

Colloidal Silver Screening Profile

Colloidal silver 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 September 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 colloidal silver for a full review.

Colloidal Silver Uses

Colloidal silver is a homeopathic or alternative medicine that is used as an antibiotic and antifungal agent. Colloidal silver is a mixture of silver in water or another liquid, and is sold as a health supplement. Some uses include swallowing or inhaling the colloidal silver, but neither of these uses are approved by the FDA.¹

Colloidal Silver in the Environment

Colloidal silver is not currently being monitored for in Minnesota waters. Studies from outside Minnesota suggest that treated wastewater may have low levels of colloidal silver (up to a few parts per trillion).²

Aquatic life may be more sensitive to colloidal silver than humans.³

Exposure to Colloidal Silver

Exposure to colloidal silver may occur through the ingestion of contaminated foods or water.

Exposure can also occur by ingesting or coming into contact with products containing colloidal silver.

Potential Health Effects

Silver is not an essential element and there are no positive effects associated with ingesting colloidal silver.⁴

The most serious negative side effect of colloidal silver is argyria. Argyria causes the skin to turn a blue or grey color. This condition does not affect the function of the skin, but it is permanent.

Colloidal silver has been approved by the FDA to be added to wound dressings, but argyria has been associated with this use as well.⁴

Some studies have also shown possible harm to the liver or kidneys.⁴

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

References

1. U.S. Food and Drug Administration. Code of Federal Regulations. Revised April 2015.
<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfr/CFRSearch.cfm?fr=310.548>
2. Johnson AC, Jürgens MD, Lawlor AJ, Cisowska I, Williams RJ. Particulate and colloidal silver in sewage effluent and sludge discharged from British wastewater treatment plants. *Chemosphere*, 2014;112(49-55).
3. EPA. Ambient water quality criteria for silver. 1980.
<http://nepis.epa.gov/Exe/ZyPDF.cgi/2000M4AD.PDF?Dockey=2000M4AD.pdf>
4. U.S. Environmental Protection Agency. (EPA) Integrated Risk Information System
<http://www.epa.gov/iris/subst/0099.htm>

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November 2015



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.

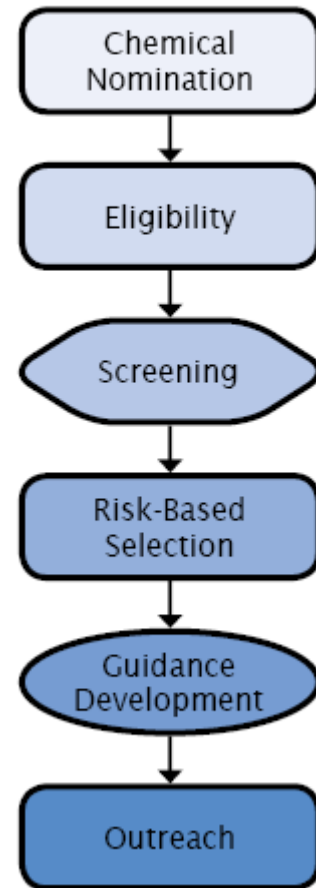
Guidance Development

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>