Minnesota Department of Health

CONTAMINANTS OF EMERGING CONCERN PROGRAM

HHCB Screening Profile

Hexahydro-hexamethyl cyclopentabenzopyran (HHCB) is a contaminant that has been found in 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 March 2014. 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 HHCB for a full review.

HHCB Uses

HHCB is a chemical fragrance used in laundry detergent, perfumes, soaps, lotions, shampoos, and other cosmetic and personal care products.

HHCB in the Environment

HHCB enters the environment through the use of products containing the chemical. At least 90% of the HHCB used is released into wastewater.[1] Once HHCB enters the environment, it is expected to stay there for a long time.

HHCB has been detected in Minnesota waters at maximum concentrations of:

- 0.64 parts per billion (ppb) in treated wastewater,[2]
- 0.18 ppb in surface water,[2] and
- in one well at a concentration of 0.1 ppb.[3]

HHCB builds up in the tissues of fish and other wildlife.[1]

Exposure to HHCB

Exposure to HHCB may occur through ingestion of contaminated food or water. For people who use products containing HHCB, exposure can occur through skin contact or inhalation while using these products.[1]

Exposure from the use of consumer products containing HHCB is likely higher than exposure through food or water. Exposures from the environment and consumer products are likely below a level that would be harmful.[1]

Potential Health Effects

In laboratory studies, animals exposed to high levels of HHCB showed changes in body weight and liver tissue.[1]

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

References

1. U.S. Environmental Protection Agency. DRAFT TSCA Workplan chemical Risk Assessment: HHCB 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta-gamma-2-benzopyran. 2012. (EPA notes not to cite or quote and information is subject to change.) http://www.epa.gov/oppt/existingchemicals/pubs/TSCA_Workplan_Chemical_Risk_Assessment_of_HHCB.pdf
2. Minnesota Pollution Control Agency (MPCA). Wastewater Treatment Plant Endocrine Disrupting Chemical Monitoring Study. 2011. http://www.pca.state.mn.us/index.php/view-document. html?gid=15610
3. MPCA. Endocrine Active Chemicals and Other Contaminants of Emerging Concern in Minnesota's Groundwater, 2009-2010. 2012. http://www.pca.state.mn.us/index.php/view-document.html?gid=17244

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CLEAN WATER LAND & LEGACY AMENDMENT

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.

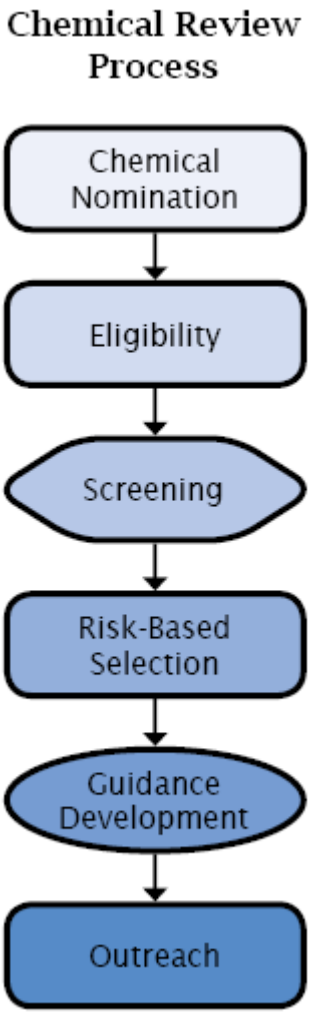
Chemicals having higher exposure and harm potential are selected for in-depth review and development of guidance (a contaminant water concentration that is not harmful to people). Chemicals that rank lower remain candidates for future in-depth review. For some contaminants, however, the information is 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.



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