

MY WEIRD PROMPTS

Podcast Transcript

EPIISODE #113

That New Plastic Smell: Science, Safety, and Solutions

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EPIISODE SYNOPSIS

Ever wonder why opening a new set of storage bins feels like walking into a chemical factory? In this episode, Herman and Corn break down the science of "off-gassing" and the Volatile Organic Compounds (VOCs) that create that distinct, pungent aroma. From the hidden dangers of phthalates to the "bake-out" method for clearing the air, discover how to identify safe plastics and breathe easier in your own home.

DANIEL'S PROMPT

Daniel

I've noticed that some new plastic products, like storage boxes or electronics, have a strong, almost "toxic" plastic smell. What is the science behind why some plastics smell this way while others don't, and is it actually harmful? Also, why do some of these smells go away while others linger indefinitely, and what should consumers do to try and get rid of them?

TRANSCRIPT

Corn

Hey everyone, welcome back to My Weird Prompts! I am so glad you are tuning in today. I am Corn, and yes, for those of you who are new, I am indeed a sloth, which explains why I am usually the one asking for a nap halfway through the episode. Joining me as always is my brother.

Herman

Herman Poppleberry at your service. And yes, I am a donkey, though I try to keep the braying to a minimum when we are recording. It is great to be back in the studio. Our housemate Daniel sent us a really interesting audio prompt this week. He has been setting up this massive home inventory system in our place in Jerusalem, and he ran into a bit of a stinky situation with some new plastic storage bins and a power supply unit.

Corn

Yeah, I smelled those boxes when they came in. It was intense. It was like a chemical factory moved into the living room. Daniel was wondering why some plastics have that heavy, toxic smell while others are totally fine. He also wanted to know if that smell is actually dangerous and what we can do to make it go away.

Herman

It is a classic problem, Corn. We have all experienced that blast of chemical air when opening a new electronic device or a set of shower curtains. That smell is not just one thing. It is actually a cocktail of chemicals, and the science behind it is pretty fascinating, if a bit unsettling.

Corn

Okay, so let us start with the basics. What is that smell exactly? Because it does not just smell like plastic. It smells... aggressive.

Herman

You are right. What you are smelling are things called Volatile Organic Compounds, or VOCs. The word volatile in chemistry just means that these chemicals have a low boiling point, so they turn into gas at room temperature very easily. When you open a sealed box, you are getting a concentrated dose of all the gases that have been trapped inside since the product was manufactured.

Corn

So the plastic is basically breathing out these chemicals?

Herman

Exactly. It is a process called off-gassing. Now, why do some plastics smell and others do not? It usually comes down to the type of plastic and the additives used during the manufacturing process. For example, a lot of those cheaper, flexible storage bins are made of Polyvinyl Chloride, or PVC. PVC is naturally a very hard, brittle plastic. To make it flexible and useful for a storage bin, manufacturers have to add something called plasticizers.

Corn

Plasticizers. That sounds like something a supervillain would use to turn people into mannequins.

Herman

Close enough! The most common plasticizers are chemicals called phthalates. These molecules do not actually bond chemically to the plastic. Instead, they just sit between the long chains of plastic molecules like a lubricant, allowing them to slide past each other. Because they are not bonded, they are very prone to escaping into the air. That is a huge part of that new plastic smell.

Corn

So if I buy a high-end plastic bottle, like one of those fancy reusable ones, why does it not smell like that?

Herman

Great question. Those are often made of materials like Polypropylene or Tritan, which do not require those heavy plasticizers to be functional. Also, better manufacturing processes involve something called a vacuum stripping or a heating stage that forces a lot of those leftover chemicals out of the plastic before it ever leaves the factory. Cheaper products often skip those extra steps to save money, which means the consumer ends up doing the off-gassing in their own home.

Corn

That feels a bit unfair. We are basically the final stage of the factory's ventilation system. But Daniel mentioned he has asthma, and he was worried about whether breathing this stuff in is actually harmful. Is it?

Herman

That is the big question. Short term, for most people, it usually just causes things like headaches, dizziness, or irritation of the eyes and throat. But for someone with a respiratory condition like asthma, it can definitely trigger a reaction. Long term, there is a lot of research into phthalates specifically. They are known as endocrine disruptors, which means they can interfere with the hormones in your body.

Corn

That sounds serious. If it can mess with your hormones, why are they allowed to use it?

Herman

Well, the doses we get from a storage bin are usually considered very low. Regulators look at the parts per million. But the concern is the cumulative effect. We have plastic in our clothes, our food packaging, our cars, and our furniture. It adds up. In fact, many countries have started banning specific types of phthalates in children's toys because kids are more vulnerable and, well, they tend to put things in their mouths.

Corn

I definitely noticed the smell was stronger on the cheaper bins Daniel bought versus the older ones he had. Does the smell eventually go away, or is it just a permanent part of the box now?

Herman

It usually dissipates over time as the concentration of those volatile compounds drops. Think of it like a sponge soaked in perfume. Eventually, the perfume evaporates. But some plastics are what we call high-load, meaning they have a huge amount of these chemicals inside, and they can continue to off-gas for months or even years.

Corn

Wait, years? So Daniel could be smelling those bins until twenty-twenty-eight?

Herman

Potentially, yes. If the material is low-quality and the environment is warm, it will keep pushing those chemicals out. Heat actually speeds up the process, which is why a new car smells so strong when it has been sitting in the sun. The heat shakes those molecules loose and sends them into the air.

Corn

Okay, I think I need a break to process all this chemical talk. My sloth brain is starting to spin a little bit. Let us take a quick break for our sponsors. Larry: Are you tired of your house smelling like a house? Introducing Scent-Sational Fog, the only home fragrance system that uses industrial-strength aerosolized masking agents to completely overwrite your reality! Why settle for the smell of lavender when you could have the smell of New Car Forest or Morning at the Steel Mill? Our patented formula is so thick, you will not even be able to see your own feet, let alone smell those pesky plastic bins! Scent-Sational Fog comes in a convenient fifty-gallon drum with a high-pressure nozzle. **WARNING:** Do not use near open flames, pets, or people who enjoy breathing. Scent-Sational Fog: because if you can still smell the plastic, you are not using enough! **BUY NOW!**

Herman

Thanks, Larry. I think I will pass on the steel mill fog for now.

Corn

Yeah, that sounds like it would make the problem a lot worse. Anyway, back to Daniel's situation. He tried washing the bins with soap and water, but it did not work. Why is that?

Herman

It is because the chemicals are not just sitting on the surface like dust. They are embedded within the material itself. Washing the surface might get rid of the molecules that have already escaped and landed on the plastic, but more are waiting right underneath to take their place. It is a bit like trying to wash the smell out of an onion. You can scrub the skin all you want, but the smell is part of the structure.

Corn

So is there anything we can actually do? Or do we just have to throw the smelly stuff away like Daniel did?

Herman

Well, throwing it away is the safest bet if you are sensitive to it, but there are a few things you can try. The most effective method is what we call a bake-out. You want to put the item in a very well-ventilated area, preferably outside in the sun. The ultraviolet rays and the heat from the sun will accelerate the off-gassing process dramatically. If you leave a smelly bin on a balcony for a few days in the Jerusalem sun, a lot of that initial chemical load will burn off.

Corn

That makes sense. The sun basically forces the plastic to finish its business outside instead of in our living room. What about things like baking soda or charcoal? People always say those soak up smells.

Herman

They can help with the smell in the air, but they do not stop the off-gassing from the source. Activated charcoal is actually great at trapping VOCs, which is why it is used in high-end air purifiers. If Daniel had kept those bins, putting a big bag of activated charcoal inside them and closing the lid for a few days might have helped absorb the initial burst of gases. But again, as soon as you open it, new gases will start to fill the space.

Corn

You mentioned air purifiers. Do they actually work for this kind of thing?

Herman

Only if they have a substantial carbon filter. Most of the cheap air purifiers you see online just have a HEPA filter, which is great for dust and pollen but does absolutely nothing for chemical gases. You need that heavy layer of charcoal to actually bond with the VOC molecules and pull them out of the air.

Corn

So, what should we be looking for when we shop? Is there a way to avoid this entirely?

Herman

There is. Look for labels that say BPA-free and phthalate-free. Also, look for the recycling codes on the bottom of the plastic. Generally, plastics with the codes one, two, four, and five are considered much safer and have lower off-gassing potential. Code three is PVC, which is the one Daniel had trouble with. Code six is Polystyrene, which can also be a bit stinky and problematic.

Corn

One, two, four, and five are the good ones. Got it. I should probably write that down on my paw so I do not forget. What about electronics, though? Daniel mentioned his new UPS had that smell. You can not exactly leave a power supply out in the sun or wash it with soap.

Herman

Electronics are tricky. They often use flame retardants on the circuit boards and plastic casings. These are chemicals designed to stop the device from catching fire if it overheats, which is obviously a good thing. But those flame retardants, like polybrominated diphenyl ethers, also off-gas, especially when the device gets warm during use.

Corn

So the first time you turn it on, it starts heating up and releasing those chemicals?

Herman

Exactly. For electronics, the best thing you can do is run them in a separate room with a window open for the first forty-eight hours. Let them do their initial heavy off-gassing somewhere where you are not sitting right next to them. Once the initial heat cycles have passed, the rate of off-gassing usually drops off significantly.

Corn

That is a great tip. I will tell Daniel to put his new UPS in the hallway near the window for a bit. It is wild to think about how much chemistry is just floating around us in our homes. We think of our houses as these safe, static places, but they are actually these dynamic chemical environments.

Herman

It really is a modern phenomenon. A hundred years ago, most of the things in a home were wood, metal, or natural fibers. Today, we are surrounded by synthetic polymers. And while they make our lives incredibly convenient and affordable, they do come with this hidden trade-off. We have to be more conscious about ventilation and the quality of the materials we bring into our living spaces.

Corn

It makes me appreciate the simple things, like a good old-fashioned wooden crate. No off-gassing there, unless you count the smell of pine.

Herman

Even wood can have issues if it is treated with certain varnishes or glues, but that is a topic for another day! The key takeaway for Daniel and our listeners is that the smell is a real signal. It is your nose telling you that there are active chemicals moving from the product into your lungs. If it smells bad enough to give you a headache, your body is literally telling you to get away from it.

Corn

Listen to your nose. It is smarter than we give it credit for. So, to recap: if it is stinky, put it in the sun. Check the recycling codes for one, two, four, or five. And if you have asthma or are sensitive, it is totally okay to just return it or get rid of it. Your health is worth more than a ten-dollar storage bin.

Herman

Absolutely. And when it comes to those storage systems, sometimes spending a little more on a higher-quality plastic that is labeled as food-grade or medical-grade can save you a lot of trouble. Those have much stricter requirements for what kind of chemicals can leach out or off-gas.

Corn

This has been really eye-opening, Herman. I feel like I understand why our house smelled like a laboratory last week. I am glad Daniel brought this up. It is one of those things you notice but do not always think to look into.

Herman

That is what we are here for! Exploring the weird and the mundane. I hope this helps Daniel with his inventory project. I am looking forward to seeing how that system turns out, as long as it does not involve any more stinky boxes.

Corn

Me too. I think we have covered the bases on this one. Thank you all so much for listening to My Weird Prompts. We love exploring these questions with you.

Herman

If you have a question or a weird prompt of your own, please get in touch. You can find us on our website at myweirdprompts.com. There is a contact form there, and you can also find our RSS feed for subscribers.

Corn

And do not forget to find us on Spotify! We are always happy to have you along for the ride. A big thanks to our housemate Daniel for the prompt today. We will see you next time!

Herman

Goodbye everyone, and stay curious!

Corn

And stay fresh-smelling! Bye!