Minnesota Department of Health

CONTAMINANTS OF EMERGING CONCERN PROGRAM

Decabromodiphenyl Ether Screening Profile

Decabromodiphenyl ether (decaBDE) 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 April 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 decaBDE for a full review.

DecaBDE Uses

DecaBDE is a chemical added to many household products to help reduce the spread of fire. Some of these products include adhesives, sealants, rubber, and plastic products, as well as electronics, clothing and fabrics, curtains, carpeting, and other materials in furnishings.

A recently enacted Minnesota statute prohibits the manufacture, sale, and use of decaBDE and three other flame-retardant chemicals in certain children's products and upholstered residential furniture.[1]

DecaBDE in the Environment

DecaBDE is not currently being monitored for in Minnesota waters.

DecaBDE may build up in tissues of fish and other wildlife.[2] DecaBDE is not considered highly toxic or persistent, but chemicals that are formed when decaBDE breaks down in sunlight are known to be more toxic, persistent, and can build up in tissues of animals.[2]

Exposure to DecaBDE

Animals are exposed to decaBDE in the environment. As a result, decaBDE is found in food, especially in fish, meat, and dairy products.[3] DecaBDE is not a food additive.

Exposure to decaBDE may occur through drinking contaminated water, eating contaminated food, and through contact with household dust. Children may have higher exposure to decaBDE from crawling on the floor or drinking contaminated breastmilk.

It is not well understood how decaBDE enters the environment. It is possible decaBDE enters the environment through the manufacturing and use of household products containing decaBDE.

Potential Health Effects

Animal studies show that decaBDE can disrupt brain development, thyroid hormone levels, and damage the liver and spleen.[4] There is some evidence that decaBDE could potentially cause cancer.[4]

A full review of decaBDE is possible; however, it is ranked lower than other nominated CEC chemicals at this time.

References

1. Minnesota Statute Chapter 62- S.F. No. 1215. 2015. Flame-Retardant Chemicals Prohibition. https://www.revisor.mn.gov/laws/?year=2015&type=0&doctype=Chapter&id=62
2. Minnesota Pollution Control Agency. 2008. Decabromodiphenyl Ether Report http://www.pca.state.mn.us/index.php/view-document.html?gid=3942
3. U.S. Environmental Protection Agency (EPA). 2008. Integrated Risk Information System. http://www.epa.gov/iris/subst/0035.htm
4. EPA. 2014. Polybrominated Diphenyl Ethers (PBDEs) Factsheet http://www2.epa.gov/sites/production/files/2014-03/documents/ffrrofactsheet_contaminant_perchlorate_january2014_final_0.pdf

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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.

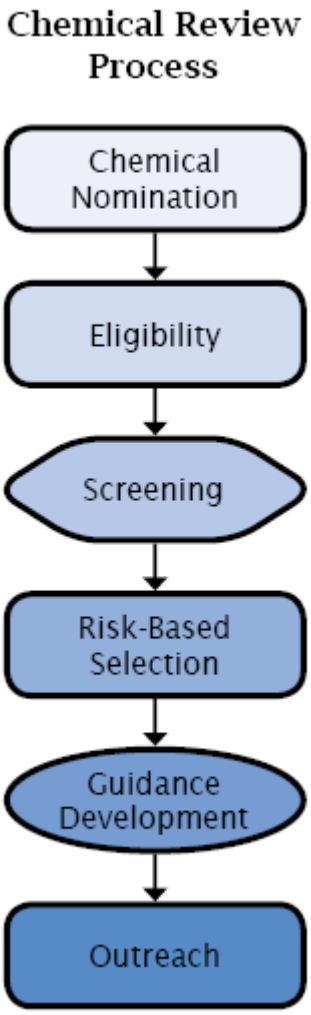
Chemicals having higher exposure and harm potential are selected for in-depth review and development of guidance (a contaminant water concentration that is not harmful to people). Chemicals that rank lower remain candidates for future in-depth review. For some contaminants, however, the information is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