

PPI STATEMENT AA

PFAS Chemicals and Plastic Piping for Potable Water Transport

August 30, 2023

For over 70 years, the Plastics Pipe Institute (PPI) and our members have been dedicated to promoting the safe use of plastic piping systems. In doing so, a commitment to health and safety has always been our highest priority. Working with nationally accredited third-party certifiers (such as NSF International), plastic pipe and fitting producers in the potable water industry demonstrate compliance with drinking water requirements and earn certifications showing that their materials and finished products satisfy the requirements of nationally recognized health standards such as the Safe Drinking Water Act (SDWA) (www.epa.gov/sdwa) and those of Health Canada.

Plastic piping is extensively used for a wide variety of potable water service, distribution, and transmission applications, including hot- and cold-water plumbing. This PPI Statement addresses the risk of per- and polyfluoroalkyl substances (PFAS) water contamination originating from piping materials Polyethylene (PE), Polyethylene of Raised Temperature Resistance (PE-RT), Polypropylene (PP), and Chlorinated Polyvinyl Chloride (CPVC) used in potable water transport applications.

PFAS refers to a class of over 4,000 chemicals with multiple fluorine atoms attached to a carbon backbone (i.e., C-F). They are often referred to as “forever chemicals” due to their environmental persistence. These chemicals have been used historically in a wide variety of consumer and industrial products, including, but not limited to, stain-resistant clothing and carpeting, non-stick cookware, automotive components, pharmaceuticals, and fire-fighting foams.ⁱ Some PFAS chemicals have been shown to be persistent and bioaccumulate in the environment due to the stability of the carbon-fluorine bond. The U.S. EPA has indicated that exposure to certain PFAS chemicals could result in a variety of adverse health effects.ⁱ

The EPA has recently initiated the process to regulate six specific PFAS chemicals in drinking water.ⁱⁱ Water utilities are expending significant resources to improve their water treatment processes to remove these PFAS chemicals from the drinking water they supply.

ⁱ See National Institute of Environmental Health Sciences website: [Perfluoroalkyl and Polyfluoroalkyl Substances \(PFAS\) \(nih.gov\)](https://www.niehs.nih.gov/health/topics/agents/perfluoroalkyl-and-polyfluoroalkyl-substances/).

ⁱⁱ The six PFAS chemicals referred to in this statement are those proposed for EPA regulation in potable water: PFOA, PFOS, PFNA, PFHxS, PFBS, GenX chemicals ([Per- and Polyfluoroalkyl Substances \(PFAS\) | US EPA](https://www.epa.gov/chemical-research/per-and-polyfluoroalkyl-substances-pfas-us-ea)).

Based on a survey of PPI member companies producing piping and fitting materials and to the best of our knowledge, PPI does not believe that the six PFAS chemicals identified in the recently proposed EPA National Primary Drinking Water Regulation (NPDWR), docket EPA-HQ-OW-2022-0114, are intentionally added to PE, PE-RT, PP, or CPVC plastic piping materials used in potable water transport, water distribution, or plumbing.

Additionally, research by G. Ruta *et al.*, published in Journal of the Australian Water Association, concluded "..., that permeation of undamaged PE and PVC pipe by PFAS is unlikely. This tends to be supported by the six-month laboratory exposure trial of HDPE to potential permeation by 29 PFAS compounds."ⁱⁱⁱ

The plastic piping industry is highly regulated within USA and Canada, with systems of codes, standards and third-party certifications which are extremely rigorous with regards to pipe materials (ingredients), production controls and finished products. Related to drinking water safety, all plastic pipe, tubing, fittings, and system components must comply with federal regulations. NSF/ANSI/CAN 61 Drinking Water System Components - Health Effects is the legally recognized national standard in the United States and Canada for evaluating the human health effects of drinking water materials, components, and devices, and which ensures that approved materials are safe for drinking water. Through these certification processes, certifiers review materials used in pipe, fittings, and tubing formulations, and confirm the safety of these products through frequent unannounced plant inspections.

Plastic piping systems are designed to provide safe, reliable supply of drinking water without the historic problems of corrosion, leakage, mineral build-up, release of metallic elements into drinking water, or any combination thereof, which may otherwise affect the water quality for the end consumer. Plastic piping systems are specified by engineers for their performance and are chosen by utilities, designers, contractors, builders, plumbers and homeowners for their demonstrated reliability and safety.

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ⁱⁱⁱ Ruta, G., McNanemin, A., and Jayaratne, A. H. R. "Are PFAS an issue for permeation of plastic water pipes?" Water e-Journal (2019), Online Journal of the Australian Water Association, Vol. 4, No.3, 2019, <https://doi.org/10.21139/wej.2019.021> - [Link](#).