SYNTHESIS

Better regulating menstrual products : why does it matter?

An overview of current **knowledge** and **recommendations** regarding the **regulation** of the **composition** of **menstrual products** within the EU

& Member states and EU actions plan recommendations

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Abstract

Each menstruating person will use between **5,000 and 15,000 menstrual products over their lifetime.**
For nearly forty years, these products are in repeated contact with one of the most permeable and vascularised areas of the human body.

And yet, at European level, there is still **no specific regulation governing their chemical composition.**

Over the past twenty years, scientific studies have repeatedly identified residues of pesticides, heavy metals, dioxins, PFAS and phthalates in tampons and pads sold on the European market. Taken individually, some of these substances are already recognised as hazardous. Combined, their cumulative effects — known as the cocktail effect — remain largely underestimated.

Menstrual products are neither cosmetics nor medical devices. They fall under a general regulatory framework that was never designed to account for chronic mucosal exposure, repeated use over decades, or exposure to chemical mixtures.

Regulating menstrual products is not a technical option.
It is a public health, environmental justice and equality issue.

Summary

Report written for Règles Élémentaires

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Menstrual products in Europe

112

million people concerned

5,000 TO 15,000

products used per lifetime

Up to

150 KG

of waste generated per person

Up to

90%

plastic in disposable products

Toxic substances in menstrual products : Findings

Over the past twenty years, research on menstrual products has shifted from isolated toxicological findings to a broader approach combining chemistry, public health, and environmental science. Early studies in the 2000s showed that menstrual products contained dioxins and furans, proving they were not chemically neutral[1]. From the 2010s onward, researchers and NGOs identified a wider range of contaminants like PFAS, metals, nanoparticles... And began linking them to potential endocrine, reproductive, and systemic health risks, while also highlighting environmental persistence and mixture effects[2]. Similar contamination patterns have been documented across multiple continents, pointing to global manufacturing and regulatory issues. Europe's first systematic government-level assessment came in 2019, when the French Agency for Food, Environmental and Occupational Health & Safety (ANSES) conducted a large-scale investigation of tampons and pads. The agency confirmed the presence of volatile organic compounds (VOCs), phthalates, pesticides, and residues from manufacturing processes in nearly all tested products[3]. What the research has clearly brought is a scientific basis for regulatory concern.

> ***The accumulation of evidence across independent laboratories and national agencies demonstrates that contamination in menstrual products is recurrent, multi-origin, and preventable.***

It has revealed major data gaps, particularly concerning chronic mucosal exposure, mixture toxicity, and biological absorption dynamics, which are still underexplored.

Health and cocktail effects

Each of these substance classes (heavy metals, PFAS, pesticides, and nanoparticles) poses distinct toxicological challenges. Yet their combined presence in menstrual products introduces mixture effects that are rarely evaluated in current risk-assessment frameworks. Chronic low-dose exposure to multiple contaminants can result in additive or synergistic toxicity, particularly affecting endocrine, reproductive, and immune systems. Studies of vulvar and vaginal conditions, such as chronic dermatitis and pruritus, highlight how chemical irritation compromises the epithelial barrier, thereby increasing susceptibility to allergenic and toxic agents[4]. This interplay of chemical exposure and barrier dysfunction underscores the systemic vulnerability created by poorly regulated menstrual products.

While direct causal pathways remain under investigation, the convergence of toxicological evidence indicates that chronic mucosal exposure to hazardous materials may contribute to a spectrum of long-term effects, from local irritation and microbiome disruption to systemic endocrine and reproductive impacts. The paucity of longitudinal studies leaves uncertainty about dose-response relationships, but existing data justify adopting the precautionary principle in regulation and product design.

Menstrual products often contain a mixture of chemicals (phthalates, PFAS, pesticides, heavy metals, etc.), and the combined effects of these substances — the "cocktail effect" — remain largely overlooked, despite evidence that they can have additive or synergistic impacts, especially on endocrine systems. Prolonged, repeated use and cumulative exposure from other sources mean current regulations underestimate real-world risks, highlighting the need for EU standards addressing interactive and cumulative chemical exposures.

> ***Menstrual products rarely contain a single substance of concern.***
> ***They often contain several.***
> ***Their combined effects remain largely ignored.***

1 - (1) DeVito, M. J., & Schecter, A. (2002). Exposure assessment to dioxins from the use of tampons and diapers. Environmental health perspectives, 110(1), 23–28. https://doi.org/10.1289/ehp.0211023
(2) Archer, J. C., Mabry-Smith, R., Shojaee, S., Threet, J., Eckert, J. J., & Litman, V. E. (2005). Dioxin and furan levels found in tampons. Journal of women's health, 14(4), 311–315. https://doi.org/10.1089/jwh.2005.14.311
2 - (1) Martin, O., Scholze, M., Ermler, S., McPhie, J., Bopp, S. K., Kienzler, A., Parissis, N. & Kortenkamp, A. (2021). Ten years of research on synergisms and antagonisms in chemical mixtures : A systematic review and quantitative reappraisal of mixture studies. Environment International, 146. https://doi.org/10.1016/j.envint.2020.106206
(2) Martin, O. V. (2023). Synergistic effects of chemical mixtures : How frequent is rare ? Current Opinion in Toxicology, 36. https://doi.org/10.1016/j.cotox.2023.100424
3 - Agence nationale de sécurité sanitaire, de l'alimentation, de l'environnement et du travail. (2019). Sécurité des produits de protection intime. https://www.anses.fr/fr/system/files?file=CONSO2016SA0108Ra.pdf
4 - Raef, H. S. & Elmariah, S. B. (2021). Vulvar Pruritus: A Review of Clinical Associations, Pathophysiology and Therapeutic Management. Frontiers in medicine, 8 (649402). https://doi.org/10.3389/fmed.2021.649402

SUBSTANCES ARE USUALLY ASSESSED ONE BY ONE.
THE BODY, HOWEVER, IS EXPOSED TO THEM ALL AT ONCE.

Cocktail Effect

In practice health standards for menstrual products should therefore include:

1

➜ Safety standards which combine chemical restriction, transparent ingredient disclosure and comprehensive testing for both acute and chronic outcomes so that the risks are correctly addressed

2

➜ Mixture assessment for toxicity : a safety standard that takes into consideration cumulative and interactive chemical exposures to further protect consumers from a potential cocktail effects

3

➜ More longitudinal studies to better understand the dose–response effects of these chemicals should be a prerequisite for setting safety standards.

Environmental Effects : a hidden pollution

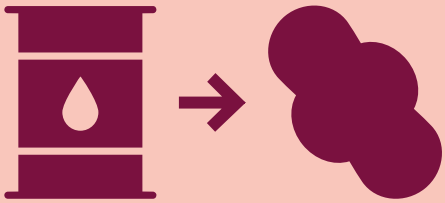
Menstrual products represent a substantial and often overlooked environmental burden, both in production and disposal. Most disposable pads and tampons contain up to 90% plastic, derived from petroleum-based materials such as polyethylene and polypropylene[5]. A single menstruating person may use between 5,000 and 15,000 products over their lifetime, generating up to 150 kilograms of waste, much of which is non-recyclable and ends up in landfills or marine environments[6]. A 2021 UNEP meta-study found that tampons and pads rank among the most polluting single-use plastics globally, alongside cigarette butts and food packaging. In addition to plastic pollution, menstrual products contribute to chemical contamination: bleaching processes and additives release dioxins, phthalates, and PFAS into the environment during manufacture and decomposition.

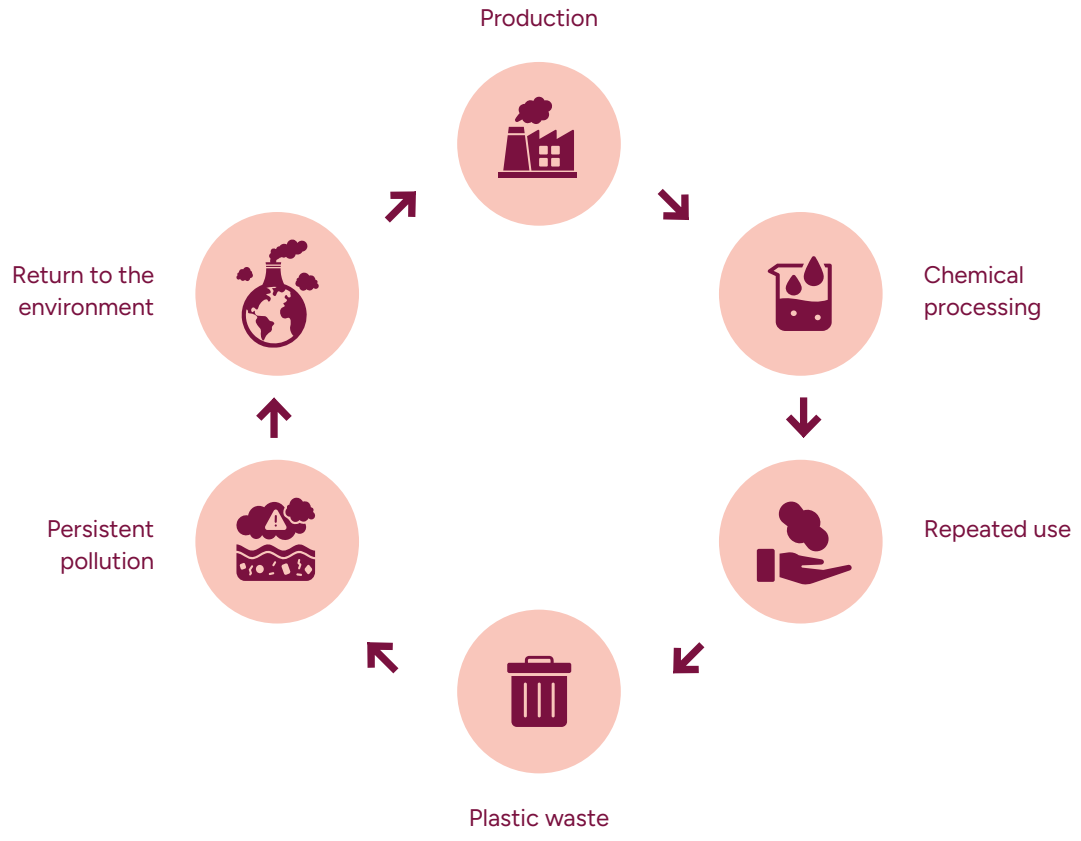
These “forever chemicals” contaminate soil and water systems, persisting for decades and re-entering human exposure cycles through food and drinking water[7].

5 - United Nations Environmental Programme. (2021). Single-use menstrual products and their alternatives. Life Cycle Assessments. https://www.lifecycleinitiative.org/wp-content/uploads/2021/07/UNEP-LCI-Single-use-vs-reusable-Menstrual-Products-Meta-study.pdf
6 - Women Engaged for a Common Future International. (2020). Toxic Free Periods: Eco-friendly healthy plastic free periods. https://www.wecf.org/toxic-free-periods/.
7 - United Nations Environmental Programme. (2021). Single-use menstrual products and their alternatives. Life Cycle Assessments. https://www.lifecycleinitiative.org/wp-content/uploads/2021/07/UNEP-LCI-Single-use-vs-reusable-Menstrual-Products-Meta-study.pdf

As for reusable menstrual products, they offer significant environmental benefits by reducing waste and carbon footprint, but pose regulatory and chemical-safety challenges, lack product-specific standards, and require systemic EU reforms in design, recycling, and producer responsibility to achieve a truly circular approach.

A MENSTRUAL PRODUCT CAN BE MADE OF UP TO 90% PLASTIC. AN INTIMATE PRODUCT DESIGNED FOR SINGLE USE. DERIVED FROM PETROLEUM.





A growing public concern

Alongside the accumulation of scientific data, the past five years have seen a significant escalation in media coverage, public debate, and civil society mobilisation around the safety of menstrual products. What was once a marginal or taboo subject has now entered mainstream discourse, increasingly framed as a public health, consumer rights, and gender equality issue. Similarly, informal platforms like social media and online forums have increasingly captured widespread consumers' concerns about product toxicity, chemical contamination, transparency and overall safety.

Major outlets across France, Germany, Poland, Sweden, and the Netherlands have highlighted hazardous substances like PFAS and heavy metals, framing the issue in accessible public-health and equality terms. Consumers have increasingly voiced concerns through informal channels, revealing gaps in official monitoring systems like the EU Safety Gate. Meanwhile, civil society campaigns—from petitions in France to EU-wide initiatives by Zero Waste Europe and #BreakFreeFromPlastic—have pushed for ingredient transparency, regulatory reforms, and sustainable alternatives. This combined attention positions menstrual product safety not just as a chemical issue, but as a matter of public health, consumer rights, gender equality, and environmental justice.

Existing Regulations

EU regulations

1 — General Product Safety Regulation

Menstrual products in the European Union are currently regulated under the General Product Safety Regulation (EU) 2023/988 (GPSR), which serves as the overarching framework for non-harmonised consumer goods. While this regulation strengthens the general safety obligations for products placed on the EU market, it does not establish specific standards for menstrual products, despite their unique mode of use, and potential for chronic exposure to chemical substances.

This absence of dedicated rules results in fragmented oversight and uneven consumer protection across Member States.

Under the GPSR, applicable from December 2024, manufacturers are required to ensure that all products they place on the market are safe. They must conduct an internal risk analysis, prepare technical documentation describing the product and its risks, and identify measures to mitigate those risks. National market surveillance authorities are empowered to verify compliance and, when necessary, withdraw unsafe products from the market[8].

However, the GPSR's general nature means that risk analyses are entirely internal, based on each manufacturer's own standards and methodologies. In the absence of predetermined safety criteria, these evaluations vary widely between companies and are not subject to external validation. This regulatory approach places the burden of proving product safety on consumers and national authorities, rather than on producers, and fails to guarantee consistency across the EU.

As Eduard Farré, a manufacturer, noted "in Europe, the only thing we have to fulfil as a manufacturer is to put a safe product on the market. But nobody tells me how I have to think about what is safe in my product."

> ***« In Europe, manufacturers are required to place 'safe' products on the market. But no one clearly defines what 'safe' means. »***

8 - European Commission. (2025). EU's General Product Safety Regulation (GPSR): A New Era of Consumer Protection. https://trade.ec.europa.eu/access-to-markets/en/news/eus-general-product-safety-regulation-gpsr-new-era-consumer-protection

A REGULATORY BLIND SPOT

Product type	Specific EU regulation
Cosmetics	✓
Medical devices	✓
Menstrual products	✗

2 — REACH Regulation

Chemical safety in the EU is primarily addressed under the REACH Regulation, which harmonises restrictions on the manufacturer, the placing on the market, and on the use of hazardous substances. REACH allows restrictions to be proposed when a chemical poses an "unacceptable risk" to human health or the environment. Although REACH already bans some substances used in female hygiene products, such as dioctyltin (DOT) compounds, it does not systematically assess the thousands of chemicals that may be present in or migrate from menstrual products. Menstrual products are covered only indirectly, through restrictions on specific substances of very high concern (SVHCs) or through generic restrictions when an "unacceptable risk" to human health or the environment has been demonstrated.

In practice, this substance-by-substance, risk-based approach struggles to account for the real-world exposure scenario of menstrual products: low-dose, chronic contact with highly vascularised mucosal tissues; repeated use over several decades; and exposure to complex mixtures of chemicals, including known or suspected endocrine disruptors and immunotoxicants. The current REACH toolbox does not systematically integrate mixture toxicity, endocrine disruption, or sex- and gender-specific vulnerabilities into standard information requirements or restriction triggers. Menstrual products are not recognised in REACH as a priority use category, despite the growing evidence base on their potential to contribute to chemical body burdens and to intersect with reproductive and gynaecological health.

3 — Complementary EU regulation tools Environmental Regulation

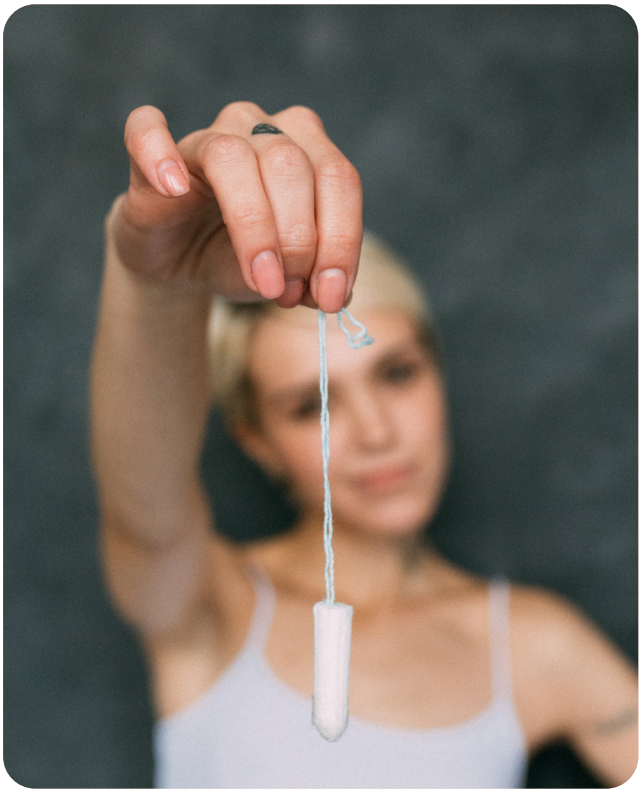
Complementary policy tools, such as the EU Ecolabel, have begun to address some of the shortcomings in chemical oversight. This label certifies products and services who reduce their environmental impact throughout their life cycle.The 2023 revision of the Ecolabel criteria for absorbent hygiene products[9] introduced bans and restrictions on a non-exhaustive list of hazardous substances, including certain antibacterial agents, formaldehyde, parabens, endocrine disrupting chemicals and phthalates.

These changes are significant: they constitute some of the only EU-level criteria that explicitly connect absorbent hygiene products with concerns about chemical exposure, and they send a clear signal to frontrunner manufacturers about expected good practice. However, the EU Ecolabel's core mandate remains environmental. Criteria are primarily designed around life-cycle steps (resource use, waste generation, biodegradability, climate and circularity) rather than around chronic toxicological or reproductive health endpoints. In addition, the label is voluntary: only producers who choose to apply for the Ecolabel must comply.

9 - European Commission. (2023). Commission Decision (EU) 2023/1809 of 14 September 2023 establishing the EU Ecolabel criteria for absorbent hygiene products and for reusable menstrual cups (notified under document C(2023) 6024) (Text with EEA relevance). Official Journal of the European Union. https://eur-lex.europa.eu/eli/dec/2023/1809/oj/eng#document1

National Legislations

As stated above, the absence of dedicated overarching EU regulation on menstrual products results in a fragmented consumer protection across Member States. In 2023, France introduced a decree requiring manufacturers to list intentionally added substances in menstrual products (Loi n° 2023-1250, 2023, art. 40). However, this excludes contaminants, residues, and by-products, the very categories most often flagged by independent studies. Spain's 2023 constitutional law on menstrual and intimate hygiene products (Ley Orgánica 1/2023, 2023) also marks a notable step forward within Europe. It establishes composition transparency, labelling obligations, and basic safety requirements for menstrual products, explicitly recognising them as essential goods linked to health and dignity.



Standardisation

The European Committee for Standardization (CEN) has developed a voluntary test method to detect trace chemicals in absorbent hygiene products, but it focuses more on detailing a measurement methodology and an analytical process than defining toxicity thresholds or safety limits, limiting its impact on consumer protection[10].

On the international stage, the International Organization for Standardization (ISO) Technical Committee 338 (established in 2022) marks an important step toward global standardisation of menstrual products. While its current focus is mainly on usability, classification, and access, the committee is also expected to address product composition and chemical substances. However, the scope and level of ambition of this future work remain unclear, making it difficult at this stage to assess whether it will adequately address chemical safety concerns.This represents an opportunity for international harmonisation to help reduce the safety gap between countries and could establish common testing methods, substance thresholds, and transparency criteria, thereby facilitating market surveillance, ensuring producer accountability, and integrating chemical safety into national and European regulatory frameworks.

10 - CEN - European Committee for Standardization (2023). Determination of trace chemicals extracted from absorbent hygiene products (AHPs) using simulated urine/menses. https://www.cencenelec.eu/media/CEN-CENELEC/News/Workshops/2023/2023-08-16%20-%20APH/draftcwa_ws118001.pdf

Recommendations

The evidence presented throughout this report demonstrates that current EU regulation is fragmented and insufficient to protect menstruators from potential chemical, environmental, and health risks.

To move toward a coherent, rights-based and science-informed framework, the European Union and its Member States should adopt a comprehensive action plan structured around five main pillars:

1 - Health and Safety;
2 - Transparency and Consumer Rights;
3 - Environment and Circularity;
4 - Research, Innovation, and Knowledge;
5 - Governance, Participation, and Human Rights.

1 — Health and safety

→ Adopt a dedicated EU regulation for menstrual products.
→ Apply the precautionary principle systematically.
→ Prohibit hazardous additives.
→ Set binding MRLs.
→ Mandatory pre-market toxicological testing.
→ Include menstrual products in the revision of REACH.
→ Create a list of substances of concern for menstrual products.
→ Develop risk-assessment methodologies adapted to intimate exposure.

2 — Transparency and consumer rights

→ Mandatory ingredient disclosure.
→ Establish a unified EU labelling system.
→ Create a public EU database on menstrual product composition.
→ Ensure traceability and accountability in supply chains.
→ Harmonise safety communication.
→ Combat misleading marketing claims.

3 — Environment and circularity

→ Integrate menstrual products into the EU Circular Economy framework.
→ Apply Extended Producer Responsibility (EPR).
→ Develop eco-design and substitution incentives.
→ Regulate reusable menstrual products.
→ Integrate nanomaterials and microplastic concerns.
→ Strengthen eco-labelling criteria.
→ Promote zero-waste menstrual management strategies.

4 — Research, innovation, and knowledge

→ Establish an EU research programme on menstrual product safety.
→ Fund the development of vaginal mucosa exposure models.
→ Encourage interdisciplinary collaboration.
→ Support longitudinal and epidemiological studies.
→ Promote data sharing and open science.
→ Develop training for regulators and health professionals.

5 — Governance, Participation, and Human Rights

→ Recognise menstrual health as a fundamental human right.
→ Guarantee inclusive policy participation.
→ Adopt an EU Menstrual Health and Safety Strategy.

Limitations

The study had several limitations. Due to timing constraints, the team could not interview the European Commission. The lack of EU-level data on the chemical composition of menstrual products prevented a more comprehensive assessment.

Consumers were not in-terviewed directly, and the number of stakeholders invol-ved remains limited given the scale of the European mar-ket. For these reasons, the findings should be consideredindicative rather than exhaustive, though they still providea solid foundation for targeted policy recommendations. Future research would benefit from including consumer perspectives, patient experiences and a broader diversity of actors.

MENSTRUAL HEALTH IS NOT A NICHE ISSUE.

IT CONCERNS HALF OF THE POPULATION, FOR DECADES OF THEIR LIVES.

THE SCIENCE EXISTS.
THE SOLUTIONS EXIST.

WHAT IS MISSING IS POLITICAL WILL.

READ THE FULL STUDY