

Factsheet Cigarette Butts

Wädenswil, August 2023

About throwing cigarette butts away

- According to the WHO, up to two-thirds of every smoked cigarette is discarded onto the ground¹. As it is estimated that in 2012, some 967 million daily smokers consumed approximately 6.25 trillion cigarettes worldwide², that is about 4.17 trillion butts tossed on the ground.

About cigarette butts in the environment

Worldwide

- Cigarette butts are by far the largest single type of litter by count³. Since the 1980s cigarette butts have consistently comprised **30–40%** of all items picked up in annual international coastal and urban clean-ups⁴.
- Considering the number of cigarette butts tossed away, and given that the weight of 20 cigarette filters is 3.4 g, the estimated discarded waste from global cigarette consumption in 2014 could be anywhere between **340–680 million kg**. This does not include the weight of remnant tobacco and other byproducts of the discarded waste⁵.

Europe

- Of the 693'259 items collected through the Marine Litter Watch initiative between 2014-2017, **18% were cigarette butts**⁶. They are the second most found single-use plastic item on beaches in the EU⁷.

Switzerland

- Also in Switzerland cigarette butts are the most littered item⁸.
- Research in Geneva has counted up to 476'000 cigarette butts covering the city's streets⁹. Extrapolated to the whole country based on its population, this adds up to more than 20 million cigarette butts lying around daily on Swiss streets and roads. From there, they leak away and accumulate into the further environment.
- As part of the stop2drop campaign, between 7 and 22 March 2021, school classes from Switzerland and Liechtenstein collected 958,181 cigarette butts in two weeks. This prevented the pollution of 38.3 million litres of water¹⁰.

Oceans

- According to the *Ocean Conservancy*, cigarette butts are the number one item collected in shoreline clean-ups worldwide, with about **2.4 million** collected during the international coastal clean-up day in 2017¹¹. Similar results come from the *European Environmental Agency*. Of the reported 693'259 items collected through the Marine litter watch initiative over the years 2014-2017, 18 % were cigarette butts¹². They are the second most found single-use plastic items on beaches in the EU¹³.
- According to the *WorldOceanReview*, cigarettes are together with plastic bags, food packaging and beverage bottles among the most common garbage in the ocean¹⁴.

- Little data seems to exist about ingestion of cigarette butts by marine species. Plastic cigarette filters have been found in the stomachs of fish, birds, whales, turtles¹⁵ and other marine creatures that mistake them as food, swallowing both the harmful plastic and associated toxic chemicals; yet, reporting about this seems to be anecdotal, and not based on systematic research¹⁶. Overall, it seems research on ingestion rates is lacking¹⁷, and while “[cigarette butts] and their associated toxic chemicals might be ingested by diverse aquatic organisms [...] further studies are necessary to understand the exact toxicity of [cigarette butts] on different freshwater and marine organisms and also their fate in the aquatic media¹⁸”.

About the environmental and health impact of cigarette butts

- It is not just the volume of the waste that is a problem. Tobacco product waste also contains **over 7000 toxic chemicals**, including known human carcinogens¹⁹.
- **A cigarette butt is not biodegradable.** The cigarette filter, i.e., the main part of what is thrown away is made of a type of plasticized cellulose acetate²⁰, and furthermore contains numerous harmful chemicals²¹. **How long do cigarette butts take to degrade? Difficult to say.** Various sources have stated that cigarette filters take 18 months to 10 years to degrade. Since environments differ – some places are wetter, dryer, sunnier, colder, hotter, windy, etc. – so too will the degrading time differ²². And, in any case, the degrading cigarette leaches its toxic substances into the environment independent of the time it takes to decompose.
- Littered, **cigarette butts accumulate in the environment** where they have devastating effects on both marine and fresh water environments²³, as well as soils²⁴ and flora²⁵.
- Research from 2014 on levels of nicotine in urban water showed that **one cigarette butt is enough to contaminate 1'000 litres of water** with concentrations having toxic effects on water organisms²⁶.²⁷ This research was done with rain water (not ocean water) in the laboratory, and ‘toxic effect’ means that the water is polluted to concentrations above the predicted no effect concentration (PNEC) meaning that there is a measurable effect²⁸.
- One study from 2011 found that **1 cigarette butt per litre water in fresh and salt water killed half of the fish in the basin after 96 hours**²⁹.
- According to a podcast from Newstalk from 2019, **one cigarette butt can contaminate 200 litres of ground water**³⁰.
- **Also along rivers, cigarette butts seem to be one of the most found litter-items.** A German study from 2019, based on a citizen science approach where schoolchildren examined litter at riversides and identified possible sources at over 250 sampling spots along large and small rivers in Germany, during autumn 2016 and spring 2017, found that the principal litter types found were plastics and cigarette butts (31% and 20%, respectively)³¹.

About legislation on cigarette butts

EU

- In the EU, cigarette butts are covered by *Directive 2019/904 on the reduction of the impact of certain plastic products on the environment* (so called SUP directive) which calls for alternatives to filters containing plastic (§ 16), and tasks Member States to ensure that extended producer responsibility schemes are established for them (art. 8)³².

Switzerland

- A parliamentary motion from 20.12.2019³³ asks to adapt federal law in such a way as to prohibit single-use cigarette filters.

In its answer, the Federal Council (FC) recognises that cigarette filters are a source of MP-pollution, and acknowledges that according to Art. 30a(a) EPA, it may ban products intended for single and short-term use if their benefit does not justify the environmental pollution they cause. Based on this provision, it would in principle be possible to issue a ban on such single-use filters. However, in order to justify such a ban, it would have to be clearly proven that cigarette filters are harmful to the environment, in particular the direct effects of the microplastics released and the organic pollutants on the health of organisms. However, **according to the FC these concrete effects have not been sufficiently proven**. For the FC, a ban would also mean a **disproportionate interference in the freedom of trade and commerce** compared to the environmental benefits.

- A parliamentary interpellation from 17.03.2023³⁴ about pollution by littered single-use E-cigarettes, asks the Federal Council if it could consider prohibiting such E-cigarettes.

In reference to its previous answer to motion 19.4629 (see above), for the time being, however, the FC does not intend to ban their marketing on the basis of Article 30a(a) EPA, as it maintains that such a ban would be disproportionate in view of **the encroachment on freedom of trade and commerce** it would represent.

- A parliamentary interpellation from 08.12.2022³⁵ asks the Federal Council to examine if it would be feasible and appropriate to introduce a deposit on cigarette butts.

However, in the FC's view, the introduction of a deposit on cigarette butts is not a target-oriented measure for reducing littering. The financial and human resources required to set up the infrastructure and operate the deposit system in order to take back cigarette butts and refund the deposit would be very high.

About what could be done against cigarette butts

- **Reducing the number of smokers.** After all, non-smokers do not throw away cigarette butts. Considering that one in four Swiss of 15 years or older smokes³⁶, succeeding in bringing this number down would present a win-win on multiple fronts.

¹ WHO (2017), *Tobacco and Its Environmental Impact: An Overview*, world Health Organisation, p. 24.

² Marie Ng et al. (JAMA, 2014), *Smoking prevalence and cigarette consumption in 187 countries, 1980-2012*.

³ Novotny & Slaughter (Current Environmental Health Reports, 2014), *Tobacco product waste: an environmental approach to reduce tobacco consumption*.

⁴ WHO (2017), *op cit.*, p. 26.

⁵ WHO (2017), *op cit.*, p. 26.

⁶ European Environment Agency (08.06.18), *Citizens collect plastic and data to protect Europe's marine environment*

⁷ Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment (SUP directive), § 16.

⁸ Blarer & Kull (28.06.18), *Swiss Litter Report*, p. 31.

⁹ Le Temps (24.09.2018), *Genève s'attaque aux 476.000 mégots jetés quotidiennement dans ses rues*

¹⁰ RTS (31.03.2021), *Près d'un million de mégots collectés en deux semaines par des classes*; also: *Stop2Drop*.

¹¹ Ocean Conservancy (2018), *Building a Clean Swell*.

¹² European Environment Agency (2018), *Citizens collect plastic and data to protect Europe's marine environment*.

¹³ EU (2019), *Single Use Plastics Directive (dir. 2019/904), § 16*.

¹⁴ WorldOceanReview (2010), *Chapter 4 – Last stop: The ocean – polluting the seas*, p. 86.

¹⁵ Macedo et al. (Biologia • Cienc. Rural, 2011), *Ingestão de resíduos antropogênicos por tartarugas marinhas no litoral norte do estado da Bahia, Brasil*.

¹⁶ Novotny et al. (Tobacco Control, 2010), *Tobacco and cigarette butt consumption in humans and animals*.

¹⁷ Green et al. (Trends in Ecol. & Evol., 2022), *The ecological impacts of discarded cigarette butts*.

¹⁸ Dobaradaran et al. (Environ. Research, 2021), *Environmental fate of cigarette butts and their toxicity in aquatic organisms: A comprehensive systematic review*.

¹⁹ WHO (2017), *op cit.*, p. 24.

²⁰ Treehugger (03.07.19), [Are Cigarette Butts Biodegradable?](#)

²¹ U.S. Food & Drug Administration (06.03.20), [Chemicals in Cigarettes: From Plant to Product to Puff](#).

²² Cigarette butt litter, [Are cigarette butts biodegradable?](#)

²³ Slaughter et al. (Tobacco Control, 2011), [Toxicity of cigarette butts, and their chemical components, to marine and freshwater fish](#); Araújo & Costa (Environmental research, 2019), [A critical review of the issue of cigarette butt pollution in coastal environments](#); Green et al. (Journal of hydrology, 2014), [Littered cigarette butts as a source of nicotine in urban waters](#).

²⁴ Koroleva et al. (Environmental Science and Pollution Research, 2021), [Impact of cigarette butts on bacterial community structure in soil](#);

²⁵ Green et al. (Ecotoxicology and Environmental Safety, 2019), [Cigarette butts have adverse effects on initial growth of perennial ryegrass \(*Lolium perenne* L.\) and white clover \(*leguminosae: Trifolium repens* L.\)](#); also: BBC News (19.07.19), [Cigarette butts in soil hamper plant growth, study suggests](#); Selmar et al. (Environmental Pollution, 2018), [Uptake of nicotine from discarded cigarette butts – A so far unconsidered path of contamination of plant-derived commodities](#).

²⁶ Unfair Tobacco (05.09.2018), [SDG-Factsheet No. 5 – September 2018](#).

²⁷ Green et al. (Journal of hydrology, 2014), *op cit.*

²⁸ Answer by e-mail received from Thomas Nehls co-author of the study upon a request for clarification, 04.10.2021.

²⁹ Slaughter et al. (Tobacco Control, 2011), *op cit.*

³⁰ Newstalk (14.10.2019), [One cigarette butt can contaminate 200 litres of ground water](#).

³¹ Kiessling et al. (Environmental Pollution, 2019), [Plastic Pirates sample litter at rivers in Germany – Riverside litter and litter sources estimated by schoolchildren](#).

³² Directive (EU) 2019/904 *op cit.*

³³ Motion by Niklaus-Samuel Gugger, 20.12.2019 ([19.4629](#))

³⁴ Interpellation by Laurence Fehlmann Riele, 23.03.2023 ([22.3211](#))

³⁵ Interpellation by Céline Weber, 08.12.2022 ([22.4329](#))

³⁶ WHO, [Tobacco smoking – Prevalence of tobacco smoking](#).