Benzophenone Screening Profile

Benzophenone is a chemical that has been found once in drinking water 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 February 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 benzophenone for a full review.

Benzophenone Uses

Benzophenone is used as a preservative in many products. Some examples include:

- Personal care products such as perfumes, lotions, and soap
- Sunscreen
- Paints
- Insecticides
- Adhesives
- Food packaging, and as a food additive
- Plastics
- Pharmaceuticals

Benzophenone in the Environment

Benzophenone enters the environment through the manufacturing and use of these products. Benzophenone has been detected in Minnesota water, but detections are not common:

- Benzophenone has been detected once in drinking water at a maximum concentration of 0.064 parts per billion (ppb).\(^1\)
- Benzophenone has been detected twice in pre-treatment drinking water at a maximum concentration of 0.063 ppb. One of these detections was in groundwater, the other in surface water.\(^1\)
- Benzophenone has occasionally been detected in Minnesota surface water at a maximum concentration of 0.24 ppb.\(^1\,^2\)

Benzophenone is not expected to build up in tissues of fish or other wildlife.\(^5\)

Exposure to Benzophenone

Exposure to benzophenone may occur by drinking contaminated water or by using products made with or containing benzophenone.

Potential Health Effects

Exposure to benzophenone for an extended period of time has the potential to cause harm to the liver and kidneys.\(^3\) Benzophenone is listed by the International Agency for Research on Cancer as possibly carcinogenic to humans.\(^3\,^4\)

Based on the screening assessment, a full review of benzophenone may be possible. Benzophenone is ranked higher than other nominated CEC chemicals. We anticipate benzophenone will be selected for a full review in the future.

References

5. U.S. Environmental Protection Agency. PBT Profiler. www.pbtprofiler.net

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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](http://www.health.state.mn.us/cec)