

What's Inside Detergent Pods and Sheets

Polyvinyl alcohol also known as PVA, PVOH and PVAI, is a synthetic plastic polymer that is used to wrap or suspend detergent formulations. It is marketed as a sustainable solution because technically PVA is water-soluble. While in most situations it disappears, it doesn't degrade. It can be found in laundry and dishwasher pods, tabs, and sheets.

What Is the Problem With PVA?



PVA, the plastic film surrounding detergent pods and the substrate of sheets or tabs, breaks down in water into pieces so small the human eye can't see them. Then those infinitesimal particles in the washing machine or dishwasher go down the drain with the wastewater.

But it's important to follow the particles – now those tiny bits of plastic are free to move through the sewage system.

From there, they typically enter the wastewater treatment plant. The problem is that most PVA is not degraded because most facilities lack this capability and the particles [enter the environment untreated](#), contributing to plastic pollution.

Disappearing Act

Compare PVA to dissolving salt or sugar directly in water. You won't see the salt or sugar – but if you drink the water, you will taste it! This indicates the sugar or salt is still present in the solution. The same can be true with PVA. It may dissolve, but it doesn't disappear, and like all plastics, it doesn't truly degrade in the natural world.

Where Does PVA End Up?

- Waterways from sewage sludge
- Soils from agricultural use of biosolids
- Air from incineration
- Landfill from wastewater treatment plant refuse
- Food chain after consumption by animals

Does PVA Break Down in the Environment?

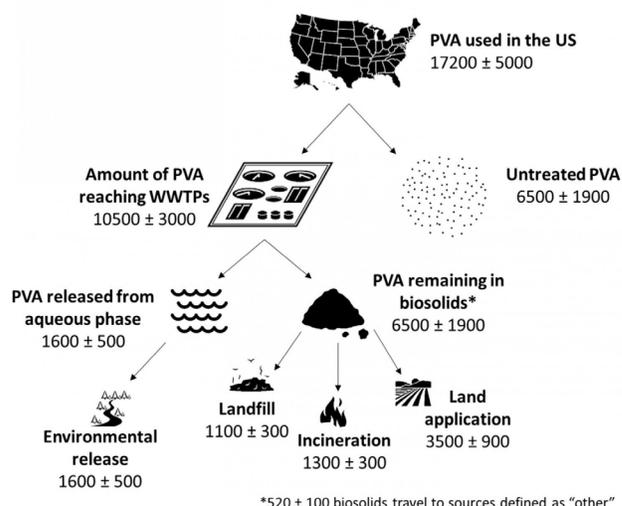
While PVA has been marketed as biodegradable, it does not biodegrade in real-life scenarios. Biodegradability has been demonstrated in very specific environments, with specific, suitable microorganisms present.

PVA – Innovation or Plastic Pollution?

Dishwashing tab and laundry sheet “innovations” aren’t quite what they seem. They’re promising ideas, but we need solutions that go a step further by breaking down in the environment to enrich the natural world, not pollute it. Until then, these misleading products continue to contribute to the chemical conundrum and plastic pollution problems humanity faces.

Approximately **75% of PVA** from detergent pods goes untreated by wastewater treatment plants.

Metric tons (mtu/yr) of PVA used and degraded in US wastewater



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The Plastic Pollution Problem

- More than **9 billion tons of plastics** have been created in the last 70 years
- **No common plastics fully degrade.** Instead, they build up and accumulate, overliving those who bought and used them
- As of 2015, approximately **6300 metric tons of plastic waste** has been generated
- Approximately **9% of plastic waste has been recycled, 12% incinerated, and 79% has accumulated in landfills or the natural environment** as of 2015
- If current production and waste management trends continue, roughly **12,000 metric tons of plastic waste** will be in landfills by 2050

Safer Alternatives to PVA

When it comes to avoiding PVA in household goods:

1. Avoid products sold in a “dissolvable” pack or strips. While they may dissolve, they don’t degrade and contribute to water pollution.
2. Don’t fall for deceptive marketing of “degradable” plastics, which can’t break down under the usual home conditions, within wastewater treatment plants, or aren’t recyclable in typical municipal programs.
3. Look for powder detergents that can be packaged and measured without the need for plastic.
4. Look for products like laundry detergent, cleaners, and dishwasher detergent that are concentrated instead of delivered in PVA.



There is over eight thousand tons of PVA going into the environment, every year, originating from these detergent pods.

That equates to 600 million plastic soda bottles worth of plastic, yearly."

- PVA RESEARCHER DR. CHARLIE ROLSKY

Tips for Taking on Plastic Pollution

If you want to get rid of plastics, everything you do matters. Every little refusal is a good step forward.

1. Skip plastics whenever possible, opting for reusable options made from sustainable materials.
2. Refuse all single-use plastics from straws to bottles.
3. Bring your own bag every time you shop to avoid single-use plastic and the wasting of non-renewable resources.
4. At home, store food in glass or stainless containers instead of plastic.
5. Use wax paper and other solutions instead of single-use flexible cling wrap.
6. Buy products that don’t require plastic packaging.
7. Skip plastic dental floss in favor of natural alternatives.
8. Buy less new clothing and go vintage (see our [Approachable Guide to Sustainable Fashion](#) for more ideas).
9. Avoid plastic labeled with the recycle symbol #3, which is made of PVC.

Shop Plastic Conscious

Support these brands with MADE SAFE® Certified products pushing back against unnecessary plastic:

- [Avocado Green Mattress](#)
- [Blueland](#)
- [Branch Basics](#)
- [Coyuchi](#)
- [healthybaby](#)
- [Meliora Cleaning Products](#)

Shop PVA Conscious

Support these brands with MADE SAFE® Certified products pushing back against the use of PVA in their laundry and dishwashing solutions:

- [Avocado Green Mattress](#)
- [Branch Basics](#)
- [Coyuchi](#)
- [healthybaby](#)
- [Meliora Cleaning Products](#)
- [Pure Natural Cleaners](#)



PVA Myths

Polyvinyl alcohol is a vinyl polymer with **certain structural similarities to other plastics** like polyethylene, polypropylene, polystyrene, polyacrylamide, and polyacrylic acid.

However, PVA is **the only vinyl polymer that is known to be decomposed by microorganisms** under the right conditions. *The problem is that these strains of microorganisms are not common in our ecosystem.*

You can see the origin of some of the confusion around the claims of PVA's biodegradability.

Want to learn more about the story of PVA and plastic pollution?
Read *The Problem with "Disappearing" Plastics*.