' and 'ผสมบัวทิพย์'.
Kojie San Face Lightening Cream	 The image shows the packaging and a jar of Kojie San Face Lightening Cream. The box is white with black and red accents, featuring a woman's face and the text 'kojie-san' and 'face'. The jar is white with a white lid and the text 'kojie-san' and 'face'. The text on the jar includes 'kojie-san' and 'face'.
La Crema de Rebeca	 The image shows the packaging and several jars of La Crema de Rebeca. The box is white with red and gold accents, featuring a woman's face and the text 'LA CREMA DE REBECA'. The jars are white with red and gold accents and the text 'LA CREMA DE REBECA'. The text on the jars includes 'LA CREMA DE REBECA'.
La Milagrosa	 The image shows the packaging and several jars of La Milagrosa. The box is white with pink and red accents, featuring a woman's face and the text 'La milagrosa'. The jars are white with pink and red accents and the text 'La milagrosa'. The text on the jars includes 'La milagrosa' and 'Reforzada con Colágeno'.

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Product	Image
La Tia Mana	
Lata Herbal Skin Bright Cream	
Ly-Na Nourish Face Cream	
Mena	
Milk Cream	

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Product	Image
Natural Body Recipe, Skin Whitening Powder	 The image shows three items from the Natural Body Recipe brand. On the left is a white spray bottle with a green label. In the center is a green box for 'Skin Whitening Powder with Natural Extracts' featuring Calamansi. On the right is a white sachet with a green label. A large, semi-transparent watermark 'Skin Perfection Essentials' is overlaid on the image.
New Face Whitening Cream	 The image displays the packaging for New Face Whitening Cream. It includes a pink jar with a white lid and a white box with a red top. The box features a woman's face and the text 'newface Whitening Cream with extra whitening ingredients' and '7 DAYS'. The jar also has the 'newface' logo and 'Whitening Cream' text.
Non-Oily Deluxe Silken Bleaching Cream	 The image shows two views of the packaging for Non-Oily Deluxe Silken Bleaching Cream. On the left is a purple box with a white jar on top. The jar has a pink label with the 'deluxe Silken' logo and 'Bleaching Cream' text. On the right is a white box with a pink top, also featuring the 'deluxe Silken' logo and 'Bleaching Cream' text. A price tag of '\$3.80' is visible on the purple box.
Noor Herbal Beauty Cream	 The image shows the packaging for Noor Herbal Beauty Cream. It includes a green box and a white jar with a blue lid. The box is labeled 'Noor Avocado and Aloe Vera HERBAL BEAUTY CREAM' and '7 Day Challenge'. The jar also has the 'Noor' logo and 'HERBAL BEAUTY CREAM' text.

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Product	Image
Nunn Care	 A white plastic jar with a pink and white label. The label features a silhouette of a woman's face and the text "NUNN CARE" in large pink letters, with "CREMA LIMPIADORA" in smaller black letters below it.
O White Whitening Cream Premium Package	 A gold-colored box with a white jar on top. The box has "O White" in a cursive font and "WHITENING CREAM Premium Package" in a sans-serif font at the bottom.
Palmer's Skin Success Fade Milk	 A white box and a white bottle. The box is labeled "SKIN SUCCESS FADE MILK" and lists benefits like "FADES DARK SPOTS" and "EVENES SKIN TONE". The bottle is labeled "SKIN SUCCESS FADE MILK" and "BODY LOTION".
Parley Beauty Cream	 A purple box and a purple jar. The box features a woman's face and the text "Parley Beauty Cream" and "100% Natural". The jar also has "Parley Beauty Cream" on its label.

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Product	Image
Parley Goldie Whitening Cream (Pearl Shine)	 A rectangular product box for Parley Goldie Whitening Cream (Pearl Shine). The box is primarily gold and black with a decorative, ornate border. The brand name 'Parley' is at the top, followed by 'Goldie' in large, stylized gold letters. Below that, it says 'Whitening Cream' and 'PEARL SHINE'.
Parley Herbal Whitening Cream	 Two images of Parley Herbal Whitening Cream. On the left is a rectangular box with a green and white design, featuring an avocado. The text on the box includes 'Parley Herbal Whitening Cream', 'Nourishing with avocado', and 'All types of skin'. On the right is a round white jar with a green lid, also featuring the Parley logo and 'Whitening Cream'.
Pond's Clarant B3	 Two jars of Pond's Clarant B3. The jars are white with a pinkish-red gradient at the bottom. The text on the jars includes 'POND'S clarant B3' and 'moisturizing cream'.
Pond's Rejuveness	 A hand holding a jar of Pond's Rejuveness. The jar is white with a red and white label. The text on the label includes 'POND'S REJUVENESS' and 'moisturizing cream'.

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Product	Image
Pop Popular Facial Cream Whitening Acne Pimple	
RDL Whitening Treatment Day and Night Cream 8 Days Treatment	
Royal Expert Whitening Cream	
San Ruby Beauty Whitening Cream	

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Product	Image
Sandal Whitening Beauty Cream	 A photograph showing the packaging and a jar of Sandal Whitening Beauty Cream. The box is green and yellow, featuring a woman's face and the text 'Sandal Whitening Beauty Cream' and 'Ragd Copy Right No. 21095'. Next to it is a green jar with a white lid.
Shichade Tokyo	 A photograph showing the packaging and a jar of Shichade Tokyo. The box is red and white, featuring a woman's face and the text 'Shichade Tokyo'. Below the box is a white jar with a white lid and the text 'x 2 pcs' and 'Shichade'.
Sinjew Medicated Cream	 Two photographs of Sinjew Medicated Cream jars. The left image shows a white jar with a black silhouette of a person's head and shoulders. The right image shows the back of the jar with the text 'SINJEW Medicated Cream (Made in Japan) Effects: For healing freckles, spots, blackhead, pimples, wrinkles. Directions: Apply thickly. Wash your face every day and night.' and the word 'back' written below it.
Stillman's Skin Bleach Cream	 A photograph showing the packaging and a jar of Stillman's Skin Bleach Cream. The box is green and white, featuring a woman's face and the text 'Stillman's SKIN BLEACH CREAM'. Next to it is a white jar with a green lid.

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Product	Image
Temulawk Day and Night Cream Beauty Whitening Cream	 The image shows two yellow jars of Temulawk Day and Night Cream. One jar is upright, and the other is lying on its side. Next to them is a yellow box with the brand name 'temulawk' and 'NEW' printed on it. The box also mentions 'DAY & NIGHT CREAM' and 'Beauty Whitening Cream'.
Top Beauty, Whitening Night Cream	 The image shows a silver jar of Top Beauty Whitening Night Cream and its corresponding silver box. The jar has a white label with the 'Top Beauty' logo. The box is rectangular and has 'WHITENING NIGHT CREAM' and '20ml' printed on it.
White Express cream	 The image shows a white jar of White Express cream. The jar has a white label with the brand name 'White Express' and 'CREME DE BEAUTE ECLAIRCISSANT' printed on it. There is also a small image of a woman's face on the label.
White Pearl Plus Cleanser Cream	 The image shows a blue box and a green jar of White Pearl Plus Cleanser Cream. The box has 'White Pearl Plus' and 'Cleanser Cream' printed on it, along with a small image of a pearl. The jar is green with a white label that also has 'White Pearl Plus' on it.

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Product	Image
White Rose Whitening Cream	
74	 <p style="text-align: right;">bottom</p>

Annex B—Instructions for sampling SLPs (2020)



Instructions for sampling of “Terrible/Dirty Eighty” skin-lightening products (2020)

Building upon the 2017, 2018, 2019 identification of high-mercury skin-lightening products, various governmental notification/detention lists, and a few NGO surveys, a list of “terrible eighty” has been compiled- see **Appendix** including pictures.

In 2020-2022, the ZMWG has in mind to monitor the presence of these products on the major Internet sales platforms³ in a number of countries, as well as purchase and analyze the products for their mercury content.

The ultimate goal of our “Terrible Eighty” Campaign is keep Internet sales in the spotlight for about a year, highlight to authorities possible flaws when it comes to liabilities for Internet platforms, and to stop sales of the identified high-mercury creams.

Funding conditions for purchasing of creams

- Any ZMWG member that is already contracted within the framework of the skin-lightening cream project (currently Bangladesh, India, Côte d'Ivoire, Kenya and the Philippines) can buy the creams they can find , from internet as per conditions below, and add those to their respective budgets.
- Any ZMWG member which is NOT contracted (including Uganda, Nigeria, S. Africa) can purchase up to 20 creams from national/regional identified internet platforms, at a cost at not more than 10 Euro and you will be refunded for those. You need to contact the EEB BEFORE purchasing, to let us know which creams you found and respective costs, and we will get back to you with instructions on which ones to purchase.

A. Checking/purchasing from Internet

1. **Check the on-line platforms (not retail on-line outlets, such as Walmart)¹ that are most popular in your respective countries.** They may include, **but not be limited to**, the large international **e-Bay, Amazon or Alibaba**. Mainly for the contracted NGOs, if you have time/resources please also check popular retailers as you think relevant for the country.

³ A big difference between retail online outlets and internet platform sellers is the fact that e-commerce usually involves creating a platform for sellers to list their products or services to consumers.

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. Look **only for the 'dirty 80' creams listed in the Appendix/Annex (as well as your national detention list as relevant)**.
4. **Take a screenshot of the product the day you looked for it (showing also the date) on an e-commerce platform, so that we have definite proof that the company sold the cream/ the cream was available.** Save the screenshots in a file or folder with the name of the on-line platform and dates. Name the screenshots according to the format "name of product", "day"- "month"- "year".jpg, and copy paste in the **Annex (blue info sections)**
5. **As per the Annex note the cost in local currency** of the product, for how many creams was it (if more than one), the date when the cost was checked, and the **exchange rate to Euro** at the date of noting the cost, using the XE Currency converter (www.xe.com).
6. **Copy the link to product into the logging file- Annex**, so that you can easily find it again after confirmation from **EEB** which products to purchase.
7. **For non-contracted NGOs - Only after EEB confirmation**, you can proceed with purchasing of the creams agreed with the EEB. When about to purchase, repeat steps 4-6 above: screenshot again with the new date, note the details of the cream (name, country of origin etc) as per the Annex logging table, note the cost, how many items, product description, etc;

B. AFTER you receive the purchased creams- you will need to log in all other relevant information sections in grey in the Annex (see also below)

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

8. When products are sent to you, they usually arrive in an envelope. PLEASE note down the address from where the products were actually shipped to you – we call that the 'intermediary'. (E.g. we order from Amazon, but then on the envelope we can see where the cream came from which could be India or other; distribution centers/intermediaries).
9. 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.
10. Do not remove the packaging materials around the products. Do not open the tube/box. They need to be delivered intact to the regional testing hubs.
11. **Log all information in and** send all this information electronically to the regional hub (Dominique/Yannick- Africa, or Rey- Asia)(and to Elena, Andreas and Michael) so they know what they should expect and continue logging the values.

12. Then send the samples to our regional testing hubs as per the **shipping instructions** that will be sent to you; an EEB DHL Account has been opened and it will be sent to you separately for security reasons.

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.

If you have general questions on the study and sampling, please e mail:

Andreas Prevodnik, Swedish Society for Nature Conservation

e-mail : andreas.prevodnik@ssnc.se

If you have specific questions about delivering the samples, please contact:

Elena Lymberidi-Settimo, EEB/ZMWG

Email: elena.lymberidi@eeb.org

ZMWG Sampling protocol 2020 – Logging information

NOTE! Take a screenshot of the products purchased, and save in a folder with the name of the online platform. Name the screenshots according to the format “name of product”, “name of product”, “day”-“month”-“year”.jpg. Also copy/paste below.

For the exchange rate, use XE currency converter (<https://www.xe.com/>)

The blue boxes/information are relevant for the creams that first need approval from the EEB.

Duplicate this logging/table for each internet platform where you bought creams.

Country:

Internet Platform: [Fill in Name]

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	Screen-shot saved with the day of checking / purchase	Expiration date	Batch number	Cost (local currency)	Date of logging	Exchange rate (xe.com)	Cost (EUR)	Country of origin as per packaging	Country and address details of the intermediary who actually sent the product	Indication of mercury content from ingredients list (tick X if indicated)	Photo of the product purchased	Photo of the ingredient list of the product purchased	Internet link of the cream on the platform
	See Annex A for complete list of SLPs													

Annex C—High-mercury SLPs identified in this study

The mercury concentration of SLPs was determined by X-ray fluorescence (XRF) or laboratory based Atomic Absorption Spectrophotometer (AAS) analysis, or both. Direct analysis of samples via XRF is recognized as the fastest, most straightforward and generally reliable method to assess the mercury content of SLPs. However, while most SLP samples are fairly homogeneous, some may contain flakes or chunks of mercury salts, which may compromise the accuracy and reproducibility of an XRF test that generally involves only minimal manipulation of the sample. In all cases an AAS analysis may be relied upon to provide an accurate reading.

The high-mercury samples from the Latin American and Caribbean Region, as well as six high-mercury samples from Africa and eight from Asia, which had initially been screened with XRFs, were subsequently sent to the accredited Quality Assurance and Control Systems (QACS) Lab in Greece for quality assurance analysis. The lab results for the SLPs screened by XRF in Africa agreed well with the XRF results. The lab results for the SLPs screened by XRF in Asia and the Middle East were more variable; therefore, these are considered only as indicative results showing high presence of mercury, and should not be interpreted as absolute values.

SLPs purchased in the European Union and the United States were analyzed by the QACS Lab and the results are considered reliable.

Table C1: Brand and product name of SLPs purchased in **Africa**, country of purchase, e-commerce platform where the samples were purchased, country of origin, and mercury concentration (in ppm), as determined by a Niton XL3t-970 GOLDD+ SDD XRF Analyzer. Six of these SLPs (with *) were subsequently analyzed in a lab using Hydride Atomic Absorption Spectroscopy. The lab results for these six SLPs agreed well with the XRF results.

Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Due	Beauty Cream	Côte d'Ivoire	ubuy.ci	Pakistan	19930,12
Noor	Herbal Beauty Cream	Côte d'Ivoire	ubuy.ci	Pakistan	13045,85
Chandni	Whitening Cream	Kenya	jumia.co.ke	Pakistan	19978,47
Aneeza Gold	Beauty Cream	Kenya	jiji.co.ke	Pakistan	13243,62
Noor	Herbal Beauty Cream	Kenya	jumia.co.ke	Pakistan	11945,03
Faiza	Beauty Cream	Kenya	kilimall.co.ke	Pakistan	10609,66
Golden Pearl	Beauty Cream	Kenya	jiji.co.ke	Pakistan	9712,83
Dr. Japan	Nano	Kenya	jiji.co.ke	Japan	5553,63
Goree	Beauty Cream with Lycopene	Nigeria	jiji.ng	Pakistan	21699*

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Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Aneeza Gold	Beauty Cream with Avocado & Aloe Vera	Nigeria	jiji.ng	Pakistan	15708*
Kim	Whitening Anti-Spot Night Cream	Nigeria	jiji.ng	N/A	1296,64
Kim	Whitening Pearl and Snow Lotus Cream	Nigeria	jiji.ng	N/A	1470,97
Face Fresh	Beauty Cream	South Africa	bidorbuy.co.za	Pakistan	14315,86
Aneeza Gold	Beauty Cream with Avocado & Aloe Vera	South Africa	bidorbuy.co.za	Pakistan	12953,92
Face Fresh Plus	Gold Beauty Cream	South Africa	bidorbuy.co.za	Pakistan	11729,14
Chandni	Whitening Cream	Uganda	jiji.ug	Pakistan	30146*
Parley	Goldie Pearl Shine	Uganda	jiji.ug	Pakistan	24714,43
Aneeza Gold	Beauty Cream with Avocado & Aloe Vera	Uganda	jiji.ug	Pakistan	20507*
Noor Gold	Beauty Cream	Uganda	jiji.ug	Pakistan	19249*
Parley	Beauty Cream	Uganda	jiji.ug	Pakistan	19221,83
Faiza	Beauty Cream	Uganda	jiji.ug	Pakistan	13229*
Dr. Japan	Nano	Uganda	jiji.ug	N/A	10344,48

Table C2: Brand and product name of SLPs purchased in **Asia and the Middle East**, country of purchase, e-commerce platform where the samples were purchased, country of origin, and mercury concentration (in ppm), as determined using a SHIMADZU EDX-7000 Dispersive XRF. Eight of these SLPs (with *) were subsequently tested in a lab using Hydride Atomic Absorption Spectroscopy, giving results that varied somewhat from those recorded during XRF screening; therefore, the readings in this table should be considered only as indicative results showing high presence of mercury, and should not be interpreted as absolute values.

Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Jiaobi	Whitening & Moisturizing set - Whitening Night Cream	Bangladesh	daraz.com.bd	Hong-Kong	15000
Goree	Beauty Cream with Lycopene	Bangladesh	ajkerdeal.com	Pakistan	15000
Kim	Whitening Ginseng and Pearl Cream	Bangladesh	apsarah.com	Thailand	14000
Goree	Beauty Cream with Lycopene	Bangladesh	vinnobd.com	Pakistan	13000
Noor	Herbal Whitening Cream	Bangladesh	clickbd.com	Pakistan	12000

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Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Goree	Beauty Cream with Lycopene	Bangladesh	Kablewala.com.bd	Pakistan	10000
Jiaoli	bird's nest - Whitening spot-removing scheme suit	Bangladesh	vinnobd.com	Taiwan	10000
Egg White & Cherry	7 days specific eliminating freckle whitening cream	Bangladesh	apsarah.com	Taiwan	9000
Egg White & Cherry	7 days specific eliminating freckle whitening cream	Bangladesh	vinnobd.com	Taiwan	8000
Kim	Whitening Ginseng and Pearl Cream	Bangladesh	ajkerdeal.com	Thailand	7431
Golden Pearl	Beauty Cream	Bangladesh	Kablewala.com.bd	Pakistan	7400
Green Tea	seven-day - Whitening Anti-Freckle Cream	Bangladesh	apsarah.com	Taiwan	3000
Collagen Plus - Vit E	Night Cream	Bangladesh	daraz.com.bd	Thailand	2700
Collagen Plus - Vit E	Night Cream	Bangladesh	clickbd.com	Thailand	2500
Kim	Whitening Pearl and Snow Lotus Cream	Bangladesh	apsarah.com	Thailand	245,1
Nunn Care	Crema Limpiadora	Bahrain	ubuy.com.bh		314,2
Goree	Day & Night Whitening Cream	India	flipkart.com	Pakistan	15128,4
Jiaobi	Whitening & Moisturizing set - Whitening Night Cream	India	flipkart.com	N/A (language issue)	14072
Goree	Beauty Cream with Lycopene	India	flipkart.com	Pakistan	12480,7
New Face	Whitening Cream	India	amazon.in	Pakistan	12247*
Face Fresh	Beauty Cream	India	flipkart.com	Pakistan	11867
Aneesa Gold	Beauty Cream with Avocado & Aloe Vera	India	flipkart.com	Pakistan	11610,3
Faiza	Beauty Cream	India	flipkart.com	Pakistan	11367,9
Sandal	Whitening Beauty Cream	India	flipkart.com	Pakistan	10294,9
Noor	Herbal Whitening Cream	India	flipkart.com	Pakistan	10250,5
Gluta White	Skin Whitening Cream - Advanced Glutathione Formula	India	flipkart.com	USA	9973,5

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Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Golden Pearl	Beauty Cream	India	flipkart.com	Pakistan	9385,5
Jiaobi	Whitening & Moisturizing set - Whitening Make-up Base	India	flipkart.com	N/A (language issue)	5582,8
Egg White & Cherry	7 days specific eliminating freckle whitening cream	India	flipkart.com	Taiwan	2740,4
Collagen Plus - Vit E	Night Cream	India	flipkart.com	United Arab Emirates	2080,2
Temulawak	Day & Night Cream - Beauty Whitening Cream - Night Cream	Indonesia	bukalapak.com	Malaysia	65000
Temulawak	Day & Night Cream - Beauty Whitening Cream - Night Cream	Indonesia	shopee.co.id	Malaysia	60000
Collagen Plus - Vit E	Night Cream	Indonesia	bukalapak.com	N/A	40100
Natural 99	Vitamin E Plus (White canister)	Indonesia	bukalapak.com	Indonesia	28000
Natural 99	Vitamin E Plus (Yellow canister)	Indonesia	bukalapak.com	Indonesia	17000
Jiaobi	Whitening & Moisturizing set - Whitening Night Cream	Indonesia	bukalapak.com	China	15095,9
Goree	Beauty Cream with Lycopene	Indonesia	bukalapak.com	Pakistan	11300
Goree	Day & Night Whitening Cream	Indonesia	bukalapak.com	Pakistan	11300
Faiza	Beauty Cream	Indonesia	tokopedia.com	Pakistan	10216,6
Faiza	Beauty Cream	Indonesia	shopee.co.id	Pakistan	9230,6
Jiaobi	Whitening & Moisturizing set - Whitening Make-up Base	Indonesia	bukalapak.com	China	6155*
Collagen Plus - Vit E	Night Cream	Indonesia	tokopedia.com	N/A	4697*
RDL	Whitening cream - Night Cream	Indonesia	bukalapak.com	Philippines	2465,1
Erna	Whitening Cream	Indonesia	tokopedia.com	Malaysia	1300
Due	Beauty Cream	Indonesia	shopee.co.id	Pakistan	131,07
Collagen Plus - Vit E	Night Cream	Nepal	daraz.com.np	N/A	25000

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Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Jiaobi	Whitening & Moisturizing set - Whitening Night Cream	Philippines	shopee.ph	N/A (language issue)	20000
Parley	Beauty Cream	Philippines	shopee.ph	Pakistan	16321*
Collagen Plus - Vit E	Night Cream	Philippines	lazada.com.ph	N/A	14000
Goree	Day & Night Whitening Cream	Philippines	shopee.ph	Pakistan	12000
Collagen Plus - Vit E	Night Cream	Philippines	shopee.ph	N/A	9700
Golden Pearl	Beauty Cream	Philippines	shopee.ph	Pakistan	7000
Natural 99	Vitamin E Plus (White canister)	Philippines	shopee.ph	N/A	3800
Jiaoli	Miraculous Day and Night Cream - Day Cream	Philippines	shopee.ph	N/A (language issue)	2700
Jiaoli	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Day Cream	Philippines	shopee.ph	N/A (language issue)	2400
Jiaoli	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Night Cream	Philippines	shopee.ph	N/A (language issue)	2300
Natural 99	Vitamin E Plus (Yellow canister)	Philippines	shopee.ph	N/A	2300
Jiaoli	Miraculous Day and Night Cream - Night Cream	Philippines	shopee.ph	N/A (language issue)	1800
Dr. Japan	Nano	Thailand	lazada.co.th	N/A (language issue)	63000
Golden Pearl	Beauty Cream	Thailand	ubuy.co.th	Pakistan	56012*
Temulawak	Day & Night Cream - Beauty Whitening Cream - Night Cream	Thailand	shopee.co.th	Malaysia	55000
Temulawak	Day & Night Cream - Beauty Whitening Cream - Night Cream	Thailand	ebay.com	Malaysia	51000
Cleo Me'	White - Lemon Formula	Thailand	shopee.co.th	N/A	48000
Kim	Whitening Pearl and Snow Lotus Cream	Thailand	shopee.co.th	N/A	29000

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Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Jiaobi	Whitening & Moisturizing set - Whitening Night Cream	Thailand	th.aliexpress.com	N/A (language issue)	20000
Sakura	Gluta Speed White	Thailand	lazada.co.th	N/A (language issue)	13000
Parley	Goldie Advanced Beauty Cream	Thailand	ebay.com	Pakistan	11000
Sandal	Whitening Beauty Cream	Thailand	ebay.com	Pakistan	10000
Sakura	Gluta Speed White	Thailand	shopee.co.th	N/A (language issue)	10000
Cleo Me'	White - Lemon Formula	Thailand	lazada.co.th	N/A	9695*
Faiza	Beauty Cream	Thailand	ebay.com	N/A	9000
Kim	Whitening Ginseng and Pearl Cream	Thailand	lazada.co.th	N/A	5652*
Jiaoli	Speckle Dispelling & Whitening Cream	Thailand	aliexpress.com	N/A (language issue)	1600
Face Fresh	Beauty Cream	Thailand	ebay.com	Pakistan	1300
Aneeza Gold	Beauty Cream with Avocado & Aloe Vera	Thailand	desertcart.co.th	Pakistan	1200
Parley	Beauty Cream	Thailand	ebay.com	Pakistan	1000

Table C3: Brand and product name of SLPs purchased in **Latin America and the Caribbean**, country of purchase, e-commerce platform where the samples were purchased, country of origin, and mercury concentration (in ppm). The high-mercury samples (with *) detected in the Latin American and Caribbean Region were identified during initial screening with a Bruker S1 Titan II Model 600 Handheld XRF, and were then sent to the accredited Quality Assurance and Control Systems (QACS) Lab in Greece for quality assurance analysis using Hydride Atomic Absorption Spectroscopy.

Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
La Tia Mana	Crema Limpiadora Y Curativa	Antigua & Barbuda	amazon.com	Mexico	6456*
Goree	Beauty Cream with Lycopene	Mexico	ebay.com	Pakistan	23197*
La Tia Mana	Crema Limpiadora Y Curativa	Mexico	articulo.mercadolibre.com.mx	Mexico	8396*

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Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Nunn Care	Crema Limpiadora	Mexico	articulo.mercadolibre.com.mx	Mexico	5569*
Kim	Whitening Pearl and Snow Lotus Cream	Mexico	ebay.com	Thailand	5152*
La Crema de Rebeca		Mexico	articulo.mercadolibre.com.mx	Mexico	4821*
O White Extra	Whitening Cream	Mexico	ebay.com	Thailand	4410*
Collagen Plus - Vit E	Night Cream	Mexico	aliexpress.com	N/A	3315*

Table C4: Brand and product name of SLPs purchased in **Europe**, country of purchase, e-commerce platform where the samples were purchased, country of origin, and mercury concentration (in ppm), as determined by Hydride Atomic Absorption Spectroscopy.

Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Parley	Herbal Beauty Cream with Avocado	Belgium	befr.ebay.be	Pakistan	18821
New Face	Whitening Cream	Belgium	befr.ebay.be	Pakistan	15594
Due	Beauty Cream	Belgium	befr.ebay.be	Pakistan	14138
Jiaobi	Whitening & Moisturizing set - Whitening Night Cream	Belgium	befr.ebay.be	N/A (language issue)	9013
Sandal	Whitening Beauty Cream	Belgium	befr.ebay.be	Pakistan	8067,8
Face Fresh	Beauty Cream	Belgium	befr.ebay.be	Pakistan	7716,7
Jolié	Beauty Cream	Belgium	befr.ebay.be	Pakistan	6967
Collagen Plus - Vit E	Night Cream	Belgium	best.aliexpress.com	China	3090
Jiaoli	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Day (Set E)	Belgium	best.aliexpress.com	China	1708,5
Jiaoli	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Night (Set E)	Belgium	best.aliexpress.com	China	1370,8
Jiaoli	HuiChuSu Face Cream 7 Days	Belgium	best.aliexpress.com	China	1207,6

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Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
	Specific Eliminating Freckle - Night (Set D)				
Jiaoli	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Day (Set D)	Belgium	best.aliexpress.com	China	1196,7
Arché	Formula AA Pearl Cream	Belgium	best.aliexpress.com	Thailand	23,9
Jiaobi	Whitening & Moisturizing set - Whitening Day Cream	Belgium	befr.ebay.be	N/A (language issue)	2,9

Table C5: Brand and product name of SLPs purchased in the **USA**, e-commerce platform where the samples were purchased, country of origin, and mercury concentration (in ppm), as determined by Hydride Atomic Absorption Spectroscopy.

Brand name	Product name	Country of purchase	E-commerce	Country of origin/manufacture as per packaging	Mercury concentration (in ppm)
Parley	Herbal Beauty Cream with Avocado	USA	ebay.com	Pakistan	12412
Yinni - Green Tea	Quickacting Whitener and Speckle Remover	USA	ebay.com	China	10392
Faiza	Beauty Cream	USA	ebay.com	Pakistan	9274,3
Face Fresh	Beauty Cream	USA	ebay.com	Pakistan	8076,8
CCM Special Cream	Anti-melasma dark-spots cream	USA	ebay.com	N/A	4233,9
Papaya	Whitening & Freckle-Eliminating package	USA	ebay.com	N/A	3182,1
Arché	Formula AA Pearl Cream	USA	ebay.com	Thailand	3,6
Arché	Formula AA Pearl Cream	USA	ebay.com	Thailand	3,17
Arché	Formula AA Pearl Cream	USA	ebay.com	Thailand	1,72

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Table C6: Same products likely to have similar mercury content

Top 15 most tested skin-lightening products in the present investigation	Mercury findings (over 1 ppm) based on the present testing	Probability of high mercury found (%)
Aneeza Gold	All the 6 samples	100%
Arché Formula AA Pearl Cream	4 out of 8 samples	50%
Chandni Whitening Cream	2 out of 3 samples	66.7%
Collagen Plus Vit E	All 10 samples (“Night” cream” only)	100% for the night creams
Dr. Japan	3 out of 3 samples	100%
Due Beauty Cream	3 out of 4 samples	75%
Egg White & Cherry	3 out of 3 samples	100%
Face Fresh Cream	6 out of 6 samples	100%
Faiza Beauty Cream	All the 7 samples	100%
Golden Pearl Whitening Beauty Cream	All the 5 samples	100%
Goree Beauty Cream	7 out of 8 samples	87.5%
Goree Day and Night Whitening Cream	All 3 samples	100%
JiaoBi Whitening set	Mercury findings are variable depending on which product of the set is concerned. Yet all night creams from 6 sets were found with mercury over 1 ppm	100% for night creams
Jiaoli creams	10 out of 12 samples for all types of Jiaoli creams	83.3%
Kim	All 8 samples (“Pearl and Snow Lotus”, and “Ginseng and Pearl”)	100%
La Tia Mana	2 out of 4 samples	50%
Natural 99	All 4 samples (white and yellow canister)	100%
New Face	2 out of 2 samples	100%
Nunn Care	2 out of 2 samples	100%
Noor Herbal Beauty Cream	All the 4 samples	100%
Parley	7 out of 8 samples for all creams (incl. Beauty Cream, Goldie Advanced, and Herbal)	87.5%
RDL	1 out of 2 samples (“Night” only)	50%
Sakura Gluta Speed White	2 out of 2 samples	100%
Sandal	3 out of 3 samples	100%
Temulawak Day and Night Cream	4 out of 7 samples	57%

Annex D—QACS laboratory methodology

The determination of mercury was assessed with atomic absorption spectrometry.

The apparatus was a Perkin Elmer AAnalyst™ 800 Atomic Absorption Spectrometer; 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.

1. 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 1000mg/L±4mg/L into a 100 ml volumetric flask, dilute to volume with water to give solution A (Hg 10ppm). 1.0 mL of the solution A are transferred into 100 mL volumetric flask and diluted to volume with water to give Solution B (Hg: 100 ppb). 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 E—Sampling protocol – Niton XL3t-970 GOLDD+

All samples purchased from Africa were analysed with this instrument as per the methodology below. A 10% of the samples found with high-mercury were further sent to the QACS laboratory for further analysis.

1. Type of instrument: Niton XL3t-970 GOLDD+

The Niton XL3t-970 GOLDD+ instrument is the device that was used to perform the various tests on the cosmetic samples collected in the Africa Hub. The Niton XL3t-970 GOLDD+ XRF instrument is an instrument for quantifying the presence of minerals in a substrate based on wavelength dispersion. It allows real-time quantitative and qualitative observations of the minerals of interest.

The instrument is battery powered and has three basic components: an X-ray source, a detector and a digital pulse processor. The X-ray source is either a radioisotope (e.g. ⁵⁵Fe, ¹⁰⁹Cd, ²⁴¹Am) or an X-ray tube. Photons from the source illuminate the sample, and the resulting X-ray fluorescence emitted by various elements of the sample is collected by a thermoelectrically cooled solid state detector. A digital pulse processor controls both the energy of the X-rays and their number per unit time. This data is used to generate a spectrum that plots the intensity of the emitted photons (usually in counts per second) against their energy in kiloelectronvolts (keV). The analyser's microprocessor and software convert this information into a near-real-time analysis of the sample's composition (i.e. the elements present and their relative concentrations).

2. Sample preparation

- a. Information about the samples and their packaging was recorded before testing.
- b. The Sample preparation was done using a sample cup with polypropylene film (TF 240 255). Each sample was processed with disposable instruments in such a way as not to contaminate the other samples.
- c. The sample cups were filled in half, to a depth of approximately 2 cm. The diameter of the cup was 3 cm, but window of analysis 8 mm. The filling was the same for all samples as far as the volume allowed.
- d. The creams, depending on their consistency, were collected with a plastic spoon or shaken. Each sample was processed with a non-reusable spoon.
- e. While placed in the cup, the cup was tapped gently to ensure the cream is evenly distributed.

3. Analysis

- a. The analysis mode used is "cosmetic, semi-solid" (which uses a combination of the soil and plastic mode algorithm)
- b. The analysis time was 30 seconds, and each sample was read once.
- c. The analysis results were then extracted into an Excel spreadsheet.

Annex F—Sampling protocol – Bruker S1 Titan II Model 600 XRF

All samples purchased from the Latin America and Caribbean region were analysed/screened with this instrument as per the methodology below. The samples found with high-mercury were further sent to the QACS laboratory for further analysis.

1.Type of instrument:

Bruker S1 Titan II Model 600 Handheld XRF

2. Sample preparation:

a) For thick cream samples in jars or tubes, 3-5 ml were taken from the top 5 mm, using a spoon, and placed in a 30 ml cup. Samples are covered with a piece of the cling wrap and the cup flipped upside down. When taking readings, the XRF detector was placed directly against the cup.

b) For less thick/runny samples, 3-5 ml of the sample were put on a larger piece of cling wrap. The cling wrap was folded and the XRF detector placed directly against the top of the wrapped sample.

c) If the cream jar was full, a piece of cling wrap can be placed over the mouth of the jar, directly on the cream. The XRF detector was then placed directly against the cling wrap for analysis

The samples were stored in a room at 21-23°C in a secured location before sample preparation.

3. Analyses:

The samples were analyzed in the “restricted sample” mode. Each sample was analyzed in duplicate, and the average concentrations were recorded. As part of the quality control, matrix spikes were run for each batch. This implies that each sample was run twice, out of which one of the runs was spiked with a known amount of mercury.

Annex G—Sampling protocol – Shimadzu EDX-7200 XRF

All samples purchased from Asia were analysed with this instrument as per the methodology below.

1. Type of instrument:

SHIMADZU EDX-7000 Dispersive X-Ray Fluorescence Spectrum.

The high-performance SDD detector and optimized hardware achieve a high level of sensitivity, analysis speed, and energy resolution that were previously unattainable.

The EDX-7000/8000 instruments achieve superior energy resolution by incorporating a state-of-the-art SDD detector. This reduces the effects of overlapping peaks of different elements, enhancing the reliability of the analysis results.

2. Sample preparation:

An aliquot of the sample was weighed (2grams) placed in a thin mylar film held by O-ring on a plastic sample holder cup. (e.g. 3571 General Open End X-Cell (no lid)). Cream samples were treated the same way as more liquid ones; the sample was put in the recipient and weighed.

3. Analyses:

The sample holder was mounted on top of an Energy-Dispersive X-ray Fluorescence Spectrum (EDX-7000) detector. The XRF was turned on, and X-rays were bombarded to the sample.

The detection system directly measures the different energies of the emitted X-rays from the sample. The relative numbers of X-rays at each energy were counted and plotted and XRF spectrum is generated. These were then resolved as elemental concentrations using the software of the instrument.

NIST SRM 2702: Inorganics in Marine Sediment was used as Standard Reference Material for quality control of the data.⁴

The samples were stored in a room temperature.

The range of detected elements is for the EDX-7000: 11Na to 92U. The lowest detection limit for mercury is approximately 0.1ppm.

⁴ See: https://www-s.nist.gov/srmors/view_detail.cfm?srm=2702

Annex H—Raw data and mercury content: SLPs purchased worldwide

The mercury concentration (<LOD = below limit of detection) of SLPs was determined by X-ray fluorescence (XRF) or laboratory based Atomic Absorption Spectrophotometer (AAS) analysis, or both. Direct analysis of samples via XRF is recognized as the fastest, most straightforward and generally reliable method to assess the mercury content of SLPs. However, while most SLP samples are fairly homogeneous, some may contain flakes or chunks of mercury salts, which may compromise the accuracy and reproducibility of an XRF test that generally involves only minimal manipulation of the sample. In all cases an AAS analysis may be relied upon to provide an accurate reading.

The high-mercury samples from the Latin American and Caribbean Region, as well as six high-mercury samples from Africa and eight from Asia, which had initially been screened with XRFs, were subsequently sent to the accredited Quality Assurance and Control Systems (QACS) Lab in Greece for quality assurance analysis. The lab results for the SLPs screened by XRF in Africa agreed quite well with the XRF results. There was more variation between the lab results and the XRF results for the SLPs screened in Asia and the Middle East; therefore, these are considered only as indicative results confirming high presence of mercury, and should not be interpreted as absolute values.

SLPs purchased in the European Union and the United States were analyzed by the QACS Lab and the results are considered reliable.

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Table H1: Brands and product names of SLPs purchased in **Africa**, e-commerce platforms where samples were purchased, country of origin/manufacture according to the packaging, and mercury concentration (ppm) determined by a Niton XL3t-970 GOLDD+ Analyzer SDD XRF. Six of the SLPs (with *) were analyzed in a lab using Hydride Atomic Absorption Spectroscopy. The lab test results for these SLPs agreed well with the XRF screening results.

BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONTENT (IN PPM)
DUE	Beauty Cream	Côte d'Ivoire	ubuy.ci	Pakistan	19930,12
NOOR	Herbal Beauty Cream	Côte d'Ivoire	ubuy.ci	Pakistan	13045,85
COCODERM		Côte d'Ivoire	jumia.ci	Côte d'Ivoire	<LOD
DARK AND LOVELY	Olive Oil	Côte d'Ivoire	jumia.ci	France	<LOD
SIVODERM	Gommage Eclat	Côte d'Ivoire	jumia.ci	Côte d'Ivoire	<LOD
BRONZ TONE	Beurre de cacao et extrait de miel	Côte d'Ivoire	jumia.ci	Côte d'Ivoire	<LOD
WHITE EXPRESS		Côte d'Ivoire	jumia.ci	France	<LOD
OR + MIRACLE NATURAL		Côte d'Ivoire	jumia.ci	USA	<LOD
CRÈME VISAGE M31 EXTRA CREAM		Côte d'Ivoire	jumia.ci	N/A	<LOD
CARO WHITE		Côte d'Ivoire	jumia.ci	Côte d'Ivoire	<LOD
CHANDNI	Whitening Cream	Kenya	jumia.co.ke	Pakistan	19978,47
ANEENZA GOLD	Beauty Cream	Kenya	jiji.co.ke	Pakistan	13243,62
NOOR	Herbal Beauty Cream	Kenya	jumia.co.ke	Pakistan	11945,03
FAIZA	Beauty Cream	Kenya	kilimall.co.ke	Pakistan	10609,66
GOLDEN PEARL	Beauty Cream	Kenya	jiji.co.ke	Pakistan	9712,83
DR. JAPAN	Nano	Kenya	jiji.co.ke	Japan	5553,63
PARLEY	Goldie Pearl Shine	Kenya	jiji.co.ke	Pakistan	<LOD
POND'S	Rejuveness	Kenya	jiji.co.ke	USA	<LOD
KOJIE SAN	Face Lightening Cream	Kenya	jumia.co.ke	Philippines	<LOD
POND'S	Clarant B3	Kenya	jumia.co.ke	USA	<LOD
VINCO	Skin Success Cream	Kenya	jumia.co.ke	Italy	<LOD
LEMONVATE	Cream	Kenya	jumia.co.ke	Italy	<LOD

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURER AS PER PACKAGING	MERCURY CONTENT (IN PPM)
MOVATE	Cream	Kenya	jumia.co.ke	Italy	<LOD
PALMER'S	Skin Success - Fade Milk	Kenya	jumia.co.ke	USA	<LOD
COLLAGEN PLUS - VIT E	Day & Night Cream	Kenya	jumia.co.ke	N/A	<LOD
MENA	Herbal Cream	Kenya	sky.garden	Thailand	<LOD
WHITE EXPRESS	Lait éclaircissant	Kenya	sky.garden	France (Paris)	<LOD
SKIN BALANCE GEL	Wrinkle remover	Kenya	sky.garden	Italy	<LOD
GOREE	Beauty Cream with Lycopene	Nigeria	jiji.ng	Pakistan	21699*
ANEEZA GOLD	Beauty Cream with Avocado & Aloe Vera	Nigeria	jiji.ng	Pakistan	15708*
KIM	Whitening Pearl and Snow Lotus Cream	Nigeria	jiji.ng	N/A	1470,97
KIM	Whitening Anti-Spot Night Cream	Nigeria	jiji.ng	N/A	1296,64
POP POPULAR	Facial Cream	Nigeria	jiji.ng	Thailand	<LOD
RDL	Whitening cream	Nigeria	jiji.ng	Philippines	<LOD
DR. RASHEL	Rose Oil - Nutritious Vitality	Nigeria	jumia.com.ng	China	<LOD
DR. RASHEL	Rose Oil - Glow Restoring Serum	Nigeria	jumia.com.ng	China	<LOD
FACE FRESH	Beauty Cream	South Africa	bidorbuy.co.za	Pakistan	14315,86
ANEEZA GOLD	Beauty Cream with Avocado & Aloe Vera	South Africa	bidorbuy.co.za	Pakistan	12953,92
FACE FRESH PLUS	Gold Beauty Cream	South Africa	bidorbuy.co.za	Pakistan	11729,14
CHANDNI	Whitening Cream	Uganda	jiji.ug	Pakistan	30146*
PARLEY	Goldie Pearl Shine	Uganda	jiji.ug	Pakistan	24714,43
ANEEZA GOLD	Beauty Cream with Avocado & Aloe Vera	Uganda	jiji.ug	Pakistan	20607*
NOOR GOLD	Beauty Cream	Uganda	jiji.ug	Pakistan	19249*
PARLEY	Beauty Cream	Uganda	jiji.ug	Pakistan	19221,83
FAIZA	Beauty Cream	Uganda	jiji.ug	Pakistan	13229*

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURER AS PER PACKAGING	MERCURY CONTENT (IN PPM)
DR. JAPAN	Skin-Lightening Complex - Nano	Uganda	jiji.ug	N/A	10344,48
PALMER'S	Skin Success - Fade Milk	Uganda	jiji.ug	USA	<LOD
PALMER'S	Skin Success - Fade Cream	Uganda	jiji.ug	USA	<LOD
MAXI LIGHT	Spot free and net skin	Uganda	jiji.ug	Côte d'Ivoire	<LOD
PURE WHITE	Cosmetics Gold Glowing	Uganda	jiji.ug	N/A	<LOD
RAPID' WHITE	Cream - 21 Jours	Uganda	jiji.ug	Côte d'Ivoire	<LOD
L'ABIDJANAISE	Crème traitante	Uganda	jiji.ug	Côte d'Ivoire	<LOD
LEMON CLEAR	Crème traitante éclaircissante	Uganda	jiji.ug	N/A	<LOD
SKIN LIGHT	La crème éclaircissante traitante	Uganda	jiji.ug	Côte d'Ivoire	<LOD
LEMON CLEAR	Dark Spots Corrector Cream	Uganda	jiji.ug	Senegal	<LOD
CARO WHITE	Fade Milk	Uganda	jiji.ug	N/A	<LOD
FAIR & WHITE	Body Clearing Milk	Uganda	jiji.ug	France	<LOD
MAXI CLAIRE	Beauty Cream	Uganda	jiji.ug	RDC	<LOD
BIO.26	Clear Complexion Body Cream	Uganda	jiji.ug	Côte d'Ivoire	<LOD

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Table H2: Brands and product names of SLPs purchased in **Asia**, e-commerce platforms where samples were purchased, country of origin/manufacture according to the packaging, and mercury concentration (ppm) as determined by a SHIMADZU EDX-7000 Dispersive XRF. Eight of the SLPs (with *) were analyzed in a lab using Hydride Atomic Absorption Spectroscopy. The lab test results for SLPs purchased in Asia and the Middle East varied somewhat from the XRF screening results; therefore, the test results in this table should be considered only as indicative results showing high presence of mercury, and should not be interpreted as absolute values.

BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
JIAOBI	Whitening & Moisturizing set - Whitening Night Cream	Bangladesh	daraz.com.bd	Hong-Kong	15000
GOREE	Beauty Cream with Lycopene	Bangladesh	ajkerdeal.com	Pakistan	15000
KIM	Whitening Ginseng and Pearl Cream	Bangladesh	apsarah.com	Thailand	14000
GOREE	Beauty Cream with Lycopene	Bangladesh	vinnobd.com	Pakistan	13000
NOOR	Herbal Whitening Cream	Bangladesh	clickbd.com	Pakistan	12000
GOREE	Beauty Cream with Lycopene	Bangladesh	Kablewala.com.bd	Pakistan	10000
JIAOLI	bird's nest - Whitening spot-removing scheme suit	Bangladesh	vinnobd.com	Taiwan	10000
EGG WHITE & CHERRY	7 days specific eliminating freckle whitening cream	Bangladesh	apsarah.com	Taiwan	9000
EGG WHITE & CHERRY	7 days specific eliminating freckle whitening cream	Bangladesh	vinnobd.com	Taiwan	8000
KIM	Whitening Ginseng and Pearl Cream	Bangladesh	ajkerdeal.com	Thailand	7431
GOLDEN PEARL	Beauty Cream	Bangladesh	Kablewala.com.bd	Pakistan	7400
GREEN TEA	seven-day - Whitening Anti-Freckle Cream	Bangladesh	apsarah.com	Taiwan	3000
COLLAGEN PLUS - VIT E	Night Cream	Bangladesh	daraz.com.bd	N/A	2700
COLLAGEN PLUS - VIT E	Night Cream	Bangladesh	clickbd.com	N/A	2500
KIM	Whitening Pearl and Snow Lotus Cream	Bangladesh	apsarah.com	Thailand	245,1
COLLAGEN PLUS - VIT E	Day Cream	Bangladesh	daraz.com.bd	Thailand	No detection

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
JIAOBI	Whitening & Moisturizing set - Whitening Speckle-Eliminating Facial Cleanser	Bangladesh	daraz.com.bd	Hong-Kong	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Make-up Base	Bangladesh	daraz.com.bd	Hong-Kong	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Day Cream	Bangladesh	daraz.com.bd	Hong-Kong	No detection
COLLAGEN PLUS - VIT E	Day Cream	Bangladesh	clickbd.com	Thailand	No detection
GOREE	Day & Night Whitening Cream	India	flipkart.com	Pakistan	15128,4
JIAOBI	Whitening & Moisturizing set - Whitening Night Cream	India	flipkart.com	N/A (language issue)	14072
GOREE	Beauty Cream with Lycopene	India	flipkart.com	Pakistan	12480,7
NEW FACE	Whitening Cream	India	amazon.in	Pakistan	12247*
FACE FRESH	Beauty Cream	India	flipkart.com	Pakistan	11867
ANEENZA GOLD	Beauty Cream with Avocado & Aloe Vera	India	flipkart.com	Pakistan	11610,3
FAIZA	Beauty Cream	India	flipkart.com	Pakistan	11367,9
SANDAL	Whitening Beauty Cream	India	flipkart.com	Pakistan	10294,9
NOOR	Herbal Whitening Cream	India	flipkart.com	Pakistan	10250,5
GLUTA WHITE	Skin Whitening Cream - Advanced Glutathione Formula	India	flipkart.com	USA	9973,5
GOLDEN PEARL	Beauty Cream	India	flipkart.com	Pakistan	9385,5
JIAOBI	Whitening & Moisturizing set - Whitening Make-up Base	India	flipkart.com	N/A (language issue)	5582,8
EGG WHITE & CHERRY	7 days specific eliminating freckle whitening cream	India	flipkart.com	Taiwan	2740,4

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
COLLAGEN PLUS - VIT E	Night Cream	India	flipkart.com	United Arab Emirates	2080,2
CHANDNI	Whitening Cream	India	flipkart.com	Pakistan	No detection
PHEASANTZ	CLARA - Facial Cream	India	flipkart.com	India	No detection
COLLAGEN PLUS - VIT E	Day Cream	India	flipkart.com	United Arab Emirates	No detection
DUE	Beauty Cream	India	flipkart.com	Bangladesh	No detection
ARCHÉ	Formula AA Pearl Cream	India	flipkart.com	Thailand	No detection
JALEA REAL GRISI	Royal Jelly	India	amazon.in	Mexico	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Speckle-Eliminating Facial Cleanser	India	flipkart.com	N/A (language issue)	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Day Cream	India	flipkart.com	N/A (language issue)	No detection
PALMER'S	Skin Success - Fade Milk	India	amazon.in	USA	No detection
POND'S	Clarant B3	India	amazon.in	USA	No detection
STILLMAN'S	Skin Bleach Cream	India	flipkart.com	Pakistan	No detection
TEMULAWAK	Day & Night Cream - Beauty Whitening Cream - Night Cream	Indonesia	bukalapak.com	Malaysia	65000
TEMULAWAK	Day & Night Cream - Beauty Whitening Cream - Night Cream	Indonesia	shopee.co.id	Malaysia	60000
COLLAGEN PLUS - VIT E	Night Cream	Indonesia	bukalapak.com	N/A	40100
NATURAL 99	Vitamin E Plus (White canister)	Indonesia	bukalapak.com	Indonesia	28000
NATURAL 99	Vitamin E Plus (Yellow canister)	Indonesia	bukalapak.com	Indonesia	17000
JIAOBI	Whitening & Moisturizing set - Whitening Night Cream	Indonesia	bukalapak.com	China	15095,9
GOREE	Beauty Cream with Lycopene	Indonesia	bukalapak.com	Pakistan	11300

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
GOREE	Day & Night Whitening Cream	Indonesia	bukalapak.com	Pakistan	11300
FAIZA	Beauty Cream	Indonesia	tokopedia.com	Pakistan	10216,6
FAIZA	Beauty Cream	Indonesia	shopee.co.id	Pakistan	9230,6
JIAOBI	Whitening & Moisturizing set - Whitening Make-up Base	Indonesia	bukalapak.com	China	6155*
COLLAGEN PLUS - VIT E	Night Cream	Indonesia	tokopedia.com	N/A	4695*
RDL	Whitening cream - Night Cream	Indonesia	bukalapak.com	Philippines	2465,1
ERNA	Whitening Cream	Indonesia	tokopedia.com	Malaysia	1300
DUE	Beauty Cream	Indonesia	shopee.co.id	Pakistan	131,07
TEMULAWAK	Day & Night Cream - Beauty Whitening Cream - Day Cream	Indonesia	shopee.co.id	Malaysia	0,3
COLLAGEN PLUS - VIT E	Day Cream	Indonesia	bukalapak.com	N/A	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Speckle-Eliminating Facial Cleanser	Indonesia	bukalapak.com	China	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Day Cream	Indonesia	bukalapak.com	China	No detection
JIAOBI	Whitening & Moisturizing set - Flawless Whitening Essence	Indonesia	bukalapak.com	China	No detection
KOJIE SAN	Face Lightening Cream	Indonesia	bukalapak.com	Philippines	No detection
RDL	Whitening cream - Day Cream	Indonesia	bukalapak.com	N/A	No detection
COLLAGEN PLUS - VIT E	Day Cream	Indonesia	tokopedia.com	N/A	No detection
JALEA REAL GRISI	Royal Jelly	Indonesia	tokopedia.com	Mexico	No detection
POND'S	Clarant B3	Indonesia	tokopedia.com	USA	No detection
TEMULAWAK	Whitening Bleaching Gluthatione Collagen Vit C	Indonesia	tokopedia.com	Malaysia	No detection
COLLAGEN PLUS - VIT E	Night Cream	Nepal	daraz.com.np	N/A	25000

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
COLLAGEN PLUS - VIT E	Day Cream	Nepal	daraz.com.np	N/A	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Night Cream	Philippines	shopee.ph	N/A (language issue)	20000
PARLEY	Beauty Cream	Philippines	shopee.ph	Pakistan	16321*
COLLAGEN PLUS - VIT E	Night Cream	Philippines	lazada.com.ph	N/A	14000
GOREE	Day & Night Whitening Cream	Philippines	shopee.ph	Pakistan	12000
COLLAGEN PLUS - VIT E	Night Cream	Philippines	shopee.ph	N/A	9700
GOLDEN PEARL	Beauty Cream	Philippines	shopee.ph	Pakistan	7000
NATURAL 99	Vitamin E Plus (White canister)	Philippines	shopee.ph	N/A	3800
JIAOLI	Miraculous Day and Night Cream - Day Cream	Philippines	shopee.ph	N/A (language issue)	2700
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Day Cream	Philippines	shopee.ph	N/A (language issue)	2400
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Night Cream	Philippines	shopee.ph	N/A (language issue)	2300
NATURAL 99	Vitamin E Plus (Yellow canister)	Philippines	shopee.ph	N/A	2300
JIAOLI	Miraculous Day and Night Cream - Night Cream	Philippines	shopee.ph	N/A (language issue)	1800
COLLAGEN PLUS - VIT E	Day Cream	Philippines	lazada.com.ph	N/A	No detection
COLLAGEN PLUS - VIT E	Day Cream	Philippines	shopee.ph	N/A	No detection
ERNA	Whitening Cream	Philippines	shopee.ph	N/A	No detection
ARCHÉ	Formula AA Pearl Cream	Philippines	shopee.ph	Thailand	No detection
GOREE	Beauty Cream with Lycopene	Philippines	shopee.ph	Pakistan	No detection
GOREE	Whitening soap with Lycopene	Philippines	shopee.ph	Pakistan	No detection

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
JIAOBI	Whitening & Moisturizing set - Whitening Speckle-Eliminating Facial Cleanser	Philippines	shopee.ph	N/A (language issue)	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Make-up Base	Philippines	shopee.ph	N/A (language issue)	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Day Cream	Philippines	shopee.ph	N/A (language issue)	No detection
KOJIE SAN	Face Lightening Cream	Philippines	lazada.com.ph	Philippines	No detection
MENA	Natural White Pearl Cream	Philippines	lazada.com.ph	Thailand	No detection
MENA	Natural White Pearl Cream	Philippines	shopee.ph	Thailand	No detection
RDL	Whitening Treatment - Day and Night Cream - 8 Days Treatment - Day Cream	Philippines	shopee.ph	Philippines	No detection
RDL	Whitening Treatment - Day and Night Cream - 8 Days Treatment - Night Cream	Philippines	shopee.ph	Philippines	No detection
NATURAL 99	Bleaching soap	Philippines	shopee.ph	N/A	No detection
POND'S	Clarant B3	Philippines	shopee.ph	Canada	No detection
DR. JAPAN	Nano	Thailand	lazada.co.th	N/A (language issue)	63000
GOLDEN PEARL	Beauty Cream	Thailand	ubuy.co.th	Pakistan	56012*
TEMULAWAK	Day & Night Cream - Beauty Whitening Cream - Night Cream	Thailand	shopee.co.th	Malaysia	55000
TEMULAWAK	Day & Night Cream - Beauty Whitening Cream - Night Cream	Thailand	ebay.com	Malaysia	51000
CLEO ME'	White - Lemon Formula	Thailand	shopee.co.th	N/A	48000
KIM	Whitening Pearl and Snow Lotus Cream	Thailand	shopee.co.th	N/A	29000

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
JIAOBI	Whitening & Moisturizing set - Whitening Night Cream	Thailand	th.aliexpress.com	N/A (language issue)	20000
SAKURA	Gluta Speed White	Thailand	lazada.co.th	N/A (language issue)	13000
PARLEY	Goldie Advanced Beauty Cream	Thailand	ebay.com	Pakistan	11000
SANDAL	Whitening Beauty Cream	Thailand	ebay.com	Pakistan	10000
SAKURA	Gluta Speed White	Thailand	shopee.co.th	N/A (language issue)	10000
CLEO ME'	White - Lemon Formula	Thailand	lazada.co.th	N/A	9695*
FAIZA	Beauty Cream	Thailand	ebay.com	N/A	9000
KIM	Whitening Ginseng and Pearl Cream	Thailand	lazada.co.th	N/A	5652*
JIAOLI	Speckle Dispelling & Whitening Cream	Thailand	aliexpress.com	N/A (language issue)	1600
FACE FRESH	Beauty Cream	Thailand	ebay.com	Pakistan	1300
ANEZA GOLD	Beauty Cream with Avocado & Aloe Vera	Thailand	desertcart.co.th	Pakistan	1200
PARLEY	Beauty Cream	Thailand	ebay.com	Pakistan	1000
JIAOBI	Whitening & Moisturizing set - Whitening Make-up Base	Thailand	th.aliexpress.com	N/A (language issue)	0,39*
JIAOBI	Whitening & Moisturizing set - Whitening Speckle-Eliminating Facial Cleanser	Thailand	th.aliexpress.com	N/A (language issue)	No detection
JIAOBI	Whitening & Moisturizing set - Whitening Day Cream	Thailand	th.aliexpress.com	N/A (language issue)	No detection
JIAOBI	Whitening & Moisturizing set - Flawless Whitening Essence	Thailand	th.aliexpress.com	N/A (language issue)	No detection
POP POPULAR	Facial Cream	Thailand	th.aliexpress.com	Thailand	No detection
ESPINICIDA VOAM		Thailand	ebay.com	N/A	No detection
JALEA REAL GRISI	Royal Jelly	Thailand	ebay.com	Mexico	No detection

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
LA TIA MANA	Anti Wrinkles, Age Spots and Acne	Thailand	ebay.com	USA	No detection
LY-NA	Nourish Face Cream	Thailand	ebay.com	Taiwan	No detection
TEMULAWAK	Day & Night Cream - Beauty Whitening Cream - Day Cream	Thailand	ebay.com	Malaysia	No detection
ARCHÉ	Formula AA Pearl Cream	Thailand	lazada.co.th	Thailand	No detection
PALMER'S	Skin Success - Fade Milk	Thailand	lazada.co.th	USA	No detection
TEMULAWAK	Day & Night Cream - Beauty Whitening Cream - Day Cream	Thailand	shopee.co.th	Malaysia	No detection
ARANDA	Balsamo Blanco	Thailand	ubuy.co.th	Mexico	No detection

Table H3: Brands and product names for SLPs purchased in the **Middle East**, e-commerce platforms where samples were purchased, country of origin/manufacture according to the packaging, and mercury concentration (ppm) as determined by SHIMADZU EDX-7000 Dispersive XRF. The lab test results for SLPs purchased in Asia and the Middle East varied somewhat from the XRF screening results; therefore, the test results in this table should be considered only as indicative results showing high presence of mercury, and should not be interpreted as absolute values.

BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
NUNN CARE	Crema Limpiadora	Bahrain	ubuy.com.bh	Mexico	314,2
ARANDA	Balsamo Blanco	Bahrain	ubuy.com.bh	Mexico	No detection
KOJIE SAN	Soap	Bahrain	ubuy.com.bh	Philippines	No detection

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Table H4: Brands and product names of SLPs purchased in **Latin America and the Caribbean**, e-commerce platforms where samples were purchased, country of origin/manufacture according to the packaging, and mercury concentration (ppm). The high-mercury samples (with *) shown in this table were initially identified by screening with a Bruker S1 Titan II Model 600 Handheld XRF. Then they were sent to the accredited Quality Assurance and Control Systems (QACS) Lab in Greece for quality assurance analysis using Hydride Atomic Absorption Spectroscopy.

BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
LA TIA MANA	Crema Limpiadora Y Curativa	Antigua & Barbuda	amazon.com	Mexico	6456*
KOJIE SAN	Face Lightening Cream	Antigua & Barbuda	amazon.com	Philippines	0,2*
LA VAQUITA	Balsamo Blanco - White Ointment	Antigua & Barbuda	amazon.com	Mexico	0,42*
JALEA REAL GRISI	Royal Jelly	Antigua & Barbuda	amazon.com	Mexico	No detection
POND'S	Rejuveness - Anti-Wrinkle Cream	Antigua & Barbuda	amazon.com	USA	No detection
POND'S	Clarant B3 Dark Spot Correcting Cream	Antigua & Barbuda	amazon.com	USA	No detection
POND'S	Clarant B3	Brazil	produto.mercadolivre.com.br	Mexico	No detection
POND'S	Rejuveness	Brazil	produto.mercadolivre.com.br	Mexico	No detection
LEMONVATE		Brazil	shopee.com.br	Italy	No detection
GOREE	Beauty Cream with Lycopene	Mexico	ebay.com	Pakistan	23197*
LA TIA MANA	Crema Limpiadora Y Curativa	Mexico	articulo.mercadolibre.com.mx	Mexico	8396*
NUNN CARE	Crema Limpiadora	Mexico	articulo.mercadolibre.com.mx	Mexico	5569*
KIM	Whitening Pearl and Snow Lotus Cream	Mexico	ebay.com	Thailand	5152*

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
LA CREMA DE REBECA		Mexico	articulo.mercadolibre.com.mx	Mexico	4821*
O WHITE EXTRA	Whitening Cream	Mexico	ebay.com	Thailand	4410*
COLLAGEN PLUS - VIT E	Night Cream	Mexico	aliexpress.com	N/A	3315*
ARANDA	Balsamo Blanco	Mexico	amazon.com.mx	Mexico	No detection
POND'S	Rejuveness	Mexico	amazon.com.mx	Mexico	No detection
ARANDA	Balsamo Blanco	Mexico	articulo.mercadolibre.com.mx	Mexico	No detection
CLARALUNA		Mexico	articulo.mercadolibre.com.mx	N/A	No detection
ESPINICIDA VOAM		Mexico	articulo.mercadolibre.com.mx	Mexico	No detection
JALEA REAL GRISI		Mexico	articulo.mercadolibre.com.mx	Mexico	No detection
LY-NA	Nourish Face Cream	Mexico	articulo.mercadolibre.com.mx	Taiwan	No detection
POND'S	Rejuveness	Mexico	articulo.mercadolibre.com.mx	Mexico	No detection
PALMER'S	Skin Success - Fade Milk	Mexico	wish.com	USA	No detection
COLLAGEN PLUS - VIT E	Day Cream	Mexico	aliexpress.com	N/A	No detection
ARCHÉ	Formula AA Pearl Cream	Mexico	aliexpress.com	Thailand	No detection

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Table H5: Brands and product names of SLPs purchased in **Europe**, e-commerce platforms where samples were purchased, country of origin/manufacture according to the packaging, and mercury concentration (ppm) as determined by Hydride Atomic Absorption Spectroscopy.

BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
PARLEY	Herbal Beauty Cream with Avocado	Belgium	befr.ebay.be	Pakistan	18821
NEW FACE	Whitening Cream	Belgium	befr.ebay.be	Pakistan	15594
DUE	Beauty Cream	Belgium	befr.ebay.be	Pakistan	14138
JIAOBI	Whitening & Moisturizing set - Whitening Night Cream	Belgium	befr.ebay.be	N/A (language issue)	9013
SANDAL	Whitening Beauty Cream	Belgium	befr.ebay.be	Pakistan	8067,8
FACE FRESH	Beauty Cream	Belgium	befr.ebay.be	Pakistan	7716,7
JOLIÉ	Beauty Cream	Belgium	befr.ebay.be	Pakistan	6967
COLLAGEN PLUS - VIT E	Night Cream	Belgium	best.aliexpress.com	China	3090
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Day (Set E)	Belgium	best.aliexpress.com	China	1708,5
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Night (Set E)	Belgium	best.aliexpress.com	China	1370,8
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Night (Set D)	Belgium	best.aliexpress.com	China	1207,6
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Day (Set D)	Belgium	best.aliexpress.com	China	1196,7
ARCHÉ	Formula AA Pearl Cream	Belgium	best.aliexpress.com	Thailand	23,9
JIAOBI	Whitening & Moisturizing set - Whitening Day Cream	Belgium	befr.ebay.be	N/A (language issue)	2,9
POP POPULAR	Facial Cream	Belgium	befr.ebay.be	Thailand	0,6

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
JIAOBI	Whitening & Moisturizing set - Whitening Make-up Base	Belgium	befr.ebay.be	N/A (language issue)	0,3
KOJIE SAN	Face Lightening Cream	Belgium	amazon.fr	Philippines	<0,1
JIAOBI	Whitening & Moisturizing set - Whitening Speckle-Eliminating Facial Cleanser	Belgium	befr.ebay.be	N/A (language issue)	<0,1
COLLAGEN PLUS - VIT E	Day Cream	Belgium	best.aliexpress.com	China	<0,1
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Serum (tube) (Set D)	Belgium	best.aliexpress.com	China	<0,1
JIAOLI	HuiChuSu Face Cream 7 Days Specific Eliminating Freckle - Serum (tube) (Set E)	Belgium	best.aliexpress.com	China	<0,1
KOJIE SAN	Face Lightening Cream	Belgium	bol.com	Philippines	<0,1
PALMER'S	Skin Success - Fade Milk	Belgium	bol.com	USA	<0,1

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Table H6: Brands and product names of SLPs purchased in **the USA**, e-commerce platforms where samples were purchased, country of origin/manufacture according to the packaging, and mercury concentration (ppm) as determined by Hydride Atomic Absorption Spectroscopy.

BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
PARLEY	Herbal Beauty Cream with Avocado	USA	ebay.com	Pakistan	12412
YINNI - GREEN TEA	Quickacting Whitener and Speckle Remover	USA	ebay.com	China	10392
FAIZA	Beauty Cream	USA	ebay.com	Pakistan	9274,3
FACE FRESH	Beauty Cream	USA	ebay.com	Pakistan	8076,8
CCM SPECIAL CREAM	Anti-melasma dark-spots cream	USA	ebay.com	N/A	4233,9
PAPAYA	Whitening & Freckle-Eliminating package	USA	ebay.com	N/A	3182,1
ARCHÉ	Formula AA Pearl Cream	USA	ebay.com	Thailand	3,6
ARCHÉ	Formula AA Pearl Cream	USA	ebay.com	Thailand	3,17
ARCHÉ	Formula AA Pearl Cream	USA	ebay.com	Thailand	1,72
NIUMA	Cocoa Butter Antiseptic Soap	USA	amazon.com	Spain	0,487
CAROTONE	Light and Natural - DSP10 - Brightening Cream	USA	amazon.com	N/A	0,31
LY-NA	Nourish Face Cream	USA	ebay.com	Taiwan	0,273
MENA		USA	ebay.com	Thailand	0,043
CAROTONE	Light and Natural - DSP10 - Brightening Cream	USA	amazon.com	N/A	<0,1
CAROTONE	Light and Natural - DSP10 - Brightening Cream	USA	amazon.com	N/A	<0,1
FAIR & WHITE PARIS	Crème Exclusive	USA	amazon.com	France	<0,02
FAIR & WHITE PARIS	Anti-Aging	USA	amazon.com	France	<0,02
FAIR & WHITE PARIS	Body Lotion with AHA	USA	amazon.com	France	<0,02
NADINOLA	Skin Fade Cream	USA	amazon.com	USA	<0,02

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BRAND NAME	PRODUCT NAME	COUNTRY OF PURCHASE	E-COMMERCE	COUNTRY OF ORIGIN/MANUFACTURE AS PER PACKAGING	MERCURY CONCENTRATION (IN PPM)
PERFECT WHITE	DSR7 Dark Spot Remover	USA	amazon.com	West Africa	<0,02
NATURE SECRETE	Moisturizing Lightening Body Lotion	USA	amazon.com	France	<0,02
GARNIER SKINACTIVE	Soothing 3-IN-1 Moisturizer - Day / Night - Mask - Made with Rose Water	USA	amazon.com	Mexico	<0,02
ARANDA	Balsamo Blanco	USA	ebay.com	Mexico	<0,02
JALEA REAL GRISI		USA	ebay.com	Mexico	<0,02
LA MILAGROSA		USA	ebay.com	USA	<0,02
LA TIA MANA		USA	ebay.com	USA	<0,02

Annex I—Variation in mercury content of identical SLPs

Observed variation in mercury content of SLPs of the same brand and batch

Brand name	Product name	Country of purchase	Platform	Batch number	Concentration (ppm)
Arché	Formula AA Pearl Cream	United States	ebay.com	300718	1.72
					3.17
					3.6
Parley	Herbal Beauty Cream with Avocado	United States	ebay.com	1044	12412
		Belgium	befr.ebay.be		18821
Temulawak	Day & Night Cream - Beauty Whitening Cream - Night Cream	Thailand	ebay.com	00512	51000
		Thailand	shopee.co.th		55000
		Indonesia	shopee.co.id		61000
		Indonesia	bukalapak.com		65000

Note: For the Asian samples, as explained previously, the mercury concentrations should only be considered indicative of the presence of mercury, and not be considered as absolute values. Nevertheless, as all Asian samples were analysed in the same manner, the relative levels of mercury content may be seen here.

Annex J—Record-keeping and monitoring instructions 2020-21

Record-keeping card and monitoring instructions 2020-2021

Monitoring of the availability of the products from the Internet platforms is intended to take place every second month, from December 2020 to October 2021.

ALL “Terrible Eighty” products need to be checked whether available or not on the platform as most are suspicious of high mercury. Then whenever a product of those, or an already tested and found with high mercury product, is found, we contact the Internet Platform and ask them to take down the product/products in question. For this purpose we have created a template letter that is also attached to the same e mail as this instruction. If the Internet Platform responds positively and take action, continue to check every second month that the product does not reappear for sale. If they respond negatively, claiming that they are not responsible for the product/products, contact the authority responsible for Minamata Convention implementation and cosmetics in your respective country. For this purpose, we have created another template letter that is also attached to the same e mail as this instruction.

Please keep record bimonthly of the availability of products in the “Terrible Eighty list”. Please mark as ‘Available’ when you find the products checked from the Internet platform while doing your bi-monthly checks. If the product is available, save a screenshot with the name of the products and include in the file name the date. For example, the name of a screen dump can be Aneeza Gold Beauty Cream, 28-08-2020.jpg. AND copy paste it within this table.

Duplicate this logging/monitoring protocol for each internet platform that you survey.

Internet platform, name of product and timeline for bi-monthly monitoring

Country:						
Internet platform:						
Name of product	End of Dec. 2021	End of Feb. 2021	End of Apr. 2021	End of Jun. 2021	End of Aug. 2021	End of Oct. 2021
See Annex A for complete list of SLPs						

Annex K—Monitoring SLPs for ongoing availability

Monitoring data

Table K-1: Online availability of priority list SLPs

Non-governmental organization (NGO) purchasing the samples	Country where NGOs were based, where samples were ordered	E-commerce platform from which samples were purchased	Number of monitoring rounds
Integrated Health Outreach (IHO)	Antigua & Barbuda	Amazon (.com)	5
Environment and Social Development Organization (ESDO)	Bangladesh	Ajkerdeal; Apsarah; Clickbd; Desertcart (Bangladesh); Daraz (.bd); Jadroo; Kablewala; Shoppersbd; Vinnobd	5
Environment Friends Society	Bahrain	Desertcart (Bahrain); Ourshopee (Bahrain); Ubuy (.bh)	1
European Environmental Bureau (EEB)	Belgium	Aliexpress; Amazon (.fr); eBay (.be); Bol	6
Toxics Link	India	Amazon (.in); Flipkart	6
NEXUS3 Foundation	Indonesia	Bukalapak; Shopee (.id); Tokopedia	1
Center for Environmental Justice and Development (CEJAD)	Kenya	Alibaba; Amazon; Jumia (.ke)	4
Centre Africain pour la Santé Environnementale (CASE)	Côte d'Ivoire	Ubuy (.ci)	1
Casa Cem	Mexico	Aliexpress; Amazon (.mx); eBay (.com); Linio; Mercadolibre (mx); Wish	7*
Center for Public Health and Environmental Development	Nepal	Alibaba; Aliexpress; Daraz (.np)	4
Sustainable Research and Action for Environmental Development (SRADev Nigeria)	Nigeria	Jiji (.ng); Jumia (.ng); Konga (.ng); Yaoota.com	6
BAN Toxics	Philippines	Carousell; eBay (.ph); Lazada (.ph); Shopee (.ph)	7*

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EARTH	Thailand	Alibaba; Aliexpress; Desertcart (.th); eBay (.com); JD Central; Lazada (.th); Shopee (.th); Ubuy (.th)	6
Biovision	Uganda	Jiji (.ug); Jumia(.ug)	6
Toxisphera Environmental Health Association (TEHA)	Brazil	Mercado Livre (.br); Shopee (.br)	1
* Only six monitoring rounds were considered for the analysis in the present study.			

Table K-2: Top 16 most available SLPs during the 2020-2021 monitoring exercise, the occurrence over the whole monitoring period on the monitored sites, and the mercury content based on the present testing.

MONITORING (December 2020 – December 2021)		TESTING 2021-22
Top 16 most available skin-Lightening products	Occurrence (%)	Mercury findings based on the present testing
Kojie San	4,83%	None of the Kojie San (Face lightening cream) were found with mercury over 1 ppm.
Collagen Plus Vit E	4,48%	Out of ten Collagen Plus Vit E, all the night creams were found with mercury level starting from 3090ppm.
Palmer's Skin Success Fade Milk	4,48%	None of the six samples tested had mercury over 1 ppm
Arché Formula AA Pearl Cream	3,98%	Four out of eight Arché Formula AA Pearl Cream had mercury between 1,72 and 23,9 ppm
Goree Beauty Cream	3,55%	Seven out of eight samples had considerably high level of mercury (starting from 10000 ppm)
Golden Pearl Whitening Beauty Cream	3,45%	All five samples had mercury starting from 7000 ppm
JiaoBi Whitening set	3,30%	Mercury findings is variable depending on which product of the set is concerned. Yet all night creams from six sets were found with mercury over 1 ppm (starting from 9013 ppm)
Pond's Clarant B3	3,30%	None of the six samples had mercury
Faiza Beauty Cream	3,16%	All the seven samples were found with mercury over 1 ppm (starting from 9000 ppm)
Pond's Rejuveness	3,06%	None of the five samples were found with mercury.
Chandni Whitening Cream	2,56%	Two out of three samples were found with mercury over 1 ppm (starting from 19978 ppm)
Goree Day and Night Whitening Cream	2,52%	All of the three samples were found with mercury over 1 ppm (starting from 11300 ppm)
Mena	2,49%	None of the four samples (Herbal Cream and Natural White Pearl Cream) were found with mercury over 1 ppm

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Noor Herbal Beauty Cream	2,45%	All of the four samples had mercury over 1 ppm
Pop Popular Facial Cream Whitening Acne Pimple	2,45%	None of the three samples had mercury over 1 ppm
Due Beauty Cream	2,27%	Three out of the four samples had mercury over 1 ppm

Table K-3: Availability of priority list SLPs per country and per e-commerce platform

COUNTRY	PLATFORM	OCCURENCES (all monitoring rounds)	NUMBER of monitor- ing rounds	AVERAGE occurrence
Antigua and Barbuda	Amazon (.com)	30	5	6,00
Bangladesh	ajkerdeal	33	5	6,60
	Apsarah	30		6,00
	Desertcart (Bangladesh)	64		12,80
	Clickbd.com	45		9,00
	Daraz (.bd)	13		2,60
	Jadroo	5		1,00
	Kablewala	50		10,00
	Shoppersbd	18		3,60
	Vinnobd.com	15		3,00
Barhain	Desertcart (Bahrain)	16	1	16,00
	Ourshopee (Bahrain)	5		5,00
	Ubuy (.bh)	28		28,00
Belgium	Aliexpress	69	6	11,50
	Amazon (.fr)	31		5,17
	bol	17		2,83
	eBay (.be)	226		37,67
Brazil	Mercado Livre	2	1	2,00
	Shopee (.br)	6		6,00
Côte d'Ivoire	Ubuy (.ci)	7	1	7,00
India	Amazon (.in)	73	6	12,17
	Flipkart	110		18,33
Indonesia	Bukalapak	12	1	12,00
	Shopee (.id)	11		11,00
	Tokopedia	15		15,00
Kenya	Alibaba	12	4	3,00
	Amazon	5		1,25
	Jumia (.ke)	20		5,00
Mexico	Aliexpress	46	6	7,66

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COUNTRY	PLATFORM	OCCURENCES (all monitoring rounds)	NUMBER of monitoring rounds	AVERAGE occurrence
	Amazon (.mx)	47		7,83
	eBay (.com)	240		40
	Linio	24		40
	Mercado libre (.mx)	79		13,16
	Wish	25		4,16
Nepal	Alibaba	73	4	18,25
	Aliexpress	12		3,00
	Daraz (.np)	7		1,75
Nigeria	Jiji (.ng)	72	6	12,00
	Jumia (.ng)	45		7,50
	Konga (.ng)	54		9,00
	Yaoota	2		0,33
Philippines	Carousell	30	6	5,00
	eBay (.ph)	81		13,50
	Lazada (.ph)	81		13,50
	Shopee (.ph)	118		19,67
Thailand	Alibaba	66	6	11,00
	Aliexpress	41		6,83
	Desertcart (.th)	89		14,83
	EBay (.com)	188		31,33
	JD Central	10		1,67
	Lazada (.th)	94		15,67
	Shopee (.th)	110		18,33
	Ubuy (.th)	151		25,17
Uganda	Jiji (.ug)	42	6	7
	Jumia (.ug)	20		3,33

Annex L—Raw monitoring data

The raw monitoring data can be accessed [here](#).