

Are Cigarette Butts Biodegradable?

Source: [Clean Virginia Waterways](#)

Most cigarette filters are composed of cellulose acetate, a form of plastic. The white fibers you see in a cigarette filter are NOT cotton, but a plastic that can persist in the environment as long as other forms of plastic.

Clean Virginia Waterways has looked extensively for a published, scientific research paper on the topic of how long cigarette butts take to degrade, and could find none. (If you know of one, please send us an email with details.) Various sources have stated that cigarette filters take 18 months to 10 years to degrade. It is safe to say that the cellulose acetate fibers in cigarette filters, like other plastics, are with us for some time after they are discarded. Since environments differ—some places are wetter, dryer, sunnier, colder, hotter, windy, etc.—so too will the degrading time differ. A cigarette butt that is littered in the Grand Canyon will degrade differently than one that is littered in Virginia.

But even if cigarette filters were quick to degrade, we would still have fires caused by lit cigarette butts, and the toxins found in cigarette butts would still be harmful. That is why Clean Virginia Waterways believes the best way to decrease cigarette butt litter is to educate smokers, rather than try to make filters biodegradable.

What do we mean by "biodegradable?"

When we say "biodegrade," we are saying that something living, for example, bacteria, is responsible for "degrading" an item. There are many methods, however, that lead to something being "degraded." Sunlight, for example, can degrade some things. For example, sunlight can make some plastics brittle. Studies done on plastics in the oceans show that most plastics are broken-down by the UV waves of sunlight. Wind and water can cause erosion which is a form of degradation. Freezing and thawing can also physically change and breakdown items.

Definitions from the Random House Dictionary, 2nd edition, Unabridged:

- Degradable: susceptible to chemical breakdown.
- Degrade: to break down a compound; to become degraded, weakened, deteriorate, to decompose.
- Biodegradable: capable of decaying through the action of living organisms.
- Photodegradable: capable of being broken down by light.
- Photodecomposition: The breaking down of molecules by radiant energy.

[Click here for newspaper articles](#) about how communities are trying to reduce cigarette litter.

Read all about cigarette butt litter!

[Click here to read an article](#) that was published in the August 2000 issue of the American Littoral Society journal, *The Underwater Naturalist*. This article, by CVW's Executive Director Kathleen M. Register, includes background data, such as the fact that 2.1 billion pounds of cigarette filters were discarded worldwide in 1998, along with results of her research showing that leached chemicals from cigarette filters are deadly to the water flea *Daphnia magna*, a small crustacean at the lower end of, but important to the aquatic food chain.