

Diquat Dibromide Screening Profile

Diquat dibromide is a chemical that may be present in Minnesota waters. 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 2012. 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 diquat dibromide for a full review.

Diquat Dibromide Uses

Diquat dibromide is an herbicide and algaecide used on food crops, such as potatoes, in residential areas, such as lawns, and in lakes and ponds.¹

Diquat Dibromide in the Environment

Diquat dibromide may enter the environment through regular use. Once diquat dibromide enters the environment, it can remain in the soil for years.²

Diquat dibromide is not being monitored for in Minnesota waters at this time.³ The U.S. Environmental Protection Agency has established a maximum contaminant level (MCL) of 20 parts per billion (ppb) in drinking water.⁴

Diquat dibromide may be harmful to some aquatic life, but is not expected to build up in tissues of fish or other aquatic animals.⁵

Exposure to Diquat Dibromide

Exposure to diquat dibromide may occur through drinking contaminated water, by eating food that contains pesticide residues, or by swimming in waters where diquat dibromide was recently applied.

Potential Health Effects

Excess exposure to diquat dibromide for an extended period of time has the potential to cause vision problems.^{1,6} In laboratory studies, animals exposed to high levels of diquat dibromide experienced severe cataracts, kidney damage, and decreased body weight in their offspring.^{1,6}

MDH developed a Pesticide Rapid Assessment value of 1 part per billion (ppb) for diquat dibromide in

drinking water. A person drinking water at or below this level would have little or no risk of health effects. Based on the screening assessment, a full review of diquat dibromide is possible; however, it is ranked lower than other nominated CEC chemicals at this time.



References

1. U.S. Environmental Protection Agency (EPA). HED Risk Assessment 2002. http://www3.epa.gov/pesticides/chem_search/cleared_reviews/csr_PC-032201_25-Mar-02_039.pdf#_ga=1.35576424.891826679.1444671572
2. EPA Reregistration Eligibility Decision (RED) Diquat Dibromide. 1995. <https://archive.epa.gov/pesticides/reregistration/web/pdf/0288.pdf>
3. Minnesota Department of Agriculture. 2014 Water Quality Monitoring Report. 2015. <http://www.mda.state.mn.us/~media/Files/chemicals/maace/wqm2014rpt.pdf>
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6. EPA Integrated Risk Information System: Diquat. 1995 https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=153

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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.

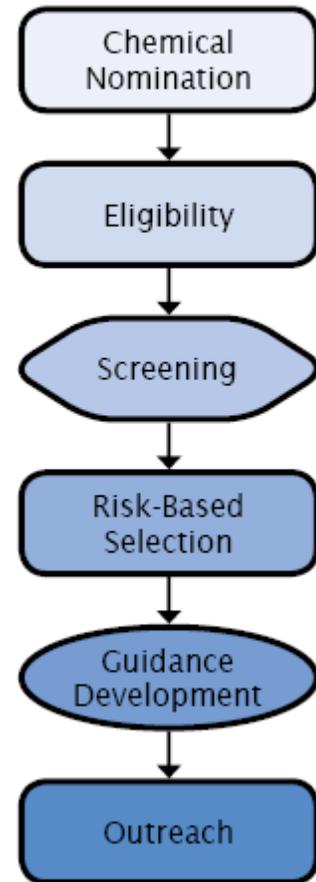
Guidance Development

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>