

## **INFLUENCE OF PERFLUOROOCANOIC ACID ON HEALTH**

Perfluorooctanoic acid (PFOA) —also known as C8—is a perfluorinated carboxylic acid produced and used worldwide as an industrial surfactant in chemical processes and as a material feedstock, and is a health concern and subject to regulatory action and voluntary industrial phase-outs.

PFOA is used for several industrial applications, including carpeting, upholstery, apparel, floor wax, textiles, fire fighting foam and sealants. PFOA serves as a surfactant in the emulsion polymerization of fluoropolymers and as a building block for the synthesis of perfluoroalkyl-substituted compounds, polymers, and polymeric materials. PFOA has been manufactured since the 1940s in industrial quantities. The stability of PFOA is desired industrially but is a cause of concern environmentally.

A study of workers living near a DuPont Teflon plant found an association between PFOA exposure and two kinds of cancer as well as four other diseases. PFOA has been detected in the blood of more than 98% of the general US population in the low and sub-parts per billion (ppb) range, and levels are higher in chemical plant employees and surrounding sub-populations.

As a result of a class-action lawsuit and community settlement with DuPont, three epidemiologists conducted studies on the population surrounding a chemical plant that was exposed to PFOA at levels greater than in the general population. Studies have found correlation between high PFOA exposure and six health outcomes: kidney cancer, testicular cancer, ulcerative colitis, thyroid disease, hypercholesterolemia (high cholesterol), and pregnancy-induced hypertension

In 2006, the eight major US companies in chemical industry agreed to significantly reduce production of PFOA and associated compounds by 2010, and work toward elimination by 2015 under a voluntary agreement with the US Environmental Protection Agency.

Recently, the UN committee of the Stockholm Convention on the Persistent Organic Pollutants went one step further and recommended a total global ban on the manufacture and use of both PFOA and PFOS. It was introduced at the meeting of the Convention in 2019 and bound in all 181 countries, plus the European Union member states.