

PFBS and Drinking Water

PFBS

Perfluorobutane sulfonate (PFBS) is one of a group of related chemicals known as perfluorochemicals (PFCs). These are also called perfluorinated alkylated substances (PFAS). This group of chemicals is commonly used in non-stick and stain-resistant consumer products, food packaging, fire-fighting foam, and industrial processes.

PFBS has been used as a surfactant in industrial processes and in water-resistant or stain-resistant coatings on consumer products such as fabrics, carpets, and paper.^{1,2} The 3M Company has been a major manufacturer of PFBS and products containing PFBS.

PFBS in Minnesota Waters

The Minnesota Pollution Control Agency (MPCA) has detected PFBS in Minnesota rivers that have been tested for PFCs. Most test locations were downstream from towns or cities and may be influenced by wastewater discharged into the river.^{3,4,5}

PFBS has been detected in private drinking water wells and public drinking water systems in several parts of Minnesota where known industrial use or disposal of PFBS occurred in the past. PFBS has been detected in sources of public drinking water at levels up to 0.3 ppb.⁶ MDH and MPCA routinely sample affected areas for PFBS and related chemicals.

MDH Guidance Value

Based on available information, MDH developed a guidance value of X.XX ppb for PFBS in drinking water. MDH guidance values are developed to protect people who are most vulnerable to the potentially harmful effects of a contaminant. A person drinking water at or below the guidance value would be at little or no risk for harmful health effects.

Potential Health Effects

In laboratory animal studies, effects of PFBS exposure included blood effects such as decreased hemoglobin and hematocrit, cellular changes to the kidney and liver, and increased liver weight. Other effects of PFBS exposure included delayed developmental milestones and changes in red blood cell counts. Studies of PFBS in people are lacking.

Potential Exposure to PFBS

You can be exposed to PFBS if you use products containing PFBS or treated with stain-resistant coatings containing PFBS. Unlike many other PFCs, PFBS does not build up in the body over time.

For people living in areas affected by PFC release or disposal, drinking water may be a major source of PFBS exposure. Reverse osmosis and activated carbon filter treatment systems can reduce the levels of PFBS in drinking water in your home.

**Exhibit
3747**

State of Minnesota v. 3M Co.,
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Some PFCs transfer from a mother to infant during pregnancy and to an infant through breastmilk. Breastfeeding is important for the short and long term health of both a mother and infant. MDH recommends that women currently breastfeeding, and pregnant women who plan to breastfeed, continue to do so. Exclusive breastfeeding is recommended by doctors and other health professionals. If formula is used by those living in affected areas, it should be prepared only with treated or bottled water.

PFBS in the Environment

PFBS is persistent in the environment, meaning it does not break down easily in soil or water. Like other PFCs, PFBS can enter groundwater and move with the flow of groundwater, but it can also bind to soil and sediment.

Health Risk Assessment Unit

The MDH Health Risk Assessment Unit evaluates the health risks from contaminants in drinking water sources and develops health-based guidance values for drinking water. MDH works in collaboration with the Minnesota Pollution Control Agency and the Minnesota Department of Agriculture to understand the occurrence and environmental effects of contaminants in water.

References

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4. Minnesota Pollution Control Agency (MPCA). 2008. "PFCs in Minnesota's Ambient Environment: 2008 Progress Report." Retrieved from <https://www.pca.state.mn.us/sites/default/files/c-pfc1-02.pdf>. Accessed April 2017.
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6. Minnesota Drinking Water Information System (MNDWIS). 2017. Accessed by MDH staff April 2017.

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