

EPA's Human Health Toxicity Assessment for GenX Chemicals



In October 2021, the Environmental Protection Agency released a final human health toxicity assessment for GenX chemicals. This helps to advance the science around the health effects from GenX, a trade name for a synthetic chemical compound used in manufacturing nonstick coatings and for other purposes. The assessment is part of the EPA's PFAS Strategic Roadmap and a key step toward EPA developing a national drinking water health advisory for GenX chemicals in spring 2022. PFAS is an abbreviation for per- and polyfluoroalkyl substances.

What is a toxicity assessment?

A toxicity assessment is a report on the potential health effects of a chemical. The purpose of the report is to provide a comprehensive review of the available scientific literature and an analysis of the available data for that chemical. If there are sufficient data, toxicity assessments can provide information regarding health effects of concern and the dose of a contaminant that is associated with the identified health effects.

Scientists perform animal studies in laboratories to determine what dose causes what kind of response. A reference dose (RfD) is an estimate of the amount of a chemical a person can ingest daily over a lifetime (chronic RfD) or less (subchronic RfD) that is unlikely to lead to harmful health effects in humans.

What did the EPA's GenX toxicity assessment find?

The EPA's toxicity assessment reviewed available science, which included studies published after the North Carolina Department of Health and Human Services' (NCDHHS's) initial review of the science in 2017, and determined new GenX reference dose. The EPA's GenX chronic RfD is lower than the NCDHHS GenX chronic RfD that was used to calculate the provisional drinking water health goal in 2017. Since then, new studies have generated more data about the health effects of GenX which contributed to the EPA's lower RfD.

Is NCDHHS going to revise the provisional drinking water health goal?

In July 2017 NCDHHS set a provisional drinking water health goal of 140 parts per trillion for GenX in drinking water after contamination was discovered in the Cape Fear River from the Chemours Fayetteville Works facility. This drinking water health goal was developed by NCDHHS in the absence of a federal drinking water regulation for this compound.

Because EPA is planning to release a national drinking water health advisory for GenX chemicals in spring 2022, NCDHHS does not plan to update the provisional drinking water health goal of 140 parts per trillion for GenX at this time. A revised state provisional drinking water health goal would undergo review by the Secretaries' Science Advisory Board (SSAB), which would likely be completed around the same time as the release of the EPA health advisory. The SSAB was set up in 2017 by the secretaries of NCDHHS and the NC Department of Environmental Quality (NCDEQ) to examine new and emerging chemicals and their potential impacts to human health and the environment. NCDHHS will continue to work with EPA and NCDEQ to address health concerns related to PFAS exposure.

Is GenX more toxic than other PFAS?

Not necessarily. The current chronic RfD for GenX chemicals is lower than the current chronic RfDs for two common PFAS: PFOA and PFOS. The EPA is currently reviewing the toxicity of both PFOA and PFOS. It is possible that EPA's review may result in lower RfDs for each compound. It would be more appropriate to compare the GenX RfD to the updated assessments for PFOS and PFOA when they become available.

What is a drinking water health advisory?

Health advisories provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. These health advisories include recommendations to address and reduce exposures to a contaminant. Drinking water health advisories are not regulatory drinking water standards or enforceable limits.

Historically, drinking water health advisories include:

- The levels of concern for a contaminant,
- Whether people might be exposed to contamination and how they might come into contact with it (breathing, drinking, eating),
- What harm the substance might cause to people (the toxicity), and
- Whether working or living near the site might affect people's health.

The GenX chemical toxicity assessment was a first step toward EPA developing a national drinking water Health Advisory for GenX chemicals, which EPA has committed to publishing in Spring 2022.



Where can I get more information?

To view the final GenX chemicals toxicity assessment, EPA's response to public and peer review comments, and other related information on GenX chemicals, go to:
www.epa.gov/chemical-research/human-health-toxicity-assessments-genx-chemicals.

To view the EPA's PFAS Strategic Roadmap, go to:
www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024.

To review NCDHHS materials on GenX in the lower Cape Fear River basin, go to:
https://epi.dph.ncdhhs.gov/oe/a_z/genx.html.

