



Coalition for Safer Food Processing & Packaging

TIME TO TAKE OFF THE TOXIC GLOVES

*How Harmful Chemicals in Some Food Service Gloves Threaten Consumers' Health
—and What Restaurants Can Do About It*



EXECUTIVE SUMMARY

Q: Dining out can expose you and your family to toxic industrial chemicals used in some food-handling gloves. Which gloves contain toxic chemicals that can escape into your meal?

The Coalition for Safer Food Processing and Packaging, a national alliance of public health nonprofits, sampled and tested 123 plastic food service gloves from 32 top glove distributors and 15 popular restaurant chains in the U.S. in order to answer that question.



Our Findings

- Toxic chemicals known as *ortho*-phthalates, many of which have been shown to harm reproductive health and brain development, are still used in some vinyl (PVC) food-handling gloves in the U.S., despite being highly restricted in Europe and Japan and recently banned by the state of Maine

- ⦿ **Over two-thirds** of fast food restaurants surveyed used vinyl gloves
- ⦿ **One out of seven** vinyl gloves tested contained phthalates
- ⦿ Some gloves from **McDonald's, Burger King** and **Wendy's** had phthalates
- ⦿ **One-third** of the top glove distributors sold some gloves with phthalates

Phthalates in Food Threaten Human Health

Phthalates exposure in utero is linked to genital malformations in baby boys, infertility later in life, and ADHD diagnoses in children,¹ and over 750,000 women of childbearing age are exposed to dangerous levels of phthalates each day in the U.S.²

For most Americans, food is the top route of phthalates exposure. Recent research also found that dining out, particularly dining out at fast food restaurants, is associated with higher levels of phthalates exposure.³

- Any vinyl glove may contain phthalates due to poor global supply chain management and lack of transparency—there is no way to know without screening each glove
- More than 30% on average of each vinyl glove (by weight) is made up of chemical softeners, such as phthalates or DOTP, which can leach into your meal during food handling
- The four phthalates found in vinyl gloves included DEHP, which is widely banned globally, and DINP, DIDP and DPHP, which are poor substitutes for DEHP because similar concerns have been raised about known or possible hormone disruption. Scientists are also raising early warnings about the common phthalate alternative, known as DOTP (or DEHT), which we found in 6 out of 7 vinyl gloves tested
 - ⦿ Widespread human exposure to DOTP is expected to steadily increase
 - ⦿ New research suggests that DOTP may be a hormone-disrupting chemical
- **Safer alternatives are widely available** such as frequent hand-washing with soap and water, and gloves made of polyethylene plastic, which has no chemical softeners
 - ⦿ At **Panera Bread** and **Subway**, we found only polyethylene gloves in use
 - ⦿ At **Starbucks**, four out of five gloves tested were made of polyethylene

Recommendations

Based on our findings, we strongly recommend that **U.S. restaurant chains should:**

1. Replace vinyl with polyethylene as the safest material for food service gloves
2. Adopt a safer food-contact chemicals policy based on food industry best practice
3. Take action to improve the sector's F grade in the annual [Retailer Report Card](#)

Further: **Grocery chains, school cafeterias** and **other institutions** should take similar actions to improve food safety from the use of plastic disposable food service gloves.



Introduction

Plastic pollution, hormone-disrupting chemicals, and food safety—all of these growing public concerns converge when one pauses for a moment to consider the ubiquitous food service gloves used by workers in every fast food restaurant, grocery deli, and school cafeteria.

Disposable plastic gloves are commonly used, but not always required, to reduce the spread of infectious disease-causing microbes from unsanitary surfaces or sick workers during food preparation. While preventing food-borne illness remains paramount, **the migration of toxic industrial chemicals into our food supply from materials used in processing, packaging and preparation represents another growing food safety issue.**

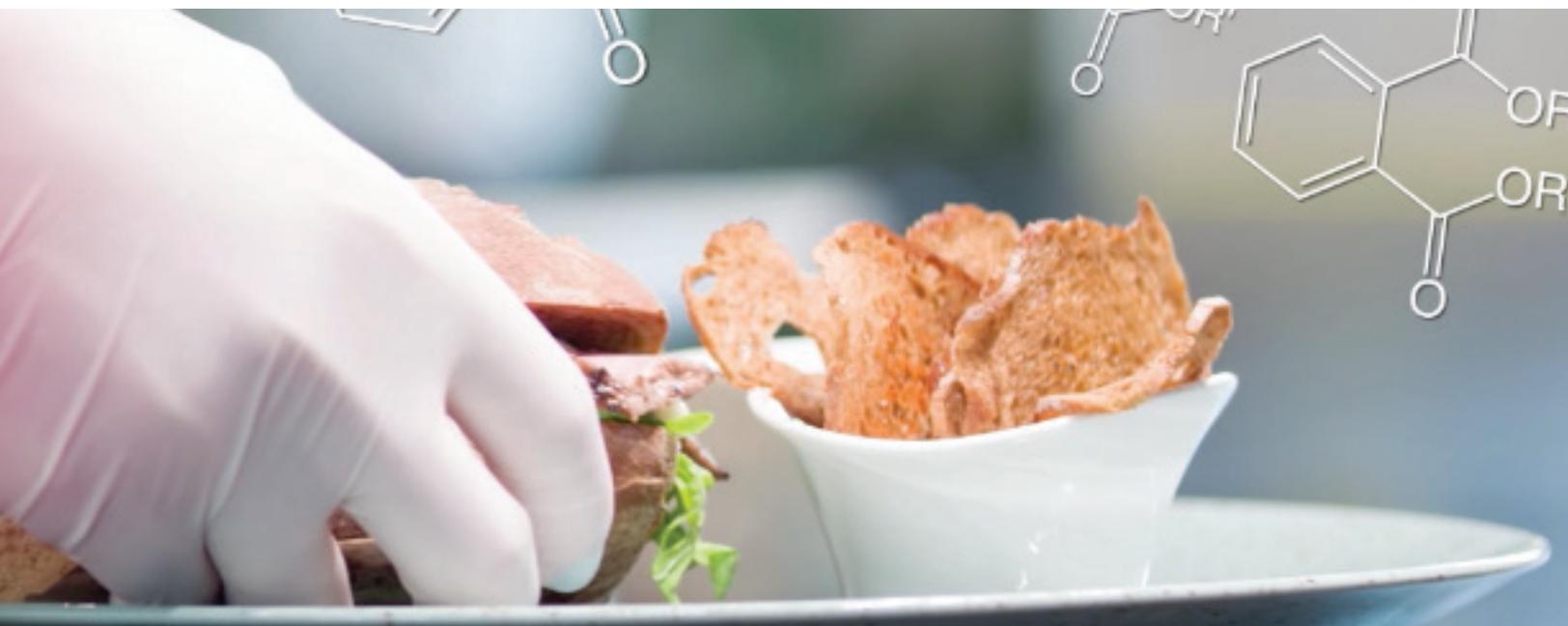
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Our Investigation

The Coalition for Safer Food Processing & Packaging investigated plastic disposable food service gloves as a source of human exposure to harmful industrial chemicals in our food supply. We acquired 123 food-handling gloves from 32 U.S. glove distributors (60 vinyl gloves) and from 15 major restaurant chains (63 gloves of various materials).

We tested the gloves to determine the type of plastic used and whether it contained toxic chemical additives that could escape from the plastic into food. We tested a total of 101 vinyl gloves for the presence of *ortho*-phthalates or other chemical plasticizers. We combed the scientific literature to compare what's known—and, importantly, not yet known—about the hazards of the plastics and chemicals used in food service gloves. Lastly, we focused on solutions—what can be easily done to prevent harm to human health by switching to the safest alternatives.

This document summarizes our investigation. To view our full technical report, including the full test results and the scientific literature reviewed, visit: <https://www.ecocenter.org/healthy-stuff/reports/vinyl-gloves-study-2019>





Growing Regulatory Pressure

Many phthalates are now banned or restricted from use in various products throughout the world and in states in the U.S.:

Europe:

Most products and food contact plastics

Europe and US:

Toys and childcare articles

Japan:

Food service gloves, other food contact materials

California:

Proposition 65 exposure warnings required

Maine:

Food gloves and food packaging (by January 1, 2022)

Despite strong scientific evidence and growing regulation, phthalates are still widely used to soften vinyl plastic and rubber. In the U.S., phthalates are still used for food contact in some plastic tubing, dairy inflations, conveyor belts, jar lids, bottle caps, and vinyl gloves.

Our Food Contact Chemical Safety System is Badly Broken

The U.S. Food and Drug Administration (FDA) still allows phthalates to be used in materials that come into contact with food through packaging and processing, a symptom of a badly broken chemical safety system. More than forty years ago, FDA permitted about 5,000 industrial chemicals to be used in food contact materials. But they've never looked back to reassess the chemicals' safety based on new scientific evidence or modern scientific principles. FDA fails to assess cumulative risk to health from exposure to similar chemicals, as required by law. They've also created a huge loophole that allows industry to self-certify that new food contact chemicals

are safe without even notifying the agency or the public. FDA lacks the political will, budget and Congressional mandate to protect Americans' health from food contact chemicals, yet reform of its sixty-year old on chemical food additives seems nowhere in sight.

That's why the burden is now on the food industry and its customers to drive food contact

chemical safety in the marketplace. With great power in the market, comes great responsibility.



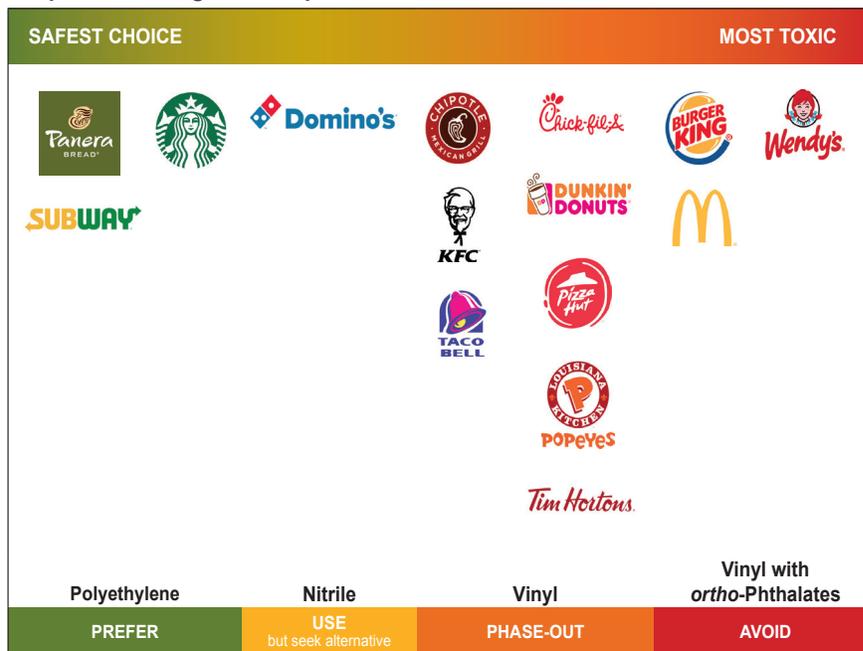
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Food Service Gloves Made of Vinyl—the Poison Plastic —Dominate the Market

Vinyl, or PVC plastic dominates the disposable glove market. Vinyl is widely known as the ‘poison plastic’ because it creates toxic chemical hazards across its lifecycle, including dangerous chemical additives that leach out of the plastic. Nearly two-thirds of the gloves sampled from top restaurant chains were made of vinyl. Twelve of fifteen of the top chain restaurants surveyed used at least some vinyl gloves.

Snapshot Ranking of the Top Restaurant Brands’ Gloves



NOTE: Number of restaurant locations visited: Panera = 1, Subway = 2, Starbucks = 4, Domino's = 1, KFC = 3, Taco Bell = 5, Chick-fil-A = 1, Dunkin' = 1, Pizza Hut = 1, Popeyes = 1, Tim Hortons = 1, Chipotle = 1, Burger King = 9, McDonald's = 15, Wendy's = 9. The findings presented in the table do not guarantee that all restaurant locations will be consistent. Two locations of KFC and Taco Bell were combined restaurants.



The Toxic Trouble with Vinyl

Toxic across its lifecycle, polyvinyl chloride (popularly referred to as vinyl, or PVC), releases toxic chemicals during its manufacture, use and disposal. Its production starts with deadly chlorine, which requires the use of asbestos, mercury or PFAS (per- and polyfluoroalkyl substances) depending on the technology. Two cancer-causing chlorinated chemicals are used to make PVC. Toxic chemical additives including plasticizers (softening agents) like phthalates and DOTP make up more than 30% of the vinyl glove by weight and readily migrate from the plastic during use and into food upon contact. Vinyl is practically non-recyclable and pollutes the environment from disposal in landfills and incineration, and from fires and illegal dumping. Burning PVC produces highly toxic chlorinated dioxins and furans as byproducts.⁴

Vinyl plastic gloves dominate the fast food restaurant market

Restaurant Glove Material		Gloves Sampled
Vinyl	Polyvinyl chloride (PVC)	40 (63%)
Poly	Polyethylene (PE)	20 (32%)
Nitrile	Nitrile butadiene rubber (NBR)	3 (5%)

Vinyl gloves were collected from 38 of 56 locations (68%) of 15 restaurant chains

We found that *ortho*-phthalates are still added to some vinyl food gloves, despite growing scientific concern about their health hazards and widespread government restrictions.

New concerns about the most common plasticizer chemical, a phthalate alternative

Our testing also found that most vinyl gloves contained DOTP, also known as DEHT, a newer plasticizer chemical introduced as a safer alternative to *ortho*-phthalates. However, new research suggests that DOTP may also be a hormone-disrupting chemical, a human health concern not yet fully investigated.⁵ Further, new biomonitoring research shows that every American is already exposed to DOTP, with the highest exposure among children.⁶ DOTP levels in people's bodies are expected to steadily increase in the years ahead as its use expands.⁷

Because any plasticizer is not chemically bound to the glove, DOTP will also migrate into food upon contact. And because of the documented widespread human exposure and data gaps on neurotoxicity and hormone disruption,⁸ DOTP also raises concern as a potentially health-harming chemical that should be avoided when safer alternatives to vinyl plastic are readily available, effective and affordable.

Any vinyl glove may have phthalates due to poor global supply chain management

We examined three years of U.S. trade data (from the Panjiva data service) and found that 32 U.S. glove distributors imported non-medical vinyl gloves, and each were supplied by an average of nine different foreign manufacturers. One distributor reported 21 different foreign suppliers. Of 41 identified vinyl glove manufacturers, all but one is located in Asian countries, mainly China.

Several distributors sold some vinyl gloves that contained phthalates and other gloves that did not. The same variability was seen in gloves obtained from the restaurant chains. Phthalates were found in some vinyl gloves from **McDonald's**, **Burger King** and **Wendy's**, but not in others.

Without screening every box of vinyl gloves for phthalates, restaurants and other users cannot rely on any assurances from their suppliers that their gloves are free of phthalates.

One-third of U.S. distributors sold some vinyl gloves with phthalates

Vinyl Glove Distributors	Vinyl Gloves with Phthalates	Vinyl Gloves Tested	# of Foreign Suppliers
Food Handler / Bunzl	3	6	10
Inteplast Group	2	4	11
Omar	2	8	n/a
Akers Industries	1	1	1
Gordon Food Service	1	1	n/a
Prime Source	1	1	4
AMMEX	1	3	6
511 Foodservice	1	3	2
AmerCareRoyal	1	7	13
Tronex Safety	1	10	n/a
22 Other Distributors	0	53	n/a
TOTAL: 32 Distributors	14	101	47



Recommendations

There is no way to ensure phthalates are not contaminating food through contact with vinyl gloves unless restaurants stop using vinyl gloves altogether. That's also the only way to prevent exposure to the phthalate replacement chemical, DOTP which may prove to be another hormone-disrupting chemical.

Attention all restaurants, grocery delis, school cafeterias and other food glove users:

When handling food, we recommend that you replace vinyl gloves with polyethylene gloves, a safer alternative that's widely available, effective, and affordable; or frequently wash one's hands with soap and water.

Ranking of Chemically Safer Choices for Food Contact Gloves

Glove material for food handling		ACTION	Rationale	Potential of Chemicals to Migrate	Hazards of Production Chemicals
1. NONE (no gloves)	Soap and water	PREFER (unless not allowed)	Frequent and proper hand washing with soap and water (and no antimicrobials) works.	LOW	LOW
2. Poly	Polyethylene (PE)	PREFER	In terms of chemical hazards, this is the best glove material across its lifecycle with a relatively low amount of additives.	LOW	LOW
3. Nitrile	Nitrile Butadiene Rubber (NBR)	USE (but seek alternative)	Nitrile is preferable to PVC and latex. However, polyethylene is preferable to reduce lifecycle hazards and prevent allergic reactions.	MED	MED to HIGH
4. Vinyl without Phthalates	Polyvinyl Chloride (PVC) with non-ortho-phthalate plasticizers	PHASE-OUT	Usually not possible to determine if gloves are phthalate-free. Also, alternative gloves eliminate exposure to all plasticizers and avoid life cycle impacts.	HIGH	HIGH
5. Latex	Natural rubber and treated natural rubber	AVOID	In some people, severe allergic reactions to latex proteins are life-threatening.	HIGH	NOT RATED
6. Vinyl with Phthalates	Polyvinyl Chloride (PVC) with ortho-phthalate plasticizers	AVOID	High hazards from a toxic class of chemical plasticizers and life cycle impacts.	HIGH	HIGH



The **Coalition for Safer Food Processing & Packaging** is a national alliance of nonprofit organizations concerned about human health, food safety, and social justice who are working together to persuade major food manufacturers to identify and eliminate phthalates and other chemicals of high concern from the American food supply.



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