

BALLARD BRIEF

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Exposure to Toxic Chemicals in Consumer Products in the United States

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Summary

Many of the consumer products sold in the United States contain toxic chemicals. This is due to a lack of testing and regulation, lack of knowledge of consumers, government-protected trade secrets, marketing and PR tactics, and a desire for cost efficiency and product effectiveness. Because of this, many Americans are frequently and unknowingly exposed to toxic chemicals that have been shown to cause various health issues such as cancer, diabetes, heart disease, birth defects, infertility, and hormone imbalances, among other issues. These toxic chemicals have also been shown to contribute to environmental issues. One of the leading organizations combating this issue is the Environmental Working Group, which focuses on research and advocacy surrounding agriculture, water pollution, toxic chemicals, and corporate accountability.

Key Terms

Carcinogen — “A substance or agent causing cancer.”¹

Endocrine Disrupting Chemical (EDC) — “Substances in our environment, food, and consumer products that interfere with hormone biosynthesis, metabolism, or action resulting in a deviation from normal homeostatic control or reproduction.”²

Endocrine System — “The glands and organs that make hormones and release them directly into the blood so they can travel to tissues and organs all over the body. The hormones released by the endocrine system control many important functions in the body, including growth and development, metabolism, and reproduction.”³

Grandfathering — A common business term meaning “to allow someone to do or to have something that a new law or rule makes illegal,” similar to “exempt” or “excuse.”⁴

Although this term has a problematic history due to its tie to slavery,⁵ the term will be used throughout this brief

since it is the term that continues to be used in modern business practices.

Greenwashing — A marketing tactic where companies put labels such as “non-toxic,” “green,” “natural,” and “eco-friendly” on their packaging to make the customer believe the product is good for the environment.⁶

Mutagen — “A chemical or physical agent that has the ability to change our genetic code in a harmful way . . . our body has the ability to recognize and repair these mutations.” If they escape repair they can develop into a tumor cell, therefore aiding in the development of cancer.⁷

PFAS — “Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body –

meaning they don’t break down and they can accumulate over time. There is evidence that exposure to PFAS can lead to adverse human health effects.” PFAS can be found in food, commercial household products, workplace environments, drinking water, and living organisms.⁸

Precautionary Principle — “The precautionary principle, proposed as a new guideline in environmental decision making, has four central components: taking preventive action in the face of uncertainty; shifting the burden of proof to the proponents of an activity; exploring a wide range of alternatives to possibly harmful actions; and increasing public participation in decision making.”⁹

Toxic — “Containing or being poisonous material especially when capable of causing death or serious debilitation.”¹⁰

Trade Secret — “Information, including a formula, pattern, compilation, program, device, method, technique, or process that derives independent economic value, actual or

potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.”¹¹

Context

Q: What are toxic chemicals?

A: Toxic chemicals are any substance that is harmful to the environment or human health “if inhaled, ingested or absorbed through the skin.”¹²

Q: Why are toxic chemicals in consumer products a social issue?

A: Toxins found in everyday consumer products are known to be a cause of many health issues. Due to the prevalence of toxins in many manufactured products, virtually all populations are exposed and at risk for these negative health effects. For example, the World Health Organization (WHO) warns that exposure to endocrine disrupting

chemicals (EDCs), a common toxin found in consumer products, represents a global health threat because they can cause diseases such as diabetes, heart disease, and cancer.¹³

Q: Who is most affected by toxic chemicals in consumer products?

A: Although toxins are a health threat for most populations, there is a known disparity in EDC exposure for people with a lower socioeconomic status (SES). Numerous studies have found that African Americans, Latinos, and low income individuals face greater exposure to diabetogenic EDCs, which may contribute to these groups having higher levels of diabetes.¹⁴

While the research has not reached a consensus as to why these disparities

exist, it is possibly due to the higher expense of fresh food, and thus the higher consumption of processed foods by those of low SES; processed food often comes in packaging that increases BPA exposure.¹⁵ Though people of lower SES may have more exposure to toxic chemicals, it is still a threat to the entire population. Additionally, as most non-toxic products tend to come at premium prices, it is easier for people of higher SES to avoid these toxins by purchasing the more expensive products. Unfortunately, people of lower SES may not have that luxury as they may not have the ability or means to do so, even if they wanted to.¹⁶ This brief will focus on general exposure to toxins for most populations in the US with the general understanding that those in lower socioeconomic spheres will be more affected by each of these contributing factors and consequences than those with higher SES.

Q: What are consumer products?

A: “Consumer products, also referred to as final goods, are products that are bought by individuals or households for personal use. In other words, consumer products are goods that are bought for consumption by the average consumer.”¹⁷ There are four categories of consumer products: convenience products, shopping products, specialty products, and unsought products.¹⁸ See graphic for examples of these types of products.

Q: What kinds of toxic chemicals are often found in consumer products?

A: Currently, there are 5 groups of chemicals that are of main concern to consumers: pesticides, phthalates, flame retardants, bisphenol (BPA), and PFAS.¹⁹ Unfortunately these chemicals are commonly found almost everywhere including, but not limited to, canned food and receipt paper containing BPA, cosmetics as they have no required safety testing and no

monitoring of labeling or health effects, pesticides found on food even after washing, vinyl plastic and phthalates used in building materials, schools, hospitals, and consumer products, and flame retardants used in furniture, cars, electronics, and baby products.²⁰

Additionally, endocrine disrupting chemicals represent a broad set of chemicals known to affect the endocrine system. EDCs are man-made chemicals; some common examples include flame retardants (BFRs), polychlorinated biphenyls (PCBs), phthalates, BPA, lead, cadmium, many pesticides and herbicides, DDT, atrazine, and PFAS.^{21, 22} These endocrine disruptors interfere with the function of the hormones by binding to the same sites and cells where the hormones normally bind and interfering with the normal processing. This becomes especially problematic as a disruption to hormones can cause many adverse health effects.²³



Source: "Consumer Products," Corporate Finance Institute, accessed February 2, 2021, <https://corporatefinanceinstitute.com/resources/knowledge/economics/consumer-products/>.

Q: How many toxins are found in consumer products in the United States today?

A: It is impossible to know the exact number or concentration of toxins in consumer products in circulation today. This, in part, is due to the fact that a lack of testing and regulation has allowed many toxic chemicals to go untested and unnoticed. Therefore, though there are many toxins still being used that have been proven to be unsafe, researchers postulate that there are many more toxic chemicals in consumer products than they know about due to a lack of testing.

There are some statistics, however, that demonstrate how widespread toxin use is in consumer products. For example, an evaluation of products at dollar stores in the US revealed that 38% of products contained the toxic plastic PVC, and 32% of these products exceeded phthalate limits established by the Consumer Product Safety Commission.²⁴ Additionally, 81% of dollar store products contained at least one hazardous chemical above the established level of concern.²⁵ This not only indicates the widespread use of toxic chemicals in consumer products, but leads to disproportionate exposure for people of lower SES as they are more likely to purchase dollar store products due to financial limitations.

Additionally, it has been revealed that most of the 80,000 chemicals currently in circulation in consumer products in the United States have not been adequately tested for safety or for their effects on human health.²⁶ In fact, only about 1% have been studied.²⁷ Though it is unknown how many products on the shelf contain toxic chemicals or how many toxic chemicals are in

circulation, studies reveal that it is safe to assume that toxic chemicals are now commonplace in the average home.²⁸ Because of this, it has been found that inside our homes, the air is 2 to 5 times more polluted than outdoor air due to the chemicals found in everyday and ordinary household products.²⁹ Additionally, when looking at the increased prevalence of certain diseases known to be caused by chemical exposure, there is a positive correlation between the increase of chemical production in the US and disease prevalence, which furthers the evidence that toxic chemicals are now commonplace in American homes.³⁰

Q: What is the history of this problem in the United States?

A: World War II brought about an increase in chemical usage—many of these chemicals were unregulated—in everyday consumer products.³¹ The chemical industry was largely self-regulating until the 1960s when the modern environmental movement was born.³² Due to pressure from growing environmental groups, President Nixon

established the Environmental Protection Agency (EPA), an independent agency of the US government in charge of environmental protection, with the top priority being regulation of chemical manufacturers.³³ The Toxic Substances Control Act (TSCA) was then established in 1976, providing the EPA with the authority to require “reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures.” Some products, however, are generally excluded from TSCA, including food, drugs, cosmetics, and pesticides.³⁴ Unfortunately, this act continued to protect the chemical industry by allowing them to use toxic chemicals by grandfathering in over 80,000 chemicals, making them very difficult to regulate.³⁵ The TSCA was updated in 2016 by President Obama. This amendment updated the requirements for the testing of existing chemicals and increased transparency with the public about chemical information.³⁶ Unfortunately, the EPA has yet to make substantial progress regarding the

reform and has “taken every opportunity to undermine, not enhance, chemical safety.”³⁷ However, the Trump administration reversed much of the progress that was made, delaying the strong enforcement of policies that Congress had been hoping for.³⁸

Q: How does the United States compare with other countries in regards to toxic chemicals in consumer products?

A: Due to the limited available data, it is impossible to know if more products in the US contain toxic chemicals or higher concentrations of toxic chemicals in comparison to other countries. Research does demonstrate, however, that the biggest difference between the United States and other comparable countries is the regulatory processes being used. The TSCA under the EPA is responsible for regulating chemicals in the United States. Likewise, the European Union (EU) also has processes in place for the regulation of harmful chemicals known as Registration, Evaluation and

Authorization of Chemicals (REACH). Unlike the EPA, REACH requires companies to study and ensure the safety of the chemicals they use before developing their products.³⁹ REACH employs the precautionary principle that requires companies to prove a chemical is safe before using it in products. In the United States, the TSCA approaches the problem through an “innocent until proven guilty” lens, allowing for many harmful chemicals to circulate in commerce until there is undeniable evidence that the chemical is, in fact, harmful. Additionally, the burden for chemical testing is placed on the EPA rather than the chemical companies themselves. As such, the US approves many more products as safe compared to most other countries. For example, the EU has banned 1,328 chemicals that are “known or suspected to cause cancer, genetic mutation, reproductive harm or birth defects” in cosmetic products.⁴⁰ The US has only banned or restricted 11.⁴¹

Contributing Factors

Lack of Testing and Regulation

With the current system in place in the US, chemicals are not being tested to ensure they are safe, allowing for increased exposure to toxic chemicals. It is easy for many consumers to believe that someone is making sure that the products found on the shelf are safe.⁴² Consumers often assume that if a product is dangerous, toxic, or carcinogenic, it wouldn't be allowed to be sold.⁴³ Some chemicals are even known to be toxic but are still allowed on the shelf, while others have not yet been evaluated for their health and safety.⁴⁴

The EPA gets its authority and protocol to regulate chemicals from the passing of the 1976 Toxic Substances Control Act. Under this act, the EPA has the authority to control any chemicals that “pose an unreasonable risk to human health or to the environment.”⁴⁵ Unfortunately,

it has now become clear that TSCA did not give the EPA all of the tools that it needs to do so properly or effectively. In fact, the passing of TSCA actually ended up protecting the chemical manufacturers more than the consumers. TSCA also granted the chemical industry and product manufacturers alike the benefit of secrecy by allowing them to keep the identity of some chemicals a secret from the public. As a result, “the EPA estimates that there are 17,000 secret chemicals in commerce today.”⁴⁶

When it comes to cosmetics and fragrances, the FDA is the regulatory body in the US. Unfortunately, the FDA also is unable to regulate products because the guidelines haven't changed since being enacted in 1938.⁴⁷ When dealing with fragrances, “fragrance and flavor ingredients do not need to be listed individually on cosmetic labels, because they are the ingredients most likely to be ‘trade secrets.’ Instead, they may be listed simply as ‘fragrance’ or ‘flavor.’”⁴⁸ Additionally, the FDA “recommends” that manufacturers voluntarily

register their scent with the agency, disclosing the ingredients used to make the fragrance. However, manufacturers rarely opt to do this because if anything bad happened to a consumer using their product, they could prove that the product was the culprit. The chemical industry fights transparency to avoid liability claims that could arise if any harm comes to a consumer because of the product.⁴⁹ When taking all of this into account, it becomes clear that exposure to toxic chemicals has become nearly unavoidable in the United States because of the lack of testing and regulation in place.



Lack of Knowledge of Consumers

Not only is it difficult to know which products to use because of a lack of transparency from manufacturers, but also consumers hoping to avoid these products are being misled through greenwashing practices.

The first way companies exploit the lack of knowledge of consumers is through the fragrance loophole. Almost all consumer products in the average American home contain the ingredient “fragrance.” Though it appears to be a singular ingredient, it’s simply used in lieu of disclosing a combination of ingredients, and that one “ingredient” can actually be a mixture of hundreds of different hidden chemicals.⁵⁰ This is due to the fact that companies can claim their “fragrance” as a government protected “trade secret.”⁵¹ This isn’t just limited to perfumes and scents—many industries claim that various ingredients in their products are trade secrets so that they can be exempt from having to disclose the toxic chemicals being used.⁵² There is no data showing

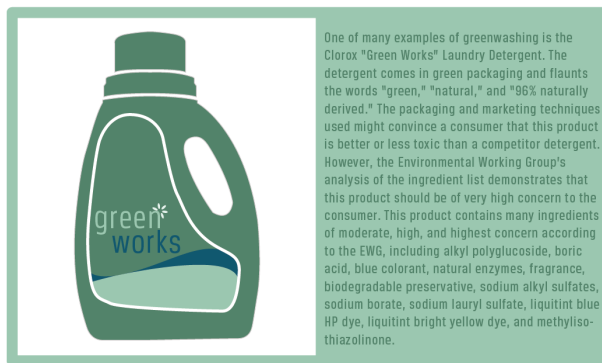
the number of products that actually use the fragrance loophole, but when looking through products found at an average grocery or drug store, more often than not, they contain the ingredient “fragrance.” Many products marked as “unscented” still contain the ingredient of “fragrance,” and according to the EWG, around 3,163 ingredients are encapsulated in the fragrance category.⁵³



The second way companies exploit the lack of knowledge of consumers is through greenwashing.

Greenwashing is a marketing tactic that occurs when companies put labels like “non-toxic,” “green,” “natural,” and “eco-friendly” on their packaging to make the customer believe the product is good for them or the environment. In other words, greenwashing makes consumers believe the company is doing more to protect the environment than it really is; this process is often intentionally

carried out through a wide range of marketing and PR efforts.^{54, 55} Many consumers are misled when reading the eco-friendly claims on a bottle and pay premium prices for a product that claims to be “green” or “non-toxic” when in reality, the product is often just as harmful as a non-greenwashed product. The fragrance loophole and greenwashing allow for companies to mask the potential harm of their products and prevent customers from making informed decisions about what products are safe to buy.



One of many examples of greenwashing is the Clorox “Green Works” Laundry Detergent. The detergent comes in green packaging and flaunts the words “green,” “natural,” and “96% naturally derived.” The packaging and marketing techniques used might convince a consumer that this product is better or less toxic than a competitor detergent. However, the Environmental Working Group’s analysis of the ingredient list demonstrates that this product should be of very high concern to the consumer. This product contains many ingredients of moderate, high, and highest concern according to the EWG, including alkyl polyglucoside, boric acid, blue colorant, natural enzymes, fragrance, biodegradable preservative, sodium alkyl sulfates, sodium borate, sodium lauryl sulfate, liquid bright blue HP dye, liquid bright yellow dye, and methylisothiazolinone.

Source: “Green Works Laundry Detergent, Original,” Environmental Working Group, last updated March 14, 2016, <https://www.ewg.org/guides/cleaners/5169-GreenWorksLaundryDetergentOriginal/>.

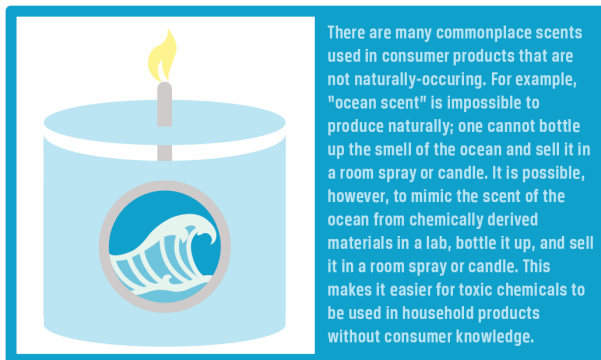
Cost Efficiency and Product Effectiveness

Many companies in the US include toxic chemicals in their products because they are more cost

efficient and because they can increase the efficacy of the product. As mentioned previously, the chemical restrictions in the EU are much stricter and more comprehensive than those used in the US. However, many products from large US brands are sold in Europe. Because of the stricter chemical regulation, US companies such as Pepsi, Quaker, Kellogg’s, and Kraft-Heinz have actually created safer formulas to use in Europe but continue to use the less-safe formulas in the US because it is more cost effective.^{56, 57}

Motivations surrounding cost efficiency and product effectiveness are also seen in fragrance manufacturing. The ingredients used in creating a fragrance come from either petroleum-derived materials (meaning manufactured or chemically-derived) or plant-derived materials.⁵⁸ Many companies tend to use petroleum-derived ingredients as they are far cheaper.⁵⁹ Many manufacturers that choose to use the pricier plant-derived scents directly list their ingredients on the bottle to be more transparent, whereas companies that use petroleum-derived scents and

fragrances tend to contain questionable chemicals that need to be hidden from consumers through the fragrance loophole. We can see from this that there is a direct connection between the lack of transparency, the economics, and the profits of many of these companies.⁶⁰ Additionally, chemically-derived fragrances can also contribute to the effectiveness of a product. In the case of perfumes, the concentration and lasting length is incredibly important and contains a specific combination of chemicals to achieve the desired result. These desired results aren't always possible simply by using naturally-occurring scents without the help of chemicals.



Another example of the use of toxins for the sake of product efficiency is the infamous case of Teflon. DuPont, a

prominent US chemical company, used the chemical Teflon to create an incredibly strong, nonreactive, and nonstick coating on cookware. DuPont began manufacturing Teflon in 1945 and it quickly became a major success. Teflon was an incredibly useful and effective product; in addition to pans, Teflon was also used to make "wire and cable coatings, fabric and carpet protectors, and waterproof fabrics."⁶¹ Unfortunately, the main ingredient in Teflon was perfluorooctanoic acid (PFOA), a chemical that belongs to the PFAS group. This chemical was known by DuPont to have severe impacts on human health but as it was not regulated by the government, DuPont continued to manufacture products with the chemical. It wasn't until a major lawsuit against DuPont uncovered the truth about Teflon that the process of regulation began. Though PFOA is no longer allowed to be manufactured in the United States, it can still be imported and sold in products. Though much has been done to regulate and reduce PFOA and PFAS exposure, it is still found

almost everywhere and continues to impact the health of people, animals, and the environment.⁶²

The DuPont C8 case is perhaps the most infamous instance of a toxic chemical from a consumer product affecting people, animals, and the environment on a massive and long-term scale. C8 is the nickname used by DuPont for the chemical compound perfluorooctanoic acid (PFOA). This compound was invented by 3M and sold to DuPont in 1951 and DuPont used this chemical to manufacture Teflon. Both 3M and DuPont had conducted their own extensive research on the chemical and were aware of its hazardous effects, but as the government was not aware of this chemical, there were no governmental regulations on its use or disposal. Along with the purchase, 3M gave DuPont their own instructions on how to properly dispose of the chemical—these instructions stated that C8 must be incinerated or sent to a chemical-waste facility for disposal. DuPont created their own set of instructions regarding its disposal which stated that "it was not to be flushed into surface water or sewers." But, from the 1950s until 2015, DuPont proceeded to pump "hundreds of thousands of pounds of PFOA powder...into the Ohio River." DuPont's Washington Works Plant, where Teflon was manufactured, is located in Parkersburg, West Virginia, and is located right next to the Ohio River. The city and surrounding cities of Parkersburg were catastrophically affected by this toxic chemical.

This example of DuPont's irresponsible use and disposal of PFOA demonstrates the detrimental effects that unknown and unregulated chemicals can have on both human health and the environment. Because PFOA was known to be toxic to human and environmental health, DuPont knowingly did irreparable damage to people, animals, and the environment. The details of this case will be discussed further in the consequences section of this brief.

Source: Nathaniel Rich, "The Lawyer Who Became DuPont's Worst Nightmare," The New York Times Magazine, January 6, 2016, <https://www.nytimes.com/2016/01/10/magazine/the-lawyer-who-became-duponts-worst-nightmare.html>.

Consequences

Health Issues

One of the most important consequences is the negative health effects that can result from exposure to toxic chemicals. The health consequences associated with the exposure to these chemicals are very

complex because the full extent of exposure is still largely unknown. As mentioned previously, of the 84,000 chemicals on the market in the US, only 1% have been tested for safety.⁶³ Many of the proven health hazards are from the chemicals that have been tested, meaning the public is most likely exposed to a much larger amount of toxic chemicals, and their negative health effects, than researchers even know about.

The different ways a person can come into contact with hazardous chemicals are called exposure pathways. There are three basic exposure pathways: inhalation, ingestion, and skin contact.⁶⁴ For example, inhalation of toxic chemicals can occur when chemicals get into the air we breathe as chemical pollutants build up in the indoor air when they are released from things like building products, foam furnishings, carpet, paint, personal care products, and cleaning products.⁶⁵ Because of this, the EWG estimates that "the air inside our homes is 2 to 5 times more polluted than the air outside."⁶⁶ A common toxin found in indoor air is

asbestos, which is found in a variety of construction materials and is also used as a fire retardant.⁶⁷ Exposure to asbestos has been linked to lung disease, lung cancer, mesothelioma, and asbestosis.⁶⁸ Ingestion of toxic chemicals can occur when chemicals get into the food we eat if our food has come in contact with the chemical.⁶⁹ This can be through the watering of crops with contaminated water, the spraying of pesticides that contain toxic chemicals, or the ingestion of contaminated water or plants by fish or other animals that end up being eaten.⁷⁰ A common toxin found in food is glyphosate, a pesticide that has been deemed by the World Health Organization as “probably carcinogenic to humans.”⁷¹ Chemicals can also end up in the water we drink when chemicals are inadequately disposed of and leak into drinking water sources, as discussed in the example of Teflon. Lastly, chemicals can enter the body through skin contact when putting on personal care products. Toxins enter the body through skin contact because skin, the largest organ of the body,

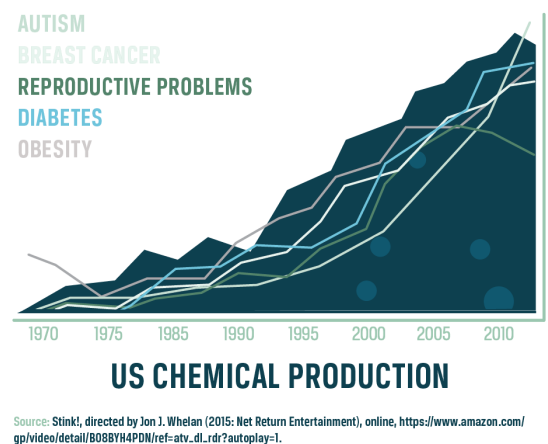
absorbs nearly 64% of what gets put on it.⁷² A common toxin found in personal care products is formaldehyde, a known human carcinogen. The EWG estimates that “nearly 1 in 5 cosmetic products contains a substance that generates formaldehyde.”⁷³

Different toxic chemicals affect the body in many different ways; some act as allergens while others are carcinogens, and others are linked to developmental and reproductive toxicity.⁷⁴ Additionally, as mentioned previously, there are different groups of chemicals that are classified based on their effects on human health. For example, endocrine disrupting chemicals (EDCs) impact the endocrine system and tamper with hormones, creating a wide array of health consequences such as “alterations in sperm quality and fertility, abnormalities in sex organs, endometriosis, early puberty, altered nervous system function, immune function, certain cancers, respiratory problems, metabolic issues, diabetes, obesity, cardiovascular problems, growth, neurological and learning

disabilities, and more.”⁷⁵ Additionally, endocrine disruptors are proven mutagens, meaning they can mutate DNA, possibly leading to harm to cells and the development of certain cancers.⁷⁶ There is also the PFAS group that consists of per- and polyfluoroalkyl substances known as “forever chemicals” that never break down in nature nor within the human body and cause their own adverse health effects.⁷⁷ For example, in the Teflon example, countless residents of Parkersburg and the surrounding areas had been dying of rare cancers, suffering birth defects, developing blackened teeth, and so much more for decades following the dumping of PFOA into the river.⁷⁸ A scientific study was conducted to determine if there was a link between PFOA and any of these diseases.⁷⁹ Nearly 70,000 West Virginians received a blood test and a medical examination for this study, and the scientists concluded that “there was a ‘probable link’ between PFOA and kidney cancer, testicular cancer, thyroid disease, high cholesterol, pre-eclampsia, and ulcerative colitis.”⁸⁰

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The health effects that come from exposure to these toxic chemicals occur over time as the different chemicals and health effects accumulate. One of the most common health issues linked to toxic chemicals is cancer. The risk of breast cancer has increased from 1 in 20 in the 1960s to 1 in 8 today; this increase has been partially attributed to the increase in use of toxic chemicals in consumer products.⁸¹ In 2009, professionals suggested that the risk of cancer due to toxic chemicals was greatly underestimated.⁸²



Another health issue linked to toxic chemicals is reproductive issues. Chemical exposure not only affects the mother, but can also contaminate babies while still in the womb. Everyday items like Teflon, Scotchgard,

flame retardants, fragrances, and the byproducts of burning gasoline and garbage all end up in women's bodies through ingestion or inhalation, which can then enter babies' bodies even before birth.⁸³ For example, the Environmental Working Group tested the umbilical cord blood from 10 babies born in the US. Of the more than 300 chemicals they tested for, they found 287 chemicals altogether.⁸⁴ In the case of PFAS or the "forever chemicals," these chemicals never break down and continue to accumulate.⁸⁵ According to the Environmental Working Group, almost all Americans have PFAS in their blood, which includes newborn babies. They estimate that 110 million people in the US could be drinking water that is contaminated with PFAS.⁸⁶ Though it is often hard to see the impact of these chemicals in the short term, longitudinal evidence indicates a very strong correlation between exposure to toxic chemicals and severe or even fatal health consequences.⁸⁷

Environmental Issues

Toxic chemicals and the chemical industry as a whole are major contributors to environmental pollution. Environmental pollution, in turn, affects human health as well as environmental health, creating a cycle between the two. Of specific note, toxins from consumer products affect animals, plants, and water pollution, increasing the likelihood of environmental illness for the human population if they eat meat from animals, eat produce, or ingest water that has been contaminated. For example, in the case of Teflon, over 7,100 tons of PFOA-laced sludge was dumped into unlined pits on the DuPont plant property that seeped into the local water table. This ended up affecting not only human health, but the health of animals within the Parkersburg area as well. There were 153 cows belonging to a farmer in Parkersburg that were completely healthy, but ended up dying. They showed symptoms such as blackened teeth, discolored organs, stringy tails,

malformed hooves, constant diarrhea, receded eyes, and eyes the color of chemical blue.⁸⁸



Foam laced with PFOA chemicals washing ashore.

Water polluted by toxins can also be harmful to marine life. Synthetic pesticides used for weed and bug control are toxic to marine life even in small amounts.⁸⁹ These pollutants affect the life and health of marine life; for example, when a fish is exposed to heavy metals, it can affect the fish's sense of smell, which makes it difficult for the fish to find food and avoid predators.⁹⁰ These pollutants enter water sources containing marine life most commonly through storm drains and household drains.⁹¹



Harmful algal bloom.

Another major problem caused by environmental pollutants is harmful algal blooms. Harmful algal blooms typically occur due to a nutrient such as nitrogen or phosphorus entering in the water and causing an excessive growth of algae.⁹² The primary sources of excess nitrogen and phosphorus, causing these harmful algal blooms, are agricultural products (such as animal manure and chemical fertilizers), stormwater, wastewater, fossil fuels, and certain products like soap and detergents found in the home.⁹³ Harmful algal blooms can create very harmful toxins that can make people and animals sick, and even kill them. These algal blooms can create dead zones in bodies of water, which raises

treatment costs for drinking water and make it more difficult and costly for industries that need clean water.⁹⁴

Though quantitative evidence demonstrating the extent to which toxic chemicals in consumer products affect the environment across the United States is sparse, studies do show that these detrimental effects on environmental health are severe and widespread and can be traced back to toxic chemicals in consumer products.

Practices

Environmental Working Group

The Environmental Working Group (EWG) is a “non-profit, non-partisan organization dedicated to protecting human health and the environment.”⁹⁵ The EWG has a team of scientists, policy experts, lawyers, communications experts, and programmers that work to stand up for public health when the government and industry will not. The EWG also creates reports, online databases, mobile apps, and

communications campaigns to help consumers make safer and more informed decisions about their products and the companies they support. The EWG researches the chemicals the government and chemical industry will not disclose and publicizes their findings. They also launched a program called EWG VERIFIED that works with companies to verify their product as clean and nontoxic. This verification covers personal care, cleaning, and baby products. This is incredibly impactful as their efforts are reaching large corporations like Procter & Gamble to release products that are clean and transparent. They also have an app that allows users to search their products and determine if it is clean or not. It also breaks down the ingredients in the product and shows the user if and why they are harmful. The key issues the EWG focuses on are consumer products, cosmetics, energy, farming, food, water, PFAS chemicals, toxics, and children’s health. They have also created and published several reports to help guide and educate consumers to safer and healthier choices.

Impact

In 2019, the EWG came to a turning point in their efforts. Due to demand from consumers, many big-name companies like Procter & Gamble turned to the EWG for guidance and expertise in an effort to self-regulate some of the chemicals in their products to ensure the chemicals being used in them are safe.⁹⁶ Because of this, EWG VERIFIED now works directly with the companies to create verified safe products.⁹⁷ While they do not have any impact measurements, their reported outputs in 2019 were that the EWG gathered 1.3 million petition signatures and letters to Congress supporting the reform of regulation.⁹⁸ Their websites were visited more than 21 million times by 13 million people and they earned approximately \$59.5 million worth of free media exposure.⁹⁹

Gaps

The EWG does a great job of measuring the outputs of their initiatives. However, their outcome and impact measurements are lacking. Though the EWG is responsible for countless

reports and research done on chemicals as well as several programs and initiatives intended to inform, it is difficult to understand the true scale of their impact. The EWG should focus on collecting better impact measurements to better understand the change they are responsible for. Additionally, the EWG is simply an activist group that conducts their own research on the issue. Because of this, all they can really do is inform and advocate. They don't have the authority to enforce any rules or regulations regarding their findings. Even when they discover that a certain chemical is harmful, they can't force companies to stop using the chemical, they can only advocate to have the government ban it

Endnotes

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