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Perfluorinated Alkyl Substances (PFAS) in Drinking water in Israel:

Results of the Second Survey

January 2024

Abstract

Per- and polyfluoroalkyl substances (PFAS) are used in a wide array of applications. These compounds are very persistent in the environment and can be transported long distances from the site of contamination. Epidemiological studies have shown that PFAS accumulates in biological tissue and can cause a range of adverse health effects including effects on pregnancy and fetal development, increased risk of kidney and testicular cancer, immunotoxic effects, and increased cholesterol.

These compounds have been found in recent years in water sources globally. The Drinking Water Standards in Israel from 2013 do not include a guideline value for PFAS in drinking water. However, the Drinking Water Advisory Committee recommended that the Ministry of Health adopt the Health Canada Standard, which includes guideline values for PFOA and PFOS, and a sum of ratios value of 1. The Ministry of Health adopted the recommendation. In 2022, the Drinking Water Advisory Committee recommended adopting a stricter guideline value (from the EU Drinking Water Directive) and the Ministry of Health adopted the recommendation. The new guideline value for PFAS in drinking water will enter into force in Europe and in Israel in January 2026.

In March 2022 the Ministry of Health published a report summarizing results of a survey on PFAS in 100 drinking water wells. The survey focused on areas with suspected PFAS contamination. Following the first survey, the Ministry of Health decided to expand the survey and measure PFAS in 200 additional drinking water wells.

Nine PFAS compounds were measured in 2023 in the current survey, in 192 drinking water sources in Israel, with broad geographical coverage. Out of 192 sources that were tested, 17 had PFAS concentrations above the reporting limit. Throughout 2023, and beyond the survey, additional drinking water wells were tested for PFAS due to their proximity to wells with known contamination or in the framework on ongoing monitoring of contaminated wells.

To date, the Ministry of Health laboratory has tested 322 drinking water sources (over 40% of active drinking water wells) for PFAS. PFAS compounds have been detected in 41 drinking water wells, and the compounds found in highest concentrations are PFOS and PFHxS.

Following the survey results, the Ministry of Health deemed water from one well unsuitable for human consumption (Rosanman well in Rechovot), this in addition to two wells which were deemed in the past as unsuitable for human consumption (in Kiryat Haim and in Caesarea). In additional wells, the water supplier discontinued or reduced supply of the water in light of the survey results. To date, over 35 drinking water wells are required to conduct routine monitoring for PFAS (quarterly or annually depending on PFAS concentration). PFAS concentrations in 13 wells exceed the new PFAS standard of 100 nanogram/liter, which will enter into force in 2026. These wells will supply drinking water only on the condition that the water undergoes treatment to remove the PFAS compounds. There are several treatment technologies for removing PFAS compounds from drinking water, including active carbon, ion exchange and desalination.

The Ministry of Health will continue to monitor concentrations of PFAS in drinking water wells in Israel and will continue to advance effective treatments for contaminated drinking water. The Ministry of Health is currently updating the drinking water standards to include a guideline for PFAS; is developing analytical capacity to measure additional PFAS compounds in drinking water; and is committed to global regulatory developments regarding both guideline values for PFAS and treatment facilities- all in order to prevent potential risk to public health.