High Levels of Banned PFAS Detected in Hershey's (NYSE: HSY) Packaging. Independent Tests Reveal Widespread Presence of Cancer-Linked “Forever Chemicals” in its Biggest Brands

By **GRIZZLY RESEARCH**, October 23, 2024

- The Hershey Company ("HSY") is a multi-brand iconic U.S. confectionery maker with a $37 billion market cap. Its most famous brands include Hershey's, Reese's, Almond Joy, and Mounds, which rank among the top products in consumer trust and appreciation. In 2023, HSY generated 81% of net sales and 91% of income from its North American confectionery segment.

- PFAS, or "forever chemicals," are carcinogenic, and a ban or phase-out for plastic food and candy packaging was introduced until 2024 in at least 13 U.S. states. Children are especially vulnerable to PFAS toxins. PFAS in higher concentration usually originates from anti-grease and anti-soak coatings that serve no direct function for consumers in plastic wrappers.

- In the U.S. alone, PFAS polluting companies have already paid a total of $11.5 billion in damages, with many cases still outstanding. PFAS expert attorney R. Bilott, who was instrumental in a $4 billion PFAS settlement case against DuPont, Chemours and Corteva, estimates that PFAS-related damage claims are *"potentially much larger in scope and scale"* than the tobacco settlements of $200 billion.

- We commissioned the mass testing of the packaging of about 40 different food products for U.S. consumer retail. We used a novel test method based on light spectroscopy, and a Reese's Pieces pouch tested positive for strong PFAS contamination on the packaging inside in an "inhomogeneous pattern." It was one of only two flagged products in total.

- We commissioned four different test labs in the U.S., Germany, and China with four different testing methods to independently test HSY's best-selling chocolate candy products against competitors' best-selling plastic-wrapped products in the

U.S. by Mars, Nestlé, and Ferrero. All four labs found heightened traces of PFAS in various HSY's products but none or negligible amounts in products by Mars and Nestlé. The U.S. sales of affected brands represent about 43% of HSY's total revenue and a much larger portion of income, with further brands likely being also affected.

- Among all tested products, surprisingly high amounts of the PFAS over 10 mg/kg were found in wrappers of Hershey's Milk Chocolate bar (by HSY), Hershey's Cookies' n' Creme bar (HSY), Reese's Pieces pouch for the U.S. market (HSY), Reese's Pieces pouch for the E.U. market (HSY), Almond Joy bar (HSY), Mounds bar (HSY), Reese's Peanut Butter Cups (paper cups, HSY), Reese's Peanut Butter Cups (wrapping foil, HSY), Hershey's Kisses (HSY), KitKat (HSY) and in one test each but none of the replication tests, Butterfinger bar (Ferrero). In 50 tests, the labs found 20 cases of high contamination over 10 mg/kg, of which 19 were in HSY's wrappers. The highest reading was 81.5 mg/kg of total fluorine. All three comparison best-selling products by Mars, and the one comparison best-selling product by Nestlé were free of heightened PFAS levels in all tests.

- Experts we talked to were very surprised about the high levels of PFAS we found in HSY candy wrappers because plastic wrappers do not need anti-stick or anti-grease treatment. Experts suggested the data might be explained by foil dusting with PFAS for easier production processes, unclean production processes or aesthetic concerns.

- Our labs found the highest fluorine amounts in Reese's Pieces pouches for E.U. distribution, but none of the most common PFAS compounds. Our expert heading this case believes that HSY deliberately uses uncommon, harder-to-detect PFAS compounds to avoid detection and bans, while the negative health implications of such uncommon substances remain similar.

- According to our understanding, the use of PFAS despite the ban must be authorized by the FDA via the Food Contact Notifications process. As of today, the Inventory of Effective Food Contact Substance (FCS) Notifications database does not show any authorization of PFAS use for HSY

- We believe Hershey's, Reese's and other HSY brands have severe PFAS contamination that the direct competition can avoid. This can materially affect these brands' recognition and add material reputational and litigation risk to HSY.

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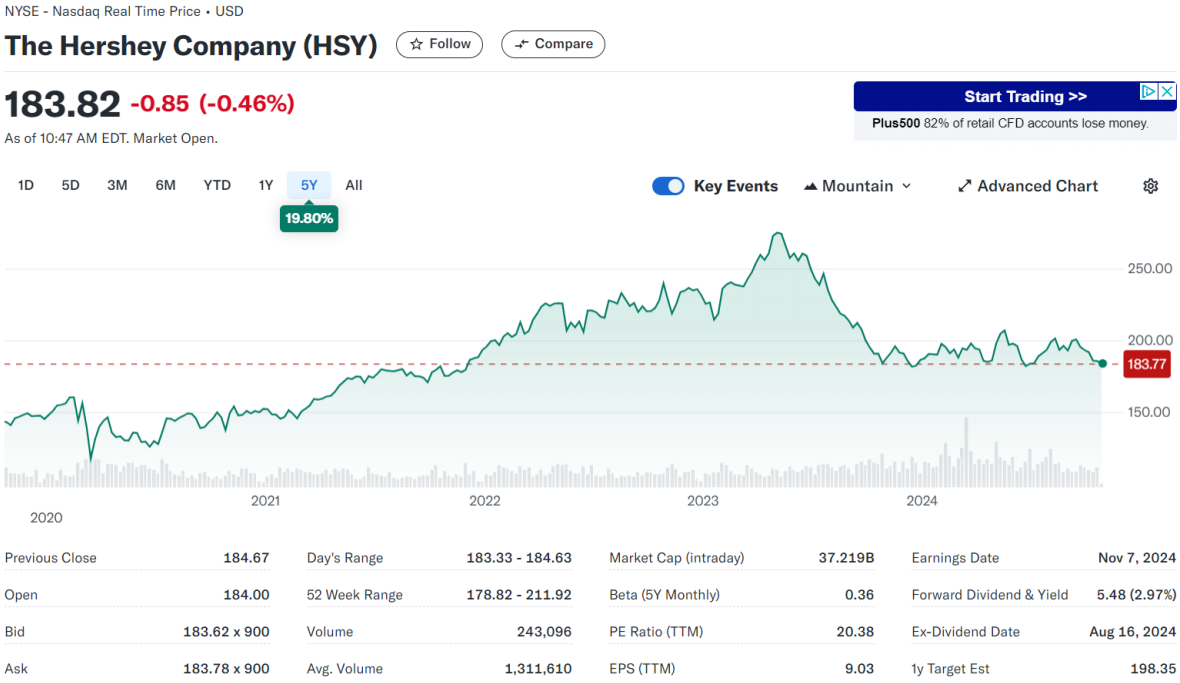
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Introduction: A Trusted Candy-Maker in the U.S. Market

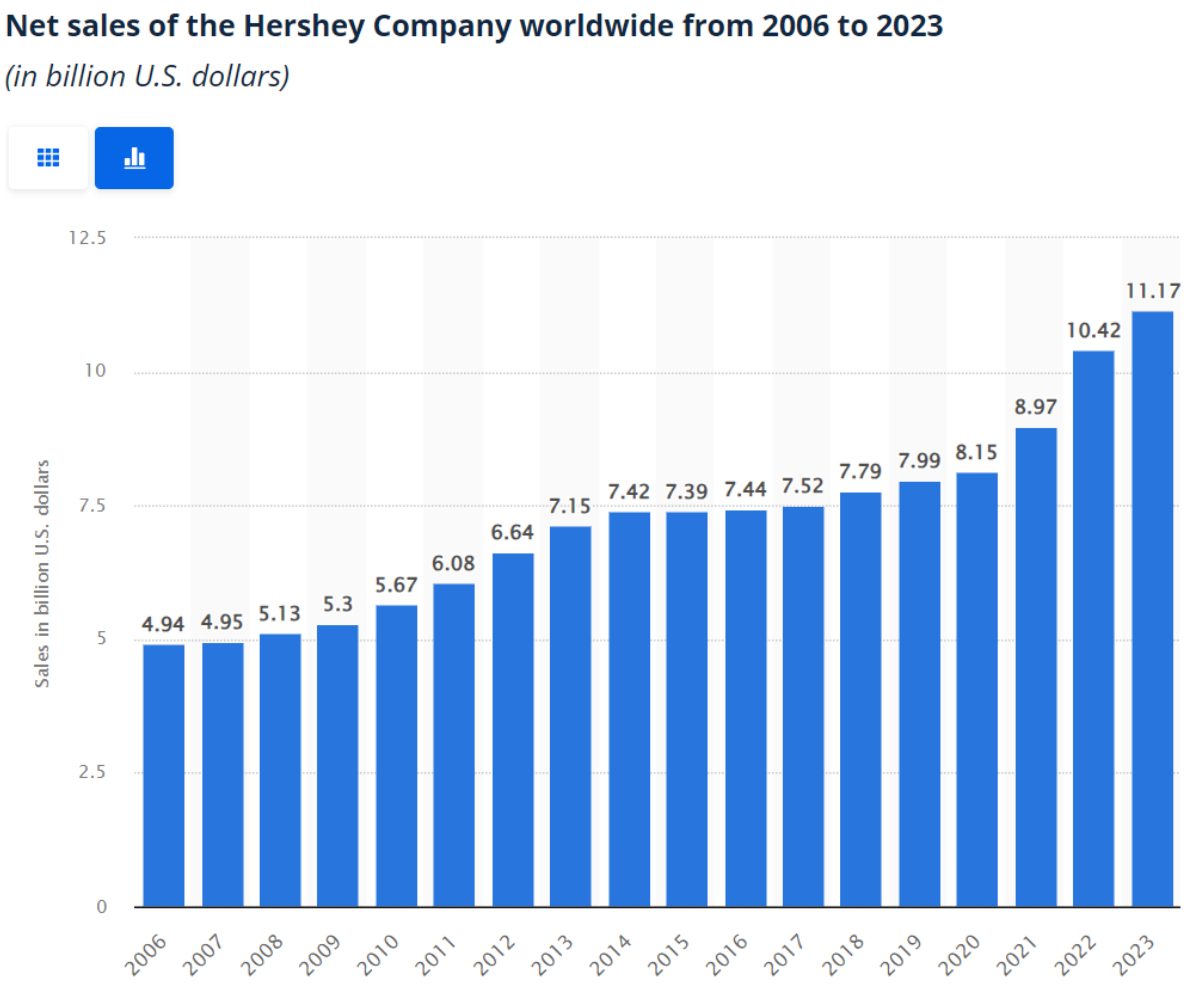
The U.S. legacy producer The Hershey Company offers a "*growing portfolio of delicious snacks to pair with every occasion. From indulgent treats to a boost of protein between meals, or a bag of popcorn to share during movie night, we love creating moments of goodness through our 90+ brands*."



Source: finance.yahoo.com

With 87.3% of consolidated net sales, the United States is HSY core regional market and, therefore, most of HSY's business falls under the litigious U.S. jurisdiction. (2023 10-K) The U.S. research company Circana estimates sales of about $4,752 million under the brands of Hershey's, Reese's, Almond Joy and Mounds alone for 52 weeks, ending on May 21, 2023. Thus, about 42.6% of HSY's total net sales are from these four brands alone of which we found 19 samples with heightened PFAS contamination. We tested these brands for HSY as the most relevant ones and as indicators for HSY's overall care about the PFAS issue in production. Given our results, we can assume that other HSY products are likely affected as well.

As the following chart shows, HSY is currently growing its net sales. That is why HSY's stock trades at a 20+ times earnings multiple, implying that investors expect further strong earnings growth.



Source: statista.com

HSY is a big player in total terms of the U.S. chocolate market. In December 2023, the Food Business News reports: "*Survey: Hershey, Campbell among 'most trustworthy' companies*". In a 2024 survey, Hershey's, KitKat and Reese's are ranked at the three top spots for leading chocolate and candy bar brands ranked by brand awareness in the United States.

In 2021, rumors emerged about a Berkshire Hathaway investment into HSY, which came never to fruition for undisclosed reasons. However, these rumors add additional credence to HSY's corporate processes.

The PFAS Issues and the Legal Environment

This chapter is an excerpt from an informative article by the NRDC (Natural Resources Defense Council).

A class of manmade chemicals known as PFAS—which stands for per- and polyfluoroalkyl substances—is part of what makes consumer goods water-, stain-, and grease-resistant. PFAS are also toxic at extremely low levels (i.e. parts per quadrillion), posing significant risks to our health. And if you're wondering why they're called "forever chemicals," it's because they are nearly indestructible.

PFAS have now been linked to a wide range of health risks in both human and animal studies—including cancer (kidney and testicular), hormone disruption, liver and thyroid problems, interference with vaccine effectiveness, reproductive harm, and abnormal fetal development.

Many of these problems, including kidney cancer and thyroid disease, turned up in the C8 studies, which monitored the health of about 69,000 people in West Virginia who were exposed to certain PFAS in their drinking water.

Now, scores of independent studies show PFAS can be toxic to adults and especially children, whose developing bodies are more vulnerable. Some PFAS have even been known to build up in a child before birth. Alarmingly, PFAS were detected in the breast milk, umbilical cord blood, or bloodstreams of 98 percent of participants in a National Health and Nutrition Examination Survey by the Centers for Disease Control and Prevention.

The U.S. Food & Drug Administration (FDA) banned three PFAS chemicals from use in food packaging in early 2016, but hundreds of their chemical cousins are still widely used. NRDC and our partners have since helped pass laws in California and New York that ban PFAS in paper-based food packaging, starting in 2023. Several other states have also taken action, but use may persist elsewhere.

There have been a series of important victories in the battle to curb the use of PFAS. This included the 2002 phaseout of U.S. production of PFOS as well as the 2015 phaseout of domestically produced PFOA. Companies like Home Depot and Lowe's have chosen to eliminate PFAS in their carpets and rugs.

In 2021, the EPA released its PFAS Strategic Roadmap, which laid out the agency's intentions to increase research into health impacts and put more pressure on PFAS manufacturers to limit pollution.

PFAS in Candy Packaging

We talked to several PFAS experts in the U.S. and E.U. to understand the case from a chemist's and legal perspective.

PFAS were commonly used until recently to make paper extra grease and water resistant in the food industry. In plastic and other foils, PFAS can be used to ease the unrolling of the foil in the production process. That is why the foil can be contaminated with PFAS from the production process.

However, using PFAS for food packaging made from plastic foil is unnecessary because plastic does not need to be extra resistant to grease or water. That is why the experts we interviewed were surprised about the high PFAS levels in HSY's wrappers. One E.U. expert summarized:

„5 mg/kg is not a little amount [for plastic candy wrappers] and to find this in packaging is somewhat surprising, I didn't expect this. The Problem is that we haven't tested this in the E.U. before and we have barely any comparison results from the European market."

For the U.S. market the situation is similar, all our U.S. contacts confirmed—everyone seems to expect PFAS are a non-issue in plastic candy wrappers and are surprised to find it at all.

An expert suggested that if PFAS is found in significant amounts in plastic foil wrappings, this is likely due to a lack of care in production processes or supply chains and not to deliberate coating intended to separate the candy from the foil.

The U.S. Food & Drug Administration, as of February 2024, does not authorize intended use of PFAS in candy wrappings anymore. The following is the FDA's summary of currently authorized PFAS usage. PFAS can enter the body over very different foods and liquids, and the FDA's regulation is aimed at minimizing human exposure to PFAS by prohibiting all technically avoidable contamination.

According to our understanding, the use of PFAS despite the ban must be authorized by the FDA via the Food Contact Notifications process. As of today, the Inventory of Effective Food Contact Substance (FCS) Notifications database does not show any authorization of PFAS use for HSY.

Authorized Uses of Food Contact Substances that Contain PFAS and Potential for Migration

Search:

Authorized & Intended Use	Molecular Structure of Substance & Product Manufacturing Process	Migration Potential Description
Non-stick applications on pots & pans	PFAS molecules are polymerized* (i.e., joined together to form large molecules) and are then applied to the surface of the cookware at very high temperatures, which tightly binds the polymer coating to the cookware.	The manufacturing process vaporizes off virtually all the smaller (i.e., migratable) PFAS molecules. The result is a highly polymerized coating bound to the surface of the cookware. Studies show negligible amounts of PFAS in this coating can migrate to food.
Rubber O-rings & gaskets used in food processing equipment	PFAS molecules are polymerized* and the resultant large molecules are further joined together (i.e., "crosslinked") to create a resin that is formed into parts such as sealing gaskets and O-rings, typically used in food processing equipment.	This process removes virtually all the smaller (i.e., migratable) PFAS molecules, resulting in negligible amounts of PFAS capable of migrating to food.
Manufacturing aids added to other food contact polymers	PFAS molecules may or may not be polymerized but are large molecules.	The amount of PFAS used as aids in the manufacture of other food contact polymers is so small that only negligible amounts can migrate to food from this use.
Grease-Proofers applied to fast-food wrappers, microwave popcorn bags, take-out paperboard containers, and pet food bags. *Note: As of January 2024, substances containing PFAS are no longer being sold into the U.S. market for food contact use as grease-proofers.*	PFAS molecules are not polymerized, but rather are attached to other non-PFAS polymerized molecules as smaller "sidechains" to form the final grease-proofing agent that is applied to the paper packaging. Grease-proofing agents are applied to paper/paperboard packaging at lower temperatures, which are not high enough to remove residual smaller (i.e., migratable) PFAS molecules.	Under certain conditions, the smaller PFAS "sidechain" can detach from the polymerized molecule. As a result, there is potential for PFAS to migrate to food at levels that may result in a potential safety concern.

Showing 1 to 4 of 4 entries

*Polymerized or large molecule PFAS are not absorbed by the human body when ingested.

Source: U.S. Food & Drug Administration

Small amounts of PFAS can migrate into food via the production process but producers should aim to minimize or eradicate such effects. The high amounts we found in the wrapper foil is unlikely to

have migrated back from the chocolate product, and if this would have been the case, this would obviously a much more alarming signal than just contaminated wrapper foil.

PFAS contamination in candy wrappers is not only an issue because of migration into the eaten candy but also by introducing PFAS into the recycling or waste disposable cycle, as well as contamination in nature by littering. If children lick or chew on the wrapper foil, they can be exposed to high amounts of PFAS.

The Hershey Company is Much Worse than Competitors

Given the legal landscape and prominent pledges by other U.S. household name companies, investors should assume that HSY is monitoring the PFAS issue despite not having issued a statement on the matter.

HSY issues an annual ESG report, with the latest version having 118 pages of content. Investors can read in the report that HSY is committed to "*the highest food safety and quality standards*." HSY presents its "*Product Excellence Program (PEP) takes a preventive approach to managing food safety and quality. It identifies food safety, product quality and regulatory opportunities at every stage of our value chain. This ensures Hershey products comply with all applicable laws and regulations and are manufactured under strict requirements*. (...) *The Quality Center of Excellence team oversees the PEP to ensure its rigorous controls, monitoring and auditing practices are applied throughout the value chain. The Global Regulatory team regularly monitors emerging regulations and industry practices so Hershey stays ahead*." (p. 15) HSY does not mention "PFAS," "PFOS," or fluorine anywhere in the ESG report, which could indicate that HSY does not have a dedicated process to monitor and eradicate PFAS contamination in their production and packaging process.

We commissioned four different labs to get reliable and independently replicated test results.

All labs had expert capabilities to measure either total fluorine amounts, which is a proxy indicator for the vast group of over a thousand molecules that are now banned under the newest PFAS regulation in the U.S., or to test for the most common PFAS compounds directly. Our lab experts told us that a test for fluorine is a reliable proxy for PFAS contamination in plastic wrappers for candy, which is supported by our test results. The labs do not want to see their name cited in publications to protect their business relations with producers.

One of the labs is a startup with a novel technology to mass test for fluorine, the other three labs are large and established test lab companies with dedicated units for PFAS testing.

Our name	**Lab location**	**Company type**	**Testing method**
Lab 1_Ger	Germany	Startup	Fluorine indication by light reflection spectroscopy on flattened, non-mirroring foil (wrapper inside)
Lab 2_Ger	Germany	Established lab giant	Fluorine indication by Ion selective electrode (DIN 13130-1) after Wickbold combustion (wrapper inside)
Lab3_US	U.S.A.	Established lab company	Counting the six most common PFAS molecules using a slightly modified EPA method 537.1 on ethanol solution after foil contact (both sides of wrapper)
Lab4_Ch	China	Established lab giant	Combustion ion chromatography

For testing, we purchased all samples from common retailers in the U.S. We used standard size portions, and, if available, in factory bulk packages, i.e. factory sealed. We imported U.S. retail sales product into Germany and China for testing.

We used Lab 1_Ger for indicative mass testing. Lab 1_Ger's method only works on flattened foils without mirror foil reflectivity. Some samples couldn't be tested for other technical reasons.

		maximum detected fluorine contamination			
Maker	**Product (U.S. Market)**	**Lab 1_Ger**	**Lab 2_Ger**	**Lab3_US***	**Lab4_Ch**
HSY	Reese's Peanut Butter Cup (foil)	*high fluorine*			
HSY	Reese's Peanut Butter Cup (cups)	*NT*		26.7 mg/kg	
HSY	Reese's Pieces	*NT*	19.5 mg/kg	22.9 mg/kg	23.4 mg/kg
HSY	Reese's Pieces (E.U. market)	*high fluorine*	81.5 mg/kg	*NA*	71.9 mg/kg
HSY	Hershey's Kisses (foil or little white flag)	*high fluorine*	15 mg/kg	13.5 mg/kg	*NT*
HSY	Hershey's Milk Chocolate bar	*indifferent*		17.2 mg/kg	
HSY	Hershey's Cookies'n'Creme bar	*NT*		11.7 mg/kg	
HSY	KitKat bar	*NT*	12 mg/kg		
HSY	Almond Joy/Mounds bar**	*indifferent*	14.5 mg/kg	13.9 mg/kg	33.2 mg/kg
HSY	Almond Joy/Mounds bar** (paper inlay)	*NT*			
Mars	Snickers bar	*no fluorine*			
Mars	Twix bar	*NT*			
Mars	Dove Dark Chocolate bar	*no fluorine*			
Nestlé	Nestlé Crunch bar	*NT*			
Ferrero	Butterfinger bar	*NT*		13.4 mg/kg	

empty cell = not detected at 10 mg/kg detection limit

NT = not testable with method, *NA* = sample not available (issue with logistics/customs)

* totals of the six most common PFAS molecules tested

** Almond Joy and Mounds come in apparently identical packaging foil. For logistical reasons, Lab 2_Ger received Mounds samples, Lab 1_Ger, Lab3_US and Lab4_Ch received Almond Joy samples

Due to the inhomogeneous contamination over different samples and production charges, not all HSY samples that were positive in one test were positive in another test. However, the significant signal in the data is that many HSY samples seem highly contaminated.

The most commonly occurring PFAS compounds are PFOA and PFOS. Among the over 1,000 PFAS compounds in use, these are the ones produced for decades in industrial processes. The occurrence of PFOA and PFOS might hint at unclean and outdated production processes. Our U.S. lab confirms that the elevated levels in HSY's product wrappers come from PFOA and PFOS.

Test of Packaging Foil with Direct Contact to Food by Lab3_US

Product	**Company**	**HFPO-DA**	**PFDA**	**PFHxS**	**PFNA**	**PFOA**	**PFOS**
Hershey's Milk Chocolate bar	HSY						17.2 mg/kg
Hershey's Cookies 'n' Creme bar	HSY					11.7 mg/kg	
Reese's Pieces	HSY	3.4 mg/kg		2.8 mg/kg	1.2 mg/kg	14.1 mg/kg	1.4 mg/kg
Reese's Peanut Butter Cups	HSY						
KitKat bar	HSY						
Hershey's Kisses	HSY						13.5 mg/kg
Almond Joy	HSY					3.1 mg/kg	10.8 mg/kg
Snickers bar	Mars						
Twix bar	Mars						
Dove Dark Chocolate bar	Mars						
Nestlé Crunch bar	Nestlé					1.5 mg/kg	3.1 mg/kg
Butterfinger bar	Ferrero						13.4 mg/kg

Empty cell = not detected at 1.4 mg/kg detection limit

Test of Other Packaging Components with Direct Contact to Food by Lab3_US

Product	Company	HFPO-DA	PFDA	PFHxS	PFNA	PFOA	PFOS
Reese's Peanut Butter Cups, paper cups	HSY	6.9 mg/kg	1.2 mg/kg	2.5 mg/kg	2.1 mg/kg	14.0 mg/kg	
Almond Joy, paper inlay	HSY						2.9 mg/kg

Empty cell = not detected at 1.0 mg/kg detection limit

PFOS and PFOA are popularly discussed as health hazards for decades with tightening legal guidelines since 2001, when a U.S. consumer class-action lawsuit about PFOA contamination in local drinking water was settled with $4 billion by DuPont, Chemours and Corteva.

Due to its particularly high fluorine content, we also tested the Reese's Pieces pouch for the E.U. market for the most common PFAS by Lab 2_Ger in an extra test. These resulted in no detection of PFOS and PFOA or any other of over a hundred PFAS molecules that the lab can identify and cover the most used PFAS molecules in the industry. Our expert commented the data as follows:

"*The results point to the use of uncommon PFAS. My personal presumption is [HSY] might have hoped that only specific PFAS get banned, and, therefore, uncommon PFAS are deliberately used to get around any ban and use the PFAS as long as possible (…)*

We saw this with other substances where structurally similar substitutes were used to get around a regulatory ban. A good example is Bisphenol A that was substituted by other Bisphenols that had very similar properties but were less researched and only later banned."

Are these uncommon and possibly less toxic than the common and more researched PFAS?

"*All kinds of PFAS are a potential danger for human beings. PFAS don't break down easily, and this should be the case for all uncommon PFAS as well, because this is the property that make them useful for the industry*."

Observing HSY's packaging closely, the company apparently spends an extra effort to optimize the value impression of its packaging, whereas other large candy makers show more apparent compromise in the aesthetics. For example, the most common Hershey's bar wrappers are extra brittle resistant and glossy. Some of Hershey's bars are wrapped in silverish reflective plastic foil on the inside. The Mars and Snickers wrappers, in comparison, are much thinner and feel less valuable to the touch.



Next to HSY's key brand Hershey's, its other very popular chocolate candy brand Reese's, uses very glossy, thick and slick feel foil for their key products' packaging which is most apparent in Reese's Pieces for the E.U. market.



The more premium appearance of Hershey's bars and Reese's products is also reflected in higher retail prices in comparison to the Mars brands Snickers and Twix.

Product	Company	U.S. Walmart online retail price (single standard serving unit, cheapest offer, price per 1 oz / 28.35 gram, on Oct 27, 2024)	Note
Hershey's Milk Chocolate bar	HSY	$0.85	
Hershey's Cookies 'n' Creme bar	HSY	$0.85	
Reese's Pieces	HSY	$1.33	Smallest available unit is 3 oz "king size" pack
Reese's Peanut Butter Cups	HSY	$0.88	
KitKat bar	HSY	$0.88	
Hershey's Kisses	HSY	$0.61	
Almond Joy	HSY	$0.82	
Snickers bar	Mars	$0.71	
Twix bar	Mars	$0.74	
Dove Dark Chocolate bar	Mars	$3.38	Smallest available unit is 2.88 oz pack of two
Nestlé Crunch bar	Nestlé	$0.93	Smallest available unit is 2.7 oz "share size"
Butterfinger bar	Ferrero	$0.78	

Thus, while HSY's brands are perceived as premium products, from a toxicological standpoint, HSY's products seem mostly much worse than Mars' products.

Risk for Brand Reputation

Following our PFAS revelations, we see a particularly unfavorable environment for HSY's reputational risk and business outlook.

a) HSY's brands are trusted household names. Customers expect a safe and secure product. HSY presents itself to investors as very ESG aware and has a list of ESG goals.

b) Children, as a consumer group, are over-proportionally exposed to HSY's products. Children are extra sensitive to health risks from PFAS. Parents who pay attention to health risks from toxins in their food might avoid HSY products.

c) HSY operates in a fiercely competitive market. The ease with which consumers can switch to other candy makers underscores the need for swift and decisive action.

d) Follow-up lawsuits regarding HSY's PFAS issues and the reporting of such lawsuits might add additional financial pressure and reputational risk.

Said the above, our PFAS experts did not expect immediate regulatory pressure to force a product recall by HSY of the currently affected product. HSY will have to decide how they react to our findings to mitigate reputational damage. The reason why we and the experts do not expect an immediate recall is that the levels we detect seem clearly worrisome and potentially dangerous but fall in between the measurements that were previously set before PFAS use was banned in plastic food packaging in some U.S. states (e.g. Californian Assembly Bill 1200) until 2024. A 2023 California set the limit at less than 100 ppm for natural-fiber (i.e. paper and cardboard) food packaging, while Denmark set a much lower regulatory limit of 20ppm; but these rules target natural-fiber packaging that actually require PFAS or alternative coating to function.

Litigation Risk

In the U.S. alone, PFAS polluting companies already paid $11.5 billion in fines and settlements, with many cases still outstanding. PFAS expert attorney Robert Bilott, who was instrumental in the $4 billion PFAS settlement case against Water company DuPont in 2021, estimates that PFAS-related

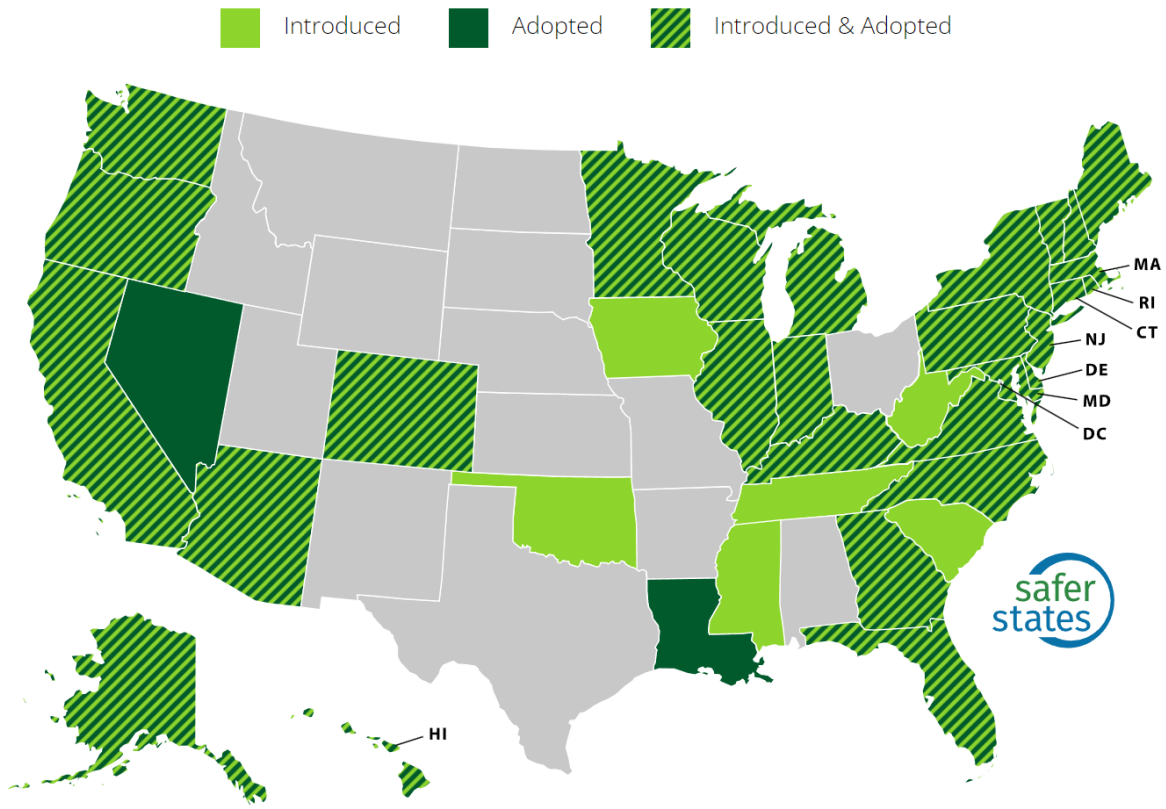
damages claims in total are *"potentially much larger in scope and scale [than the tobacco settlements of $200 billion]"*.

While the absolute levels of PFAS contamination that we found in HSY's candy wrappers are lower than those found in some anti-grease or anti-soak treated fast-food wrappers in use until 2022 and earlier, we see the need to emphasize that heightened PFAS in chocolate candy wrappers do not serve any direct function and are probably the results of lack of care in the production chain.

HSY is a very prominent, if not the most prominent, candy maker in the U.S., which can add additional litigation risk.

Compared to most recent cases of litigation against large corporations, in the case of HSY, products that make up the majority of total revenue for the company are very likely affected. The brands with heightened PFAS levels in their U.S. retail products represent 42.6% of HSY net sales and most of HSY's income. We believe further HSY products are very likely affected, as well. For comparison, Coca Cola is subject to a class action lawsuit in connection with its Simply Orange Juice brand. Simply generated $887 million in sales in 2023, representing less than 2% of Coca-Cola's total revenue. Another recent case about Trojan branded condoms affects brand owner Church & Dwight Co., Inc.'s business not very materially because Trojan is not among the company's "*power brands*" that "*represent approximately 70% of net sales and profits*" (annual report 2023, p. 1). While not disclosed by the company, based on independent market analysis, we estimate that Trojan provides about 17% of net sales for Church & Dwight Co.

The only line of defense we see for HSY is to question the migration into the eaten candy, but experts told us it is currently scientifically not predictable under what circumstances PFAS in foil migrate into the food it is in direct contact with. Nonetheless, there is a reason why PFAS are entirely banned from candy packaging since 2024.



Fast-moving introduction of PFAS policies. Map by saferstates.org

The Relevance for HSY's Stock Valuation

As a household name for U.S. consumers, customers expect HSY to be up to date on health threats from product packaging. We believe our revelations might not only be followed up further investigations and by class-action consumer lawsuits, but—which is even more relevant—by consumers potentially shifting away from HSY's products to competitors for health and safety reasons. Revelations about PFA contamination in HSY's product could lower consumer trust in the brand and leave a long-lasting dent in the brand.

Given the widespread contamination of HSY's product portfolio with heightened PFAS levels in products marketed to children, class-action claims could reach material sums for HSY. It is hard to quantify the exact impact at this point. Experts expect PFAS related issues will be settled for many billions of dollars in some cases. 3M previously settled PFAS related charges for $10.3 billion over 13 years.

The consistently higher PFAS levels we found in HSY wrappers compared to competing products hint at the possibility that HSY has weaknesses in their supply or production chain that need to be addressed and in one case even seems to use hard-to-detect PFAS compounds to get around tests and bans. We have requested information under FOIA from the FDA and other agencies related to HSY's production process. We believe the company should have interest in getting to the bottom

of the issues itself. It is at this point not clear what parts of the production and/or supply chain are affected and must be addressed to achieve products free of PFAS. There is also the potential that HSY's packaging design choices are inherently problematic and must be reworked. This could not only be costly but influence the premium perception of HSY's currently thick and glossy wrappers. We cannot exclude the possibility of a partial product recall.

We believe HSY has potentially a major scandal on its hands. There is a lot of uncertainty about the extent of the problems the company will face due to PFAS issues, and management's response will be crucial in mitigating long-term damage to the brand.

Having said that, we do not underestimate the long-term value of HSY and hope the company will address the issues and not try to sweep them under the rug. "Just a little bit cancerous" is in our opinion just not good enough when it comes to the safety for our children. We see a potential negative impact of up to 20% from a potential PFAS scandal. We sincerely hope that HSY can address, fix, and overcome its issues with toxic PFAS in its packaging and that the company will succeed in the long run.

Conclusion

We have done extensive testing with four different labs across three continents and found elevated PFAS levels consistently in HSY products but not in competitors' products. We have informed the relevant regulatory agencies of our findings, including but not limited to the U.S. Food and Drug Administration (FDA), U.S. Environmental Protection Agency (EPA), Consumer Product Safety Commission (CPSC), Agency for Toxic Substances and Disease Registry (ATSDR), and the Securities and Exchange Commission (SEC). We believe more independent and regulatory investigations are needed to address an issue that seems too important to ignore.

We want to reiterate that we sincerely hope that HSY can address, fix, and overcome its issues with toxic PFAS in its packaging and that this American brand will succeed in the long run.