

Venlafaxine and Desvenlafaxine and Drinking Water

Venlafaxine and desvenlafaxine are contaminants that have been found in waters that could be used as drinking water sources in Minnesota. The Minnesota Department of Health (MDH) developed health-based guidance values for venlafaxine and desvenlafaxine in drinking water and, based on these values and levels found in surface water, does not expect potential levels of venlafaxine or desvenlafaxine in drinking water will harm Minnesotans.

What are venlafaxine and desvenlafaxine?

Venlafaxine and desvenlafaxine are prescription medications used to treat depression. Venlafaxine is sold under the brand name Effexor, as well as in generic forms, and is one of the most widely prescribed antidepressant medications. Desvenlafaxine is sold under the brand names Pristiq and Khedezla, in addition to some generic forms.¹

Have venlafaxine and desvenlafaxine been found in Minnesota waters?

Several studies have detected venlafaxine in wastewater and surface water in Minnesota. The Minnesota Pollution Control Agency (MPCA) estimates that approximately 5 percent of stream miles in Minnesota have detectable levels of venlafaxine, with levels up to 0.34 parts per billion (ppb).² Venlafaxine has only been looked for in groundwater in a single study and it was not detected.³

Desvenlafaxine was detected at low levels (0.02 ppb) in the Mississippi River in one study.⁴

What is the MDH guidance value for venlafaxine and desvenlafaxine in drinking water?

Based on available information, MDH developed a guidance value of 10 ppb for venlafaxine and 20 ppb for desvenlafaxine in drinking water. A person drinking water at or below the guidance values would have little or no risk of health effects.

Can venlafaxine and desvenlafaxine in drinking water affect my health?

Exposure to drinking water containing higher levels than the guidance values may cause adverse health effects. Venlafaxine and desvenlafaxine have beneficial antidepressant effects on the nervous system. However, even the lowest prescription doses are associated with some adverse effects including tremor, dizziness, sweating, blood pressure effects, constipation and decreased male sex drive and erectile dysfunction. Effects on newborns exposed during pregnancy include effects on the lungs, breathing and seizures.

At a Glance

Venlafaxine is...

- a prescription medication used to treat depression, sold under the brand name Effexor.

Desvenlafaxine is...

- a prescription medication used to treat depression, sold under the brand names Pristiq and Khedezla.

Venlafaxine and desvenlafaxine enter your body from...

- taking certain antidepressant medications in which these are the active ingredients.

Your environmental impact can be reduced by...

- disposing of expired or unused medications properly.⁶

Venlafaxine and desvenlafaxine in drinking water are safe if...

- the levels are at or below the MDH guidance value of 10 ppb for venlafaxine and 20 ppb for desvenlafaxine.

How am I exposed to venlafaxine and desvenlafaxine?

The most significant exposure to venlafaxine and desvenlafaxine is when they are taken as prescription medications. Both medications have been found in breast milk when nursing mothers are taking them. The Food and Drug Administration (FDA) indicates a potential for adverse reactions in nursing infants. Nursing mothers and their doctors should discuss options to stop nursing while using the drug or to stop using the drug while nursing.⁵

Venlafaxine and desvenlafaxine have been found in surface water that is used as a source of drinking water at levels below MDH guidance values. Neither venlafaxine nor desvenlafaxine have been looked for in finished drinking water.

How can I safely use products containing venlafaxine or desvenlafaxine?

As prescription drugs, venlafaxine and desvenlafaxine have health benefits for people who use them. Always read the prescribing information or package inserts for more information when you pick up medicines from your pharmacy. Discuss any concerns with your doctor or pharmacist.

How do venlafaxine and desvenlafaxine get into the environment?

When a person takes venlafaxine or desvenlafaxine, a small portion of the dose is not used by the body and leaves the body in the urine. Wastewater treatment is not able to remove all of the venlafaxine or desvenlafaxine. Contaminants enter the environment when treated wastewater is released into rivers or streams.

What are the potential environmental impacts of venlafaxine and desvenlafaxine?

Limited studies show that venlafaxine may cause harm to fish, snails, and plants living in streams impacted by wastewater. Venlafaxine may adversely affect fish behavior and may disrupt normal endocrine function at concentrations detected in Minnesota waters. There is less information available for desvenlafaxine.

What Minnesotans need to know...

Venlafaxine and desvenlafaxine are prescription medications used to treat depression. Any amount that is not used by the body is eliminated in urine. Wastewater treatment does not remove all venlafaxine and desvenlafaxine. When treated wastewater is released into the environment, venlafaxine and desvenlafaxine can enter surface water sources that may be used for drinking water. MDH's guidance values ensure that we will know the health risks if venlafaxine or desvenlafaxine are found in Minnesota drinking water.

For more information contact:

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The Contaminants of Emerging Concern (CEC) Program...

Evaluates health risks from contaminants in drinking water and develops drinking water guidance. 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.

References

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