

Cigarettes as Litter

- In 2007, 360 billion cigarettes were consumed in the United States (U.S.).¹ Cigarette butts, the plastic filter and remnants of smoked cigarettes, are discarded in natural environments, streets, sidewalks, and other public areas. Some of these butts may then be carried as runoff to drains, making their way to rivers and ultimately to oceans and beaches.²
 - o Cigarette filters are made from cellulose acetate, a plastic which is technically biodegradable. However, cigarette butts only biodegrade under conditions described by researchers as “severe biological circumstances” such as when filters end up in sewage. Even in these conditions, cellulose acetate filters are slow to disappear with the most optimistic estimate at 9 months.³⁻⁵
 - o In practice, cigarette butts tossed on streets and beaches do not biodegrade. The sun may break down littered butts, but only into smaller pieces of waste which become diluted in water or soil.^{2,5,6}

On Land

- Multiple litter studies show that when counting litter on a per-item basis, cigarettes and cigarette butts are the number one littered item on U.S. roadways.⁷
 - o Keep America Beautiful reports that in 2009, tobacco products – primarily cigarette butts—comprised nearly 38% of all collected litter items from roadways and streets.⁷
- Keep America Beautiful also found that cigarette butts were the most common litter item collected at five of six non-roadway sites, including: retail areas, storm drains, loading docks, construction sites, and recreational areas.⁷ Cigarette waste is highly concentrated around businesses where cigarettes are sold and consumed.⁸

Along Beaches and Waterways

- Data from the Ocean Conservancy show that in 2010, nearly two million (1,892,526) cigarettes or cigarette filters—enough to fill 94,626 packs of cigarettes—were removed internationally from beaches and inland waterways as part of the annual International Coastal Cleanup (ICC), including 1,181,589 collected from the U.S.* This represents 19% and 31% of total debris items collected worldwide and in the U.S., respectively, making it by far the most prevalent item found.⁹
 - o In addition to cigarettes and cigarette filters, 16,257 cigarette lighters, 73,155 cigar tips, and 36,592 tobacco packages or wrappers were removed from U.S. waterways during the ICC in 2010.⁹
- In the past 25 years, 52,907,756 cigarette butts/filters have been collected from international beaches, accounting for 32% of all debris collected. The number of cigarette butts and filters collected was over three times more than that of any other item.⁹

*During the 2010 ICC, 245,447 volunteers participated in the United States – the most volunteers of any country in the cleanup, representing 40% of all those who volunteered globally. The United States was also the country with the greatest number of cleanup sites – 3,004 -- which was more than 3 times as many as the country with the second highest number of cleanup sites (Canada with 990 sites).

Cigarettes as Toxic Waste

- Cigarettes are poisonous when ingested by children and other living organisms, as evidenced by poison control center data, veterinary literature, and national reports.¹⁰⁻¹³
 - o In 2009, the American Association of Poison Control Centers received 7,493 reports of potentially toxic exposures to tobacco products among children younger than six years of age in the U.S.¹⁴ Most cases of nicotine poisoning among these children resulted from their ingestion of cigarettes or chewing tobacco.
 - o Between 2002 and 2007, over 2,000 non-fatal, unintentional cigarette-related injuries to children aged four years and under occurred per year in the U.S.; 29% of these involved poisonings.¹⁰
 - o One to five cigarettes, or 20 to 100 mg of nicotine, is the minimum lethal dose reported in dogs and cats. Ingestion of tobacco products is more common in young animals (e.g., puppies), but the overall likelihood of toxicosis is rare in household pets.¹¹

- Few studies have examined the toxicity of cigarette butts to aquatic ecosystems. Preliminary studies show, however, that the chemicals that seep out of cigarette butts can be acutely toxic to fish and micro-organisms, and the main causes of toxicity are organic compounds (nicotine and ethylphenol) in the cigarette butts.¹⁵⁻¹⁷
 - o One cigarette butt soaked in a liter of water killed half of the fish exposed in a study in a laboratory setting.¹⁷
 - o Another study conducted in a laboratory identified and quantified components leached from cigarette butts and found that cigarette butts can be a point source for heavy metal contamination in water for at least a month.¹⁸

Attitudes About Littering Cigarette Butts

- Tobacco industry research reveals that smokers litter their cigarette butts for many reasons, such as the unavailability of ashtrays, the ubiquitous and seemingly acceptable behavior of flicking butts on the ground, and false notions that cigarette filters are biodegradable or inconsequential as litter.¹⁹ In an Australian study from 2000, in which people were observed littering and later interviewed, litterers cited the following reasons for their behavior: laziness (24%), no ashtray (23%), no trash receptacle nearby (21%), and habit (6%).²⁰
- A review of industry documents found that tobacco companies have feared being held responsible for tobacco litter for more than 20 years. Tobacco company research suggests that biodegradable filters would not be marketable and would encourage litter. The tobacco industry also concluded that smokers were defensive about tossing their cigarette butts and were not amenable to anti-litter campaigns.¹⁹

Other Environmental Impacts

Environmental consequences of tobacco use include:

- Deforestation as a result of tobacco production: wood is used in the farm-based process of curing the crop (drying the leaves).²¹
- Fires caused by cigarette smoking.²²
- Solid, liquid, and airborne wastes produced during the manufacturing process.
 - o Some of these waste products are designated by the Environmental Protection Agency as Toxic Release Inventory (TRI) chemicals, meaning they are considered hazardous.²³
 - o In 2009, 574,460 pounds of toxic chemicals were released by tobacco product manufacturing facilities in the United States. The top five chemicals released were ammonia, nicotine, hydrochloric acid, nitrate compounds, and chlorine.²⁴

Solutions

- Growing concern over the impact of tobacco product waste on the environment as well as the substantial cost of litter cleanup has prompted states, municipalities, and institutions to undertake a variety of policy actions.²
 - o As of April 1, 2011, 105 municipalities across the country prohibit smoking on their beaches, while 507 municipalities prohibit smoking in their parks.^{25,26}
 - o An economic study based on a litter audit in San Francisco, which found the annual tobacco litter cleanup cost to be more than \$5.6 million, led their City Council in 2009 to impose a 20 cent per pack “litter fee” on cigarettes sold in the city.²⁷
 - o Under California state law, a person who provides information leading to the arrest and conviction of a person for littering cigarette butts is entitled to a reward for providing the information (50% of collected fine).²⁸ A ‘hot line’ has also been established to facilitate reporting of violations directly by the public to the California Highway Patrol ((877)-211-BUTT).²⁹
 - o Although colleges and universities have recently enacted smoking bans primarily to promote healthy behaviors, they are also concerned about the environmental impact of cigarette litter and the financial costs to clean up butts on their campuses. There are currently 500 smoke free college campuses across the U.S.^{30,31}
- Members of organizations advocating against cigarette butt pollution, such as the Cigarette Butt Pollution Project (www.cigwaste.org)³² in the U.S. and Australia’s Butt Littering Trust,³³ endorse diverse approaches in order to prevent, mitigate, and reduce cigarette butt waste in the environment, including:
 - o Enforcing current litter laws and implementing fines for discarding butts into the environment.^{2,28,29,33}
 - o Further research on the toxicity of cigarette butt waste in natural settings.³⁴
 - o Education and awareness programs promoting behavior change.³³

SOURCES

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