

With the significant increase in packaging for food delivery and take out, especially during and after the pandemic, one-time-use plastic packaging materials became widely used by merchants due to their low cost and high durability.

One-time-use plastic containers are made of fluorinated high-density polyethylene (HDPE). Fluorination of HDPE containers is the process of creating the high-performance barrier designed to reduce permeation through container walls and protect against degradation. During this process, PFAS compounds may be formed unintentionally.



*PFAS can be found in plastic containers like the one above.*

Results released from a study by the EPA in September of 2022, indicate that PFAS compounds present in the inside walls of the fluorinated HDPE containers can be readily leached into formulated liquid products. These results have much broader implications

concerning food, cosmetics, and many other consumer products using HDPE containers. The most recent non-binding health advisory by the EPA sets health risk thresholds for PFOA and PFOS to near zero. Some states in the USA have already passed a law banning the use of PFAS in food packaging.

In 2006, the European Union (EU) has set a regulation that the level of PFOS in finished products should not exceed 0.005 % of the product mass.

In China, the level of PFAS compounds (PFOS and PFOA) in food contact materials and products is regulated according to the latest National Food Safety Standard (GB 31604.35-2016). The detection limit is set at 1.0 ng/g while the quantification limit is set at 2.0 ng/g. A recent study analyzed a total of eight samples collected from different type of containers made of polyethylene, polystyrene, and polytetrafluoroethylene.

For accurate PFAS analysis, the isolation of interfering ions is crucial and can be achieved through a combination of chromatographic resolution, fast scan speeds, and High-Resolution Accurate Mass systems. The high-resolution MS/MS spectra can also be used for qualitative analysis by calculating the ion ratio for confirmation, thus reducing false positives by taking advantage of the data acquired on the LC-QTOF platform. Access the complete study, including method, technology, and results of this analysis, by clicking [here](#).

## Sources:

- EPA.gov - EPA PFAS Container Leaching Study (Aug 18, 2022)
- DTSC.ca.gov - Food Packaging Containing Perfluoroalkyl or Polyfluoroalkyl Substances, 2022
- Packaging Digest - How to Avoid Chemicals of Concern in Food Packaging
- Environmental Defense Fund - Beyond Paper: PFAS linked to common plastic packaging used for food, cosmetics, and much more, Aug 11, 2021
- FDA - Authorized Uses of PFAS in Food Contact Applications

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