

When Not to Recycle Plastics in the Yard

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Many people show care for the environment by tending to their yards and recycling whenever possible. While this [Eco-Article series](#) has writings on healthy land stewardship, there are some applications where plastics in outdoor projects cause more harm than good.

Rubber Mulch

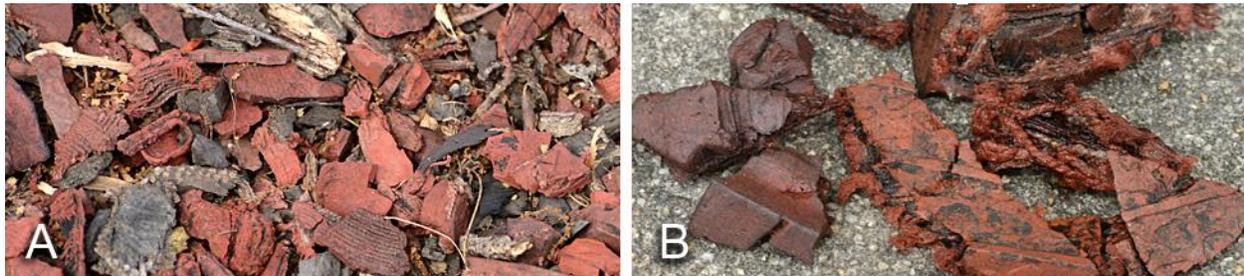


Figure 1. Usually dyed brick red or dark brown, recycled tire mulch is depicted here in a garden (A) and as specimens collected off the street (B).

Made from recycled tires, rubber mulch is marketed to be longer lasting than tree-based mulch and is environmentally friendly. Like other mulches, raking, waterflow, wildlife activity, and other disturbances move the rubber mulch from where it was originally placed. Like other plastic litter, volunteers retrieve rubber mulch during watershed cleanups. Aside from the tire chunks winding up in natural areas, there is increasing concern about the microplastics and toxic chemicals leaching into the environment. These chemicals impact different critters in various ways, ranging from agents that inhibit fish reproduction to human carcinogens. Some tire-derived contaminants are now appearing in human urine. These health and environmental concerns extend to other items made from recycled tires, such as crumb rubber used in artificial turf. Scientists are researching environmentally safer alternatives that offer tires the same or better strength. While tires shed some rubber with each mile driven, let's voluntarily restrict using tire-based products whenever possible.

Corrective Actions: Rake up, bag, and place the rubber mulch in the household trash bin.

Eco-Friendly Alternative: Plants reap the most benefit from leaf-based mulch—one of many reasons to [leave the autumn leaves](#). Bark and wood-based mulches are other options, but keep them away from houses to deter termites and out of artillery fungus' range, which shoot black spore packets that are hard to remove. Stone and pebble layers are other choices, which never decomposed and come in different forms. Avoid light-weight lava stones that can easily wash away.

A comprehensive review on tire rubber toxicity is:

Mayer, Paul M. et al. 2024. Where the rubber meets the road: Emerging environmental impacts of tire wear particles and their chemical cocktails. *Science of the Total Environment* 927(171153)
<https://www.sciencedirect.com/science/article/pii/S0048969724012920>

Landscape Fabric and Plastic Bags

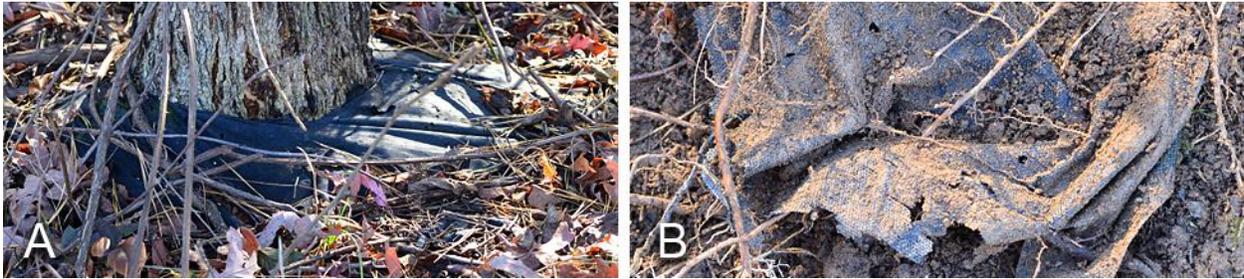


Figure 2. Landscape fabric remains at a tree base years after installation (A). Depending on how it is made and environmental conditions, the plastic material can persist for decades where roots entangle in it (B).

Landscape fabric is made from plastics. It is commonly used as a weed barrier since the fine, black mesh is sufficiently dense to obscure light and plant growth. The textile allows water to permeate while retaining soil moisture. Metal staples secure the sheets. Bushes and trees grow through cuts placed in the material. Sometimes, it is concealed by a mulch topcoat. Instead of the cloth, homeowners sometimes use large plastic bags. Whether applying reused bags or commercial fabric, the problem is this strategy does not work. Growing through breaks or in debris accumulating on the surface, weeds are the first things to recolonize above the plastic layers. Instead of removing and replacing the old covering, people often slap new ones over the old, creating a plastic lasagna. Those fabric holes get clogged and prevent proper water drainage and the bags always obstruct good water penetration. The disrupted hydrology, nutrient flow, and air circulation can suffocate soil organisms and roots, thereby harming or killing the cultivated trees and shrubs. During hot, sunny summer days, the fabric can trap too much heat and [solarize the soil](#). When excavating and weeding the site, the landscape fabric and entangled roots confound the work. Most commercial fabrics have ultraviolet light (UV) resistance; plastic bags soon degrade under UV exposure. Torn plastics become litter and the pieces disintegrate into microplastics.

Corrective Actions: Pull up or dig out the sheets, bag or tie into a bundle, and place the waste in the household trash bin.

Eco-Friendly Alternative: An easy way to impede weeds is with a natural mulch, especially with cardboard or newspaper beneath it. Biodegradable burlap (made from natural materials, not the synthetic kind) and coir netting will cover and stabilize the soil until plants grow into the area. Planting a dense, biodiverse native groundcover effectively combats weeds. The taller and more closely arranged, the better the weed suppression.

Further reading is at:

<https://completegardening.com/why-garden-experts-are-begging-you-to-stop-using-landscape-fabric-immediately-and-what-to-use-instead/>
<https://extension.illinois.edu/blogs/good-growing/2021-06-25-disadvantages-landscape-fabric>

Styrofoam Peanuts to Lighten Soil



Figure 3. Two views (A and B) of Styrofoam packing peanuts contaminating garden soil.

People mix Styrofoam peanuts and broken foam blocks into soil to help reduce a flower pot's weight. The benefits end there and the problems begin. Styrofoam is the plastic, polystyrene. In soil, it hinders aeration and drainage. Like rubber tires, Styrofoam can last in the environment for centuries. During this prolonged time, it leaches chemicals, especially toxic styrene, into the soil; the exact rate depends on time and the surrounding conditions like pH, temperature, and interactions with other chemicals. Exposed Styrofoam breaks into smaller pieces and microplastics as it weathers and is irradiated with UV. When folks are done with the plant or wish to change the media, tossing the soil in the yard is bad enough. Frequently, people dump the fouled soil in parks and other natural areas, thereby polluting the environment. The health issues raised here might have folks wondering about the safety of Styrofoam coffee cups. That answer is unknown since research into chronic, low-level exposures to polystyrene and related chemicals is currently underway. Reusable mugs are the safe, eco-friendly option.

These comments only pertain to polystyrene materials, not the starch-based biodegradable packing peanuts. Starch peanuts dissolve too quickly to offer any soil structure. Biodegradable peanuts can be thrown into compost piles or scattered in the yard and immediately watered.

Corrective Actions: Though listed as Recycle #6, that label amounts to "greenwashing" because polystyrene is inefficient to recycle. Unwanted Styrofoam should be sent to the garbage. Instead of outright trashing Styrofoam-tainted soil, there are some methods to recover the soil and reduce the waste load. Option 1) Sift the dry soil through quarter-inch metal screens, reuse the clean soil in pots or the yard, bag the Styrofoam peanuts, and place the bag in the household trash bin. Option 2) When mixed with heavy soil, place the soil and Styrofoam in a bin, add water to float the peanuts, scoop and bag the Styrofoam, and place the bag in the household trash bin. Return the cleaned, muddy soil to the yard.

Eco-Friendly Alternative: To lighten soil and improve drainage, root growth, aeration, and the plant's health, perlite is the most common additive. Vermiculite and coconut husks (aka coco coir) are also good to incorporate. Commercial potting media are blends of these ingredients, along with organic nutrients such as compost. Steer clear of peat moss products since peat is ancient, preserved plant matter that locks carbon out of the atmosphere. Excavating and using peat enables it to rot and release that carbon. Peat bogs form slowly, so the ecological recovery at a large-scale peat mining site can take centuries.

More on why to keep Styrofoam out of soil:

<https://flourishingplants.com/using-styrofoam-in-soil/>

<https://iere.org/does-styrofoam-leach-chemicals-into-water/>

<https://www.housedigest.com/1350596/skip-adding-packing-material-bottom-planters-garden/>

<https://sustainablebusinessmagazine.net/eco-review/is-styrofoam-toxic-or-safe-understanding-the-hazards-of-polystyrene/>

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