

Bupropion Screening Profile

Bupropion is a contaminant that has been detected in Minnesota waters. 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 December 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 bupropion for a full review.

Bupropion Uses

Bupropion is a pharmaceutical used to treat depression and to help patients quit smoking. Bupropion is commonly known by the brand name Wellbutrin®.

Bupropion in the Environment

Bupropion enters the environment through human excretion and through the disposal of unused medications into toilets, sinks, and landfills.

One way to reduce bupropion in the environment is to dispose of unused medication properly. Follow the recommendations from the Minnesota Pollution Control Agency for disposing of unwanted medications.¹

Bupropion was detected in Minnesota wastewater at a maximum concentration of 1.1 parts per billion (ppb) in the metro area and as high as 4.3 ppb in southern Minnesota.² Bupropion was not detected in surface water upstream of these wastewater discharges, but was found at up to 0.7 ppb downstream of the wastewater discharges.²

Bupropion is not likely to build up in tissues of fish or other wildlife.³

Exposure to Bupropion

Bupropion has not been found in groundwater or treated drinking water in Minnesota, but it is possible for drinking water sources, especially surface water, to be contaminated.

Bupropion may be present in the breastmilk of women taking the medication.³ Nursing mothers should talk to their doctor about any medications they are taking while nursing.

Potential Health Effects

Although side effects of this drug at therapeutic doses are known, there is little information available about the health effects of bupropion at the lower levels found in the environment.

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

References

1. Minnesota Pollution Control Agency. Disposal of Household Hazardous Waste.
<http://www.pca.state.mn.us/index.php/living-green/living-green-citizen/household-hazardous-waste/disposing-of-unwanted-medications.html>
2. Lee K. et al. Endocrine Active Chemicals, Pharmaceuticals, and Other Chemicals of Concern in Surface Water, Wastewater-Treatment Plant Effluent, and Bed Sediment, and Biological Characteristics in Selected Streams, Minnesota 2009. U.S. Geological Survey Data Series 575.
<http://pubs.usgs.gov/ds/575/pdf/ds575.pdf>
3. National Library of Medicine Daily Med. Bupropion
<http://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=653cf774-2996-4bc2-b88f-8b4b0eb2e08c>

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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.

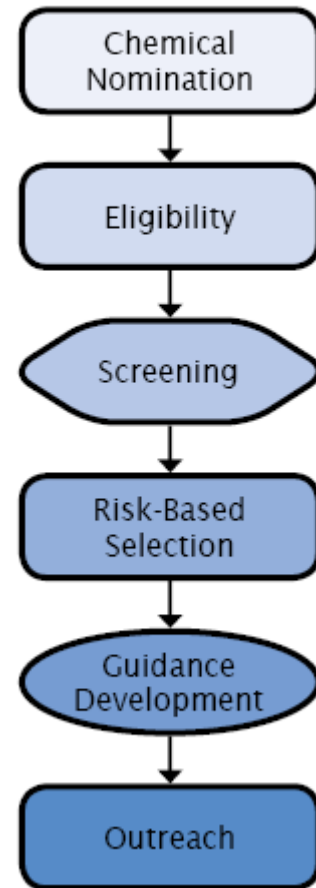
Guidance Development

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>