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# Why the **toxic tampon** issue isn't going away

A BRIEFING PAPER  
RUNE LEITHE

## ► WHAT'S THE ISSUE?

In the past year, scientists and health professionals have voiced growing concern over the potential risks of using tampons and other personal hygiene products such as diapers. Increasing evidence suggests some of these products contain trace levels of toxins that, over time, could pose a significant health risk to those who use them. These toxins include dioxins and phthalates, both classed as endocrine disruptors which are coming under increased scrutiny. New research is now linking the presence of dioxin and phthalates in these products back to the original production process – dioxin from the chlorine used to bleach the material and phthalates which are added to the plastic compounds in these materials. The manufacturers of these products are failing to disclose the use of these harmful chemicals, which is heightening these risks further.

## ► WHY SHOULD WE BE WORRIED?

A series of reports and investigations have drawn media attention to this issue, fuelling public concern and protest. Notable research includes the 2013 Chem Fatale study<sup>1</sup> which highlighted potential health concerns relating to toxic and allergenic chemicals found in feminine care products, and the 2017 French documentary *Tampons, our closest enemy*<sup>2</sup> which found evidence of dioxins, phthalates and other carcinogens like furans in six tampon brands.

Also in 2017, France's National Institute of Consumption's 60 million consumers magazine published test results showing similar potentially toxic substances in a range of tampon and diaper brands it analysed<sup>3</sup>. These findings reportedly went viral on Asian blogs targeted at mums, leading to national reports<sup>4</sup> of sales of Pampers

1. <https://www.womensvoices.org/wp-content/uploads/2013/11/Chem-Fatale-Report.pdf>

2. <http://balanga.tv/film/tampon-our-closest-enemy/>

3. <https://www.60millions-mag.com/kiosque/alerte-sur-les-tampons-et-protections-feminines>

4. [m.koreatimes.co.kr/pad/news/view.jsp?req\\_newsidx=223249](http://m.koreatimes.co.kr/pad/news/view.jsp?req_newsidx=223249)

diapers being halted in South Korea and the launch of a government safety probe. US activists have since called for new rules<sup>5</sup> to force manufacturers to disclose the chemicals and materials they use in tampons and other menstrual products, following the introduction of a new Congress bill, the Menstrual Products Right to Know Act<sup>6</sup>.

Despite these developments, the chemicals used in such products remain for the most part, unregulated and authorities seem unwilling to act. As far back as 2002, a study<sup>7</sup> co-authored by a researcher working for the US Environmental Protection Agency found various dioxins and furans in four tampon brands, yet suggested that the use of tampons and diapers did not contribute significantly to dioxin exposure. However assumptions were made in estimating these tampon dioxin exposure levels, and these estimates varied significantly. There still remains a lack of evidence on the direct and cumulative exposure of these toxins to intimate body tissues.

### ► WHAT ARE THE HEALTH RISKS OF THESE TOXINS?

Dioxins belong to a 'dirty dozen' group of chemically-related compounds known as persistent organic pollutants (POPs) and as such, are classed as very dangerous by the World Health Organisation (WHO)<sup>8</sup>.

Dioxin is a cancer causing agent, but even at very low levels it can cause other adverse health effects including reproductive problems and hormone interference.

Dioxin exposure for women can increase the risk of pelvic inflammatory disease and endometriosis – one of the studies highlighted in *Tampons, our closest enemy*<sup>9</sup> found that patients with endometriosis had higher levels of dioxins in their bodies, a finding reflected in other research<sup>10</sup>. It should be noted that once dioxins are released into the environment, they bioaccumulate and are very slow to disintegrate so repeated exposure to them – as in the case of monthly tampon or daily diaper use – may heighten these risks further.

Regulation that aims to eliminate or severely restrict the production and use of dioxin and other POPs exists under the Stockholm Convention on Persistent Organic Pollutants<sup>11</sup>, an international treaty that is legally binding. Among other things, the Convention calls on relevant parties to promote "educational and public awareness programmes on POPs, as well as on their

health and environmental effects and on their alternatives" especially for women and children.

Phthalates meanwhile have been linked to breast cancer, diabetes, asthma, altered reproductive development and low IQ. The human health effects from exposure to low levels of phthalates are not yet fully known, but are being studied by government agencies around the world. The healthcare costs<sup>12</sup> of exposure to these types of endocrine disruptors within the EU alone is estimated to be in the region of 157 billion a year – more than 1% of European GDP.

### ► HOW DOES REGULAR TAMPON USE INCREASE THESE RISKS?

Feminine hygiene products are worn either inside the body or close to the skin, which makes women especially vulnerable to any adverse health effects. Such products are intended for use on vaginal and vulvar tissue – tissue that is structurally different and more sensitive than skin on other parts of the body. This tissue is also more hydrated and permeable, aiding the transfer of chemicals direct into the bloodstream without being properly metabolised or eliminated. The *Chem Fatale* report<sup>13</sup> highlights one study that found when hormonal steroids were administered vaginally, the resulting levels of the drug in the body were 10-80 times higher compared to the same dose administered orally.

It is estimated the average women will use over 11,000 tampons or menstrual pads over her lifetime – many health experts<sup>14</sup> agree that this level of repeated exposure to toxins like dioxin is problematic, especially as dioxin can bioaccumulate in the human body due to its ability to be absorbed and stored by fatty tissue. According to WHO, it takes between 7-11 years for the body to eliminate<sup>15</sup> just 50% of all dioxins it contains. Because of this, intrauterine exposure to dioxin could have implications<sup>16</sup> for unborn children during pregnancy, while breast milk can also be a source of dioxin exposure.

This may cause effects on children later in life such as changes in liver function, thyroid hormone levels, and decreased learning capability. Diapers containing dioxins also pose similar risks to babies and young infants in terms of frequency of use – newborn babies may require around 12 nappy changes<sup>17</sup> a day. In September 2017, German TV broadcaster ZDF found dioxins in one of five tested diapers<sup>18</sup>.

5. <https://www.nytimes.com/2017/05/24/well/live/period-activists-want-tampon-makers-to-disclose-ingredients.html>

6. <https://www.congress.gov/bills/115/congress/house/bills/2416>

7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240689/pdf/ehp0110-000023.pdf>

8. [www.who.int/mediacentre/factsheets/fs225/en/](http://www.who.int/mediacentre/factsheets/fs225/en/)

9. <http://balanga.tv/film/tampon-our-closest-enemy/>

10. <https://academic.oup.com/humrep/article/12/2/373/677006>

11. [www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx](http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx)

12. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4399291/>

13. <https://www.womensvoices.org/wp-content/uploads/2013/11/Chem-Fatale-Report.pdf>

14. <https://www.theguardian.com/lifeandstyle/2016/mar/21/tampon-health-concerns-toxic-shock-syndrome-menstruation-women>

15. [www.who.int/mediacentre/factsheets/fs225/en/](http://www.who.int/mediacentre/factsheets/fs225/en/)

16. [www.health.state.mn.us/divs/eh/risk/chemhazards/dioxins.html](http://www.health.state.mn.us/divs/eh/risk/chemhazards/dioxins.html)

17. <https://www.babycentre.co.uk/a1053592/10-tips-for-newborn-nappy-changing>

18. <https://www.zdf.de/verbraucher/wiso/schadstoffe-in-windeln-100.html>

The absorbent nature of tampons has also been strongly linked to Toxic Shock Syndrome (TSS), as illustrated in the case of P&G having to recall<sup>19</sup> its Rely tampon brand in 1980 after a study published by US agency Centers for Disease Control & Prevention found that women who used high-absorbency tampons had a 17 to 30 times higher risk of getting TSS. Reported cases of TSS have significantly decreased since the 1980s, but one prominent researcher in this field, Philip Tierno<sup>20</sup>, has isolated the bacterial toxin that causes TSS from Rayon, a tampon fibre made from wood-based cellulose. As Rayon may contain traces of dioxin, the by-product from its production<sup>21</sup>, questions need to be asked whether dioxin exposure is a contributory factor to TSS as well.

### ► WHAT IS BEING DONE ABOUT IT?

Very little. One of the problems is the lack of accountability and disclosure by regulators and manufacturers. According to reports<sup>22</sup>, the US Food & Drug Administration (FDA) says the bleaching methods for Rayon tampons that leave trace amounts of dioxin in the products are no longer in use – but the FDA's claim seems reliant on dioxin test data submitted by tampon manufacturers which is not publicly available. It's also worth noting that FDA industry guidance<sup>23</sup> on chemical residues recommends that manufacturers identify the bleaching process used for tampons and menstrual pads – this includes Elemental Chlorine-Free (ECF) which can still release dioxins (see next section What needs to happen now?).

In the US, tampons are classified as medical devices which means that there's no packaging labelling requirement for ingredients like chemical residues, making it impossible for consumers to avoid any potential toxins found in these products. A similar situation exists in Europe where there are no European standards limiting the level of these substances in tampons. Instead, tampons are covered by the General Product Safety Directive<sup>24</sup>, which does not oblige manufacturers to disclose product components or ingredients on their packaging. Some consumer information on tampon composition is available from a French-based association of tampon manufacturers, GroupHygiène<sup>25</sup>, but this doesn't go into the detail of specific chemicals used.

Moves are being made to try and address the situation, but progress has been limited. In 2016 MEP Michèle

Rivasi wrote to the European Commission raising the issue of non-disclosure, but her concerns were disregarded<sup>26</sup>. Since then, France's Directorate-General for Competition, Consumer Affairs & Fraud Control has released a statement<sup>27</sup> on the findings of its own investigation into tampon safety, claiming that they pose no serious nor immediate danger – this is despite their analysis revealing traces of dioxins, phthalates and other toxins. Meanwhile in the US, it remains to be seen whether the recently introduced<sup>28</sup> Menstrual Products Right to Know Act will eventually pass into law.

### ► WHAT NEEDS TO HAPPEN NOW?

It's important to recognise that the root of the problem goes back to the production process, in particular the bleaching process used for these products. Most of the cellulose fibres contained within these products will have been bleached using a technology known as Elemental Chlorine Free (ECF). The name is slightly misleading as ECF uses chlorine dioxide, which poses various dangers<sup>29</sup>, both to human health and the wider environment.

One of these risks is that the ECF bleaching process can leave a chlorine 'footprint' in the final product (tampon, menstrual pad or diaper) in the form of trace amounts of dioxins. These chemical residues will stay embedded in the product throughout its entire lifecycle, as proven by the various safety tests carried out on such products mentioned previously. The use of ECF also generates other chlorinated compounds during the production process such as AOX (Adsorbable Organic Halides) emissions and more acute toxic substances like chlorophenol. These are often discharged into waterways as effluent, causing pollution and further harm to wildlife and eco-systems.

The solution is for pulp mills, the producers of these fibres, to switch to a safer bleaching technology known Total Chlorine Free (TCF). Instead of using chlorine, TCF supplements the bleaching process with oxygen, ozone and/or hydrogen peroxide. It remains the cleanest technology available for bleaching, and products made with it can be considered genuinely chlorine free. TCF also delivers wider ecological and social benefits as it eliminates the risk of toxic chlorinated compounds escaping into waterways, helping to safeguard eco-systems and local communities.

19. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3238331/>

20. <https://www.theguardian.com/lifeandstyle/2016/mar/21/tampon-health-concerns-toxic-shock-syndrome-menstruation-women>

21. <https://www.congress.gov/bills/110th/congress/house-bill/5181/text>

22. <https://www.theguardian.com/lifeandstyle/2016/mar/21/tampon-health-concerns-toxic-shock-syndrome-menstruation-women>

23. <https://www.fda.gov/MedicalDevices/ucm071781.htm>

24. [www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2015-013116&language=EN](http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2015-013116&language=EN)

25. <https://www.grouphygiene.org/fr/composants-fonctionnalite-protections-periodiques/>

26. [www.lemonde.fr/sante/article/2017/04/26/michele-rivasi-la-commission-europeenne-est-complice-des-industriels\\_5118219\\_1651302.html](http://www.lemonde.fr/sante/article/2017/04/26/michele-rivasi-la-commission-europeenne-est-complice-des-industriels_5118219_1651302.html)

27. <https://www.economie.gouv.fr/dgccrf/securite-des-produits-dhygiene-feminine>

28. <https://www.congress.gov/bills/115th/congress/house-bill/2416/all-info>

29. <https://environmentamerica.org/reports/ame/pulp-fiction-chemical-hazard-reduction-pulp-and-paper-mills>

Despite its green credentials, uptake of TCF remains limited<sup>30</sup> especially outside of Europe. ECF continues to be the technology of choice partly due to misleading claims that it is comparable to, if not better than, TCF in terms of quality and environmental performance. The producers of these products must now come under increasing scrutiny to clean up their act – the bleaching process represents one of the most important environmental pollutant stages in the pulp industry, and TCF offers the ultimate detox solution.

Safer alternatives also need to be found for phthalates, which are used to soften the plastics contained with tampons, diapers and other personal hygiene products. Chemical alternatives<sup>31</sup> such as citrates, sebacates, adipates and phosphates are already being substituted in toys and medical devices – however most of these are not well studied with regard to their potential effects on human health and the environment and are thought to pose various risks. The safest approach therefore would be to eliminate the use of plastic altogether and switch to chlorine free pulp or organic cotton based products.

#### ▶ **WHY DETOX IS THE WAY FORWARD**

The assurance that TCF offers cannot be underestimated when it comes to protecting public health. There are many products made using ECF technology besides personal hygiene products, such as paper, tissues and napkins. Unlike ECF, TCF offers a guarantee that these products are chlorine free.

Consumers have a powerful role to play here through exercising their purchasing power. Where possible, alternative tampon and diaper brands like Natracare<sup>32</sup> and Naty<sup>33</sup> should be promoted, which have been ethically produced and are totally chlorine free. While organic cotton tampon brands are perceived by some as being a safer alternative, especially for reducing the risk of TSS, they too may have been bleached using ECF and therefore could contain dioxin residues.

Going forward, campaigning efforts should be stepped up by NGOs and authorities to raise awareness of these issues. More open discussion is needed to remove the social stigmas associated with menstruation, which in turn should encourage more scientific scrutiny into the safety aspects of tampon use. Increased public engagement on the issue will also place greater pressure on manufacturers of these products to take such concerns seriously and clean up their supply chains – thus encouraging pulp mills to adopt cleaner processes like TCF bleaching.

If we are to work towards a future in which personal hygiene products are completely safe for human use, society must demand action on three fronts. First, to demand that manufacturers disclose every ingredient in their products and for this to be made mandatory on the product packaging. Second, to only accept 100% chlorine-free (TCF) products. Third, to eliminate plastics – or at least use biodegradable plastics – from such products. These three steps should give the level of assurances needed to deliver genuine change.

— RUNE LEITHE, ECOLOGY AND PIONEERING AB

30. [www.aet.org/science\\_of\\_ecf/eco\\_risk/2013\\_pulp.html](http://www.aet.org/science_of_ecf/eco_risk/2013_pulp.html)

31. <https://www.sustainableproduction.org/downloads/PhthalateAlternatives-January2011.pdf>

32. [www.natracare.com](http://www.natracare.com)

33. <https://www.naty.com/>