

## Fluoxetine Screening Profile

*Fluoxetine is a contaminant that may be present in potential drinking water sources in Minnesota. The information in this profile was collected for the screening process of the Minnesota Department of Health's Contaminants of Emerging Concern (CEC) program in September 2011. The chemicals nominated to the CEC program are screened and ranked based on their toxicity and presence in Minnesota waters. Based on these rankings, some chemicals are selected for a full review. CEC program staff have not selected fluoxetine for a full review.*

### Fluoxetine Uses

Fluoxetine is a pharmaceutical used to treat depression, as well as psychiatric disorders such as obsessive compulsive disorder, bulimia, and panic disorder. Fluoxetine is commonly known by the brand names PROZAC® and SARAFEM®.

### Fluoxetine in the Environment

Fluoxetine enters the environment when excreted from people taking the medication or when unused medication is disposed of through the toilet or sink. One way to reduce fluoxetine in the environment is to dispose of unused medication properly. Follow the recommendations from the Minnesota Pollution Control Agency (MPCA) for disposing of unwanted medications.<sup>1</sup>

Fluoxetine has been detected in treated wastewater in Minnesota at a maximum concentration of 0.076 parts per billion (ppb), and in surface water at up to 0.044 ppb.<sup>2</sup> Fluoxetine is likely to move into soil or sediment after entering the environment. It has been detected in sediment samples taken in Lake Superior, but not in 11 other Minnesota lakes tested by MPCA.<sup>3</sup>

Fluoxetine may be harmful to fish and other aquatic life.<sup>4,5</sup> The potential for fluoxetine to build up in tissues of fish, plants, or other wildlife is unlikely.<sup>6</sup>

### Exposure to Fluoxetine

Exposure to fluoxetine may occur through drinking contaminated water or taking medication that contains fluoxetine. Because fluoxetine is excreted in breastmilk, nursing while on fluoxetine is not recommended.<sup>7</sup>

### Potential Health Effects

Fluoxetine may cause changes in hormone levels and changes in mental state, even at therapeutic doses.<sup>7</sup>

MDH developed a pharmaceutical water screening value of 0.2 ppb for fluoxetine in drinking water using a rapid assessment methodology.<sup>3</sup> Concentrations at or below this level are unlikely to pose a health risk.<sup>3</sup>

Based on the screening assessment, a full review of fluoxetine may be possible; however, it ranked lower than other nominated CEC chemicals at this time.

### References

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4. MPCA Statewide Endocrine Disrupting Compound Monitoring Study 2007 – 2008. 2010. <http://www.pca.state.mn.us/index.php/view-document.html?gid=10280>
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6. Oakes KD, Coors A, Escher BI, et al. Environmental risk assessment for the serotonin re-uptake inhibitor fluoxetine. *Integr. Environ. Assess. Manage.* 2010 July;6(S1):524–39. <http://onlinelibrary.wiley.com/doi/10.1002/ieam.77/abstract>
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# Contaminants of Emerging Concern Program

## Chemical Review Process

The Contaminants of Emerging Concern (CEC) program investigates the potential health concerns of contaminants of emerging concern in drinking water. This investigation includes a rapid assessment ('screening') to prioritize nominated chemicals for in-depth research and evaluation that result in drinking water guidance and information about exposure.

## Chemical Nomination and Eligibility

Minnesota risk managers, stakeholders, and the public are encouraged to nominate contaminants for review. After chemicals are nominated, MDH program staff determine eligibility by examining the likelihood that the chemical will enter Minnesota waters and whether adequate guidance already exists.

## Screening and Risk Based Selection

Program staff conduct a screening of where and how a contaminant is used in the state, its potential to enter the water supply, and its potential to harm humans. The results from the screening are used to prioritize nominated chemicals.

Chemicals having higher exposure and harm potential are selected for in-depth review and development of guidance (a contaminant water concentration that is not harmful to people). Chemicals that rank lower remain candidates for future in-depth review. For some contaminants, however, the information is too limited. For chemicals that are not selected for in-depth review, the results of the screening assessment are summarized in a Screening Profile. The screening and prioritization process is repeated as additional chemicals are nominated and screened.

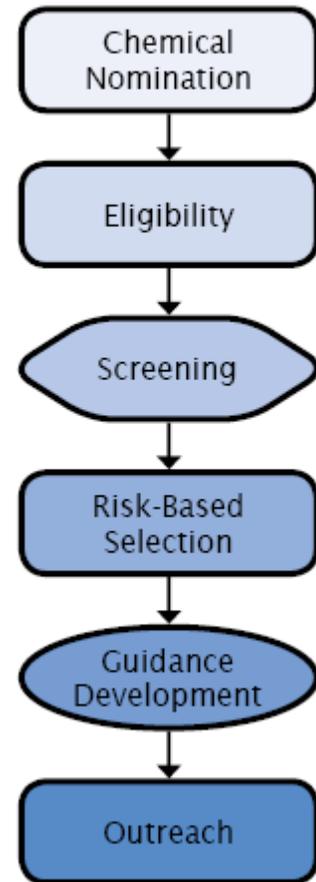
## Guidance Development

When a chemical is selected for a full review, program staff carefully review exposure and toxicological information to understand how humans may be exposed and what adverse health effects occur from exposure. Staff combine the results of in-depth analyses of toxicity and exposure to calculate a guidance, a level of contaminant in water that causes little to no harm to someone drinking the water.

## Outreach

CEC program staff work to communicate the results of the chemical review process. This includes making key findings publicly available on web pages and at a variety of meetings and events. An email subscription service (GovDelivery) is also used to alert the interested public (subscribers) of chemical review activities and guidance values.

## Chemical Review Process



Subscribe to the CEC Program GovDelivery service to receive notification when reviews are initiated for water contaminants and other announcements by visiting: <http://www.health.state.mn.us/cec>