
# Menstrual Product Safety - A Global Assessment of contaminants and long-term health effects

# BRIEFING NOTE

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## Background

Menstrual products are used by half the world population for an average of 35 years of their life[1]. From early adolescence into middle age, girls and women will use these products for approximately 5 out of every 28 days. Compared to other frequently used consumer goods, menstrual products have an inherently higher risk, as the vagina (mucosal membrane) is exposed to the materials for prolonged periods of time. Despite their frequent use, global quality standards for menstrual products currently do not exist.

Efforts are underway by the International Standards Organization (ISO) through a technical committee (338), led by the Swedish Institute for Standards (SIS) to develop these global quality standards for all single- and multi-use products, worn either internally or externally. One of the driving factors for establishing TC 338 was a call for the right of users to have transparency on the materials used in menstrual products and safeguard their long-term health, which was broadly supported by ISO member states from around the world. Research to define the health and safety safeguards in these standards has been lacking.

A study in 2024 on metals and PFAS contamination in tampons underlined the importance of better understanding the contaminants in menstrual products and the potential risks women and girls are exposed to when using menstrual products. This small study conducted by the Metals Lab at Columbia University found traces of 12 heavy metals including lead, arsenic and mercury in 95% of the samples. In many cases the levels were significantly higher than the threshold values for drinking water as determined by the US FDA.

## What is needed

SHF supports the development of ISO standards for menstrual products through a grant to SIS. A group of over 50 national standards bodies (NSBs) is currently working on new safety requirements for menstrual products, identifying high risk contaminants and setting thresholds. However, there is no data on the types and degree of contamination for different categories of menstrual products or on the variation across regions in the world.

A global analysis of the high-risk contaminants across menstrual products is essential:

- To assess the potential risk that women and girls are exposed to;
- Identify risk areas in specific product categories or geographic areas;
- To inform the setting of minimum requirements for the global ISO standard;
- As a starting point to investigate the long-term health effects of the use of menstrual products.

[1] Lifetime cumulative number of menstrual cycles and serum sex hormone levels in postmenopausal women

## The opportunity

Under the leadership of Kathrin Schilling (Assistant Professor and Director of the MetalsLab at Columbia University), a proposal for a follow-on study was presented to SHF and the Gates Foundation. This study will focus on two components:

1. **Global assessment of menstrual product contaminants** - Collecting and testing menstrual product samples for all four ISO categories from 18 high-, middle- and low-income countries. This will result in a public data source listing all contaminants of concern present in these samples.

2. **Pathway for absorption by human cells** - Laboratory analysis of the rate and degree of absorption of metal contaminants by human vaginal cells to determine the potential health risks and effects. The effects once these contaminants infiltrate the body, have been extensively covered in scientific research. No human trials will take place in this study.

## Our contribution

The overall research budget is 500K USD. The Gates Foundation is the primary funder for this study, contributing 400K USD (80%) to the project. With their team of experts in academic research, they have led the research proposal review and approval process. SHF is considering contributing an additional 100k USD in funding to complete the research budget.

## Why Ad-hoc selection

This is the first study of its kind looking into contamination risks of menstrual products. No other research labs have published any work on this topic to date. The lab has a longstanding track record in working with contaminants across a range of consumer goods and daily use items. Given that this is a follow-on study from the work conducted in 2023 and 2024, the grant will go towards the continuation of an existing project and leverage the experience and lessons learned. Finally, SHF does not have the skills, expertise and resources to fund this study on its own. By collaborating with the Gates foundation, we can leverage funding and technical expertise to ensure an essential piece of research is conducted that is critical to the outcomes of SHFs grant for the ISO standards development process.

## Alignment with objectives of the donor

The core objectives of SDCs funding to SHF, as detailed in the donor agreement (p.1), is “to contribute to the world’s SDG commitment that everyone will have access to safe and equitable sanitation and hygiene with the specific needs of women and girls, including menstrual health and hygiene (MHH)”. Given this central objective, SHF has identified the absence of global menstrual product standards not only as a barrier to making quality menstrual products available in LMICs, it is also a crucial step in ensuring the safety of these products and warranting the long-term health of women and girls globally. This is particularly relevant because today global standards do not exist and national standards do not have requirements for long-term safety. SHF has therefore provided grant funding for the development of these standards at the global level through SIS and ISO and support for LMICs to participate and adopt these standards. The proposed grant in this document is crucial in ensuring the standard will meet health, safety and equity requirements.

This study will conduct the first global analysis of contaminants in menstrual products through laboratory testing. This is a crucial first step to identify the potential risk factors and will enable the global ISO TC to set minimum requirements for the global standards currently under development. Therefore, this piece of work links directly to the core mandate provided by SDC to ensure "access to safe and equitable sanitation and hygiene with the specific needs of women and girls, including menstrual health and hygiene".

## Overview of the 2024 study by Columbia University

A detailed presentation on the 2024 study is available here.

The 2024 study quantifying metals in tampons has received significant global media attention. In short, it detected 12 heavy metals (out of the 16 tested) in 100% of the samples. Of these, several are known toxic metals, including cadmium and lead (arsenic was present in 95%). Given the growing concerns about the potential health impacts on women, there is an immediate need to further investigate if and how much of these metals leach from tampons into the body. Tampons may expose women to harmful chemicals due to the presence of metals in their absorbent materials. These metals can potentially enter the body through the vaginal lining. Given that ~50% of women use tampons, and many will use over 10,000 tampons throughout their lifetime, this represents a significant and potentially concerning route of chronic exposure. The vaginal lining is particularly permeable, allowing chemicals to pass directly into the bloodstream without first being processed by the liver. The findings have already caught the attention of regulatory bodies like the FDA and Health Canada, who are now investigating the implications of these metals in tampons.

Tampons as a source of exposure to metal(loid)s

Between 52–86% of people who menstruate in the United States use tampons—cotton and/or rayon/viscose 'plugs'—to absorb menstrual blood in the vagina.

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