

CHEMICALS COMMONLY FOUND IN PLASTICS ARE WIDELY DETECTED IN U.S. FAST FOOD

Fast food meals are convenient alternatives to cooking at home, but they should not contain harmful, industrial chemicals.



WHAT WE LEARNED FROM OUR STUDY

Fast food items from U.S. fast food restaurants contain detectable levels of phthalates and replacement plasticizers, chemicals commonly used to make plastics flexible. Additionally, replacement plasticizers were detected in food handling gloves, which were collected from the same restaurants as food items.

We detected 7 phthalates and 3 replacement plasticizers (10 of 11 total chemicals) in sampled foods, including fries, chicken nuggets, and cheese pizza. 64 foods were collected, 42 and 22 foods in phase 1 and 2, respectively.

- **81% (52 of 64)** and **70% (45 of 64)** of foods contained the phthalates di-n-butyl phthalate (**DnBP**) and di(2-ethylhexyl) phthalate (**DEHP**), respectively. Both of these chemicals have been linked to reproductive problems.
- Phthalates diisobutyl phthalate (DiBP), diisononyl phthalate (DiNP), and diethyl phthalate (DEP) was detected in at least **29% of foods**.
- **86% of foods (19 of 22)** contained the replacement plasticizer di(2-ethylhexyl) terephthalate (**DEHT**) a chemical not yet well-studied for adverse health effects.
- Generally, **foods containing meats**, such as cheeseburgers and chicken burritos, **had higher levels of chemicals**.
- **Chicken burritos** and **cheeseburgers** had the **highest levels of DEHT**, and **gloves** collected from the same restaurants also had **detectable levels of DEHT**.

WHAT ARE PHTHALATES?

Phthalates are a group of chemicals used in food packaging and food processing equipment. They are known to disrupt hormones in humans and are linked to a long list of health problems.

What are replacement plasticizers?

Replacement plasticizers, also known as non-phthalate plasticizers, are chemicals used in place of phthalates, since some phthalates have been banned from use in certain products. These chemicals are not well-studied, so it is unclear if they are linked to health problems.

How do these chemicals get into foods?

These chemicals, commonly added to plastics to make them softer and malleable, can migrate out of the plastics, such as food handling gloves, tubing, or conveyor belts, and get into the foods that we ingest.



OUR RESULTS IN CONTEXT

Phthalates and replacement plasticizers were widespread in prepared meals available at popular fast food restaurants, which means that people can easily be exposed.

We found the replacement plasticizer DEHT at high concentrations in certain foods and gloves. This means people are exposed to this chemical even though the chemical's impacts on human health remains poorly understood.

Certain racial/ethnic groups, like Non-Hispanic Blacks, are more likely to eat fast foods than others because of many factors, such as decades of racial residential segregation. This may lead to exposure inequities.

Although some phthalates are banned from toys and other products, these chemicals are still used in food packaging materials. Stronger regulations are needed to help keep all phthalates and replacement plasticizers out of our foods.

ABOUT THE STUDY

The study objective was to measure phthalate and replacement plasticizer concentrations in fast foods and food handling gloves from popular U.S. fast food restaurants.



We collected 64 fast food items from 6 different restaurants and 3 pairs of gloves from 3 restaurants.

Burger Chains

Cheeseburgers
Hamburger Patties
French Fries
Chicken Nuggets
+ 2 pairs of gloves

Pizza Chains

Cheese Pizza

Tex-Mex Chains

Chicken Burritos
+ 1 pair of gloves



We tested foods and gloves for 8 phthalates and 3 replacement plasticizers.

Phthalates

Di(2-ethylhexyl) phthalate (DEHP)
Di-n-butyl phthalate (DnBP)
Butyl benzyl phthalate (BBzP)
Dimethyl phthalate (DMP)*
Diisobutyl phthalate (DiBP)
Di-n-octyl phthalate (DnOP)
Diisononyl phthalate (DiNP)
Diethyl phthalate (DEP)

Replacement Plasticizers

Di(2-ethylhexyl) terephthalate (DEHT)
1,2-cyclohexane dicarboxylic acid diisononyl ester (DINCH)
Di(2-ethylhexyl) adipate (DEHA)

FOR MORE INFORMATION ABOUT THE STUDY:

Phthalate and Novel Plasticizer Concentrations in Food Items from U.S. Fast Food Chains: A Preliminary Analysis

<https://doi.org/10.1038/s41370-021-00392-8>

ADDITIONAL RESOURCES:

Safer Chemicals Healthy Families Factsheet

<https://saferchemicals.org/get-the-facts/toxic-chemicals/phthalates/>

Ecology Center Vinyl Gloves Study

<https://www.ecocenter.org/healthy-stuff/reports/vinyl-gloves-study-2019>

Zota et. al (2016)

<https://doi.org/10.1289/ehp.1510803>



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All restaurants located in San Antonio, Texas

*DMP was the only chemical not detected in any sampled foods